



**Verification and certification report form for
CDM programme of activities
(Version 03.0)**

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	30/07/2020	
Monitoring period number and duration of this monitoring period	Third Monitoring period From 01/01/2018 to 31/12/2018 (first and last days included)	
Number and version number of the monitoring report to which this report applies	Monitoring Report number 01, version 04	
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	01 - Energy Industries (renewable / non-renewable sources)	
Conditional sectoral scopes, 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	45,487 tCO ₂ e	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	21,227 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



Sanjay Patankar – CDM Quality Manager

SECTION A. Executive summary

Bureau Veritas India Pvt Ltd (hereafter referred to as BVI) has conducted the third 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 it is located in the United Republic of Tanzania. The PoA’s goal is to increase access to modern energy services in Tanzania by promoting both the off-grid (isolated mini-grid) and national grid connected renewable energy projects, within the country. The technologies promoted by the PoA 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. 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: 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: 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 either the national utility (TANESCO), or to a new isolated mini-grids or both, to serve new areas. The CPAs are required to comply with the requirements of methodology AMS-I.F version 02.
- c) CPA Category 3: comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity both to the main national grid and 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.

Monitoring activities for the PoA in this third monitoring period are reported in multiple monitoring reports. This verification and certification report covers activities as reported in the first monitoring report, monitoring report number 01, version 04

. The monitoring report covers the following five CPAs, included in the PoA, in their respective categories:

- a) Yovi Small Hydro Power Project, UNFCCC reference number 9904-P1-0004-CP1; a CPA in category 3
- b) Tulila hydroelectric plant, UNFCCC reference number 9904-P1-0005-CP1; a CPA in category 3
- c) Ngombeni biomass power plant project, UNFCCC reference number 9904-P1-0007-CP1; a CPA in category 2
- d) Ikondo micro hydro power plant, UNFCCC reference number 9904-P1-0008-CP1, a CPA in category 3
- e) Darakuta Mini Hydro Project, UNFCCC reference number 9904-P1-0009-CP1, a CPA in category 1

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. BVI’s verification 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 BVI's internal procedures. The first output of the verification process was a list of Clarification Request (CL), Corrective Actions Requests (CAR), and Forward Actions Requests (FAR), presented in Appendix 4.

In summary, BVI confirms that the PoA has been implemented as planned and described in the validated and registered PoA design document. The respective CPAs have been implemented in accordance with their latest approved versions of CPA design documents, with the exception of Darakuta Mini Hydro Project (CPA 9904-P1-0009-CP1), where the existing plant was not yet connected to the grid as planned. Installed equipment, for the CPAs mentioned above, being essential for generating emission reduction, runs reliably; except for Ngombeni biomass power plant project (CPA 9904-P1-0007-CP1) which was not operational in the monitoring period. The monitoring system is in place and the CPAs (with the exception of CPA 9904-P1-0007-CP1) are 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 **21,227 tCO₂e** for all the five CPAs.

Bureau Veritas India Pvt Ltd.'s opinion relates to the PoA's resulting GHG emission reductions for the monitoring report number 01, version 04
; comprising five CPAs as mentioned above; and related to the valid and registered baseline, approved monitoring plan and the associated documents for the CPAs.

CPA no.	Reporting period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Emission Reductions (tCO ₂ e)
9904-P1-0004-CP1	01/01/2018 – 31/12/2018	3,468	0	0	3,468
9904-P1-0005-CP1	01/01/2018 – 31/12/2018	16,985	0	0	16,985
9904-P1-0007-CP1	01/01/2018 – 31/12/2018	0	0	0	0
9904-P1-0008-CP1	01/01/2018 – 31/12/2018	67	0	0	67
9904-P1-0009-CP1	01/01/2018 – 31/12/2018	707	0	0	707
Total	01/01/2018 – 31/12/2018	21,227	0	0	21,227

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.	Human error in the quantification of emissions	Medium	<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 BVI will check information flow, retracing the reported information to source. BVI will also evaluate the CME's proposed QA/QC procedures.
2.	Reliance on a poorly designed information system	Medium	<p>Likelihood – may occur due to the use of excel spreadsheet without adequate controls</p> <p>Impact – over estimation of ERs claimed.</p>	BVI 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

In line with the CDM PoA-VVS version 02.0, BVI has verified the PoA, applying the concept of materiality. Consideration of materiality began by determining the materiality threshold to be applied. BVI used a threshold of 5% as provided for, in paragraph 308 (d) of the standard. BVI assessed the risks indicated in section C.1 above, and applied the materiality threshold of 10% for the CPA as follows:

Risk no 1: BVI performed on-site assessment between 07/09/2019 and 12/09/2019. Following the concept of materiality, the following CPA were included in the on-site assessment, since they contributed more than 5% of the total emission reductions for the POA: Yovi Small Hydro Power Project, Tulila hydroelectric plant. Additionally, Darakuta Mini Hydro Project was also included in the on-site assessment. During the onsite assessment, BVI was able to retrace the reported values to the plant logs. All sets of data were traceable to the plant logs and no errors was noted.

Risk no 2: BVI carried out an independent calculation of the ER claimed by the CPAs and confirms that the calculations has been done without material miss statement or omissions. No emission reductions are claimed for the single CPA that was not operational in the monitoring period (i.e. Ngombeni biomass power plant project CPA 9904-P1-0007-CP1).

SECTION D. Means of verification

D.1. Desk/document review

The assessment of the PoA documentation provided by the CME was based upon both quantitative and qualitative information on emission reductions. Quantitative information comprised the reported numbers in the monitoring report submitted to BVI. 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 02 dated 08/08/2019 (refer to doc 1 in Appendix 3) submitted by the project participant was web hosted on the UNFCCC-CDM web site on 13/08/2019 and thus, was available in the public domain. The report consisted of the following five CPAs: 9904-P1-0004-CP1, 9904-P1-0005-CP1, 9904-P1-0007-CP1, 9904-P1-0008-CP1 and 9904-P1-0009-CP1.

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

- (a) Previous set of verification and certification reports (refer to 3,4,and 5 in Appendix 3)
- (b) Previous set of Monitoring reports (refer to 6,7 and 8 in Appendix 3)
- (c) The registered PoA-DD (refer to 9 in Appendix 3)
- (d) the applied methodologies (refer to 10 and 11 in Appendix 3)
- (e) Specific case CPA-DDs and their corresponding validation reports (refer to 12, 13, 14,15, 16,17, 18, 19, 20, 21, 22 and 23 in Appendix 3)
- (f) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board; (PRC-9904-003, PRC-9904-002)
- (g) Emission reduction calculation spreadsheet version 01 and final version 02 dated 04/03/2019 (refer to 2 and 24 respectively in Appendix 3).
- (h) Any other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, data on electricity generation and calibration).
- (i) Other documents were reviewed onsite (including invoices, bill, plant logs, etc.).

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

D.2. On-site inspection

Duration of on-site inspection: 07/09/2019 to 12/09/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	a) Opening meeting - Team introduction - Confirmation of site visit plan and transport logistics - Interview on general PoA Implementation b) Assessment of data for Ikondo Micro-Hydro Power plant c) assessment of meter calibration for Ikondo Micro-Hydro Power plant	Arusha	07/09/2019	Samuel Onsongo
2.	a) Travel to Babati b) Interview the manager of Darakuta Hydropower Development Company Limited c) Tour of the Darakuta Hydropower power plant d) Assessment of data logging e) Assessment of data transmission and reporting f) assessment of meter calibration g) return to Arusha	Babati	08/09/2019	Samuel Onsongo
3.	Travel	N/A	09/09/2019	
4.	a) Interview the manager of Yovi Hydro Power Company Ltd b) Tour of the Yovi Hydro Power plant c) Assessment of data logging d) Assessment of data transmission and reporting e) assessment of meter calibration	Yovi	10/09/2019	Samuel Onsongo
5.	Travel	N/A	11/09/2019	
6.	a) Interview the manager of Tulila Hydro-electric Plant Company Limited b) Tour of the Tulila hydroelectric plant c) Assessment of data logging d) Assessment of data transmission and reporting e) assessment of meter calibration	Tulila	12/09/2019	Samuel Onsongo

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
3.	Mbwilo	Sayuni	REA	07/09/2019 and Various other Dates	- Interview on general PoA Implementation - Data collection and collation - QA/QC - Communication - Ikondo Micro-Hydro Power plant - Calibration of measuring equipment for Ikondo Micro-Hydro Power plant	Samuel Onsongo
3.	Bapsc	Florian	Darakuta Hydropower power plant (CPA implementer)	08/09/2019	- CPA implementation - Operation of the power plant abnormal Plant operation - Data logging - Calibration of measuring equipment	Samuel Onsongo
4.	Mtongole	Francis	Yovi Hydro Power Company Ltd. (CPA implementer)	10/09/2019	- Operation of the power plant - Technology - Data logging - Calibration of measuring equipment	Samuel Onsongo
5.	Mapunda	Sr. Jane	Tulila Hydro-Electric Plant Co. Ltd. (CPA Implementer)	12/09/2019	- CPA implementation - Normal and abnormal Plant operation - Data logging - Calibration of measuring equipment	Samuel Onsongo
4.	Varadharaj	Baraneedharan	The World Bank Group	Various dates	- Monitoring report - Temporary changes - ER calculations - CARs and CLs	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 verifications			
CPAs 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"> • 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 methodologies, standardized baselines, or other methodological regulatory documents¹ 			
<ul style="list-style-type: none"> • Changes to the programme design 			
<ul style="list-style-type: none"> • Addition of CPA inclusion template 			
<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 methodologies, standardized baselines or other methodological regulatory documents 			
<ul style="list-style-type: none"> • Corrections 			
<ul style="list-style-type: none"> • Changes to the start date-of the crediting period 			
<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 methodologies, standardized baselines, or other methodological regulatory documents 			
<ul style="list-style-type: none"> • Changes to the project design 			
<ul style="list-style-type: none"> • Changes specific to afforestation and reforestation activities 			
Compliance of the registered monitoring plan with applied methodologies and standardized baselines			
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	1	1	
Assessment of data and calculation of emission reductions or net removals			

¹ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

• Calculation of baseline GHG emissions or baseline net GHG removals by sinks		1	
• Calculation of project GHG emissions or actual net GHG removals by sinks			
• Calculation of leakage GHG emissions			
• Summary of calculation of GHG emission reductions or net GHG removals by sinks			
• Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA			
• Remarks on difference from estimated value in included CPA			
Assessment of reported sustainable development co-benefits			
Global stakeholder consultation			
Others (please specify)			
Total	1	2	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 02 dated 08/08/2019 and subsequent revisions of the report were reviewed against the current valid forms in the UNFCCC CDM website for compliance with instructions for filling in monitoring report forms contained in the forms.
Findings	Compliant
Conclusion	BVI hereby confirms that the final Monitoring report version 04, dated 27/05/2020 provided by the CME, complies with the latest form and the guidelines therein. <i>(PoA VVS version 02 paragraph 339)</i>

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

No FARs were raised at validation or during previous verification.

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)
Mapembasi Hydro Power Project, Njombe District 9904-P1-0001-CP1	No	08/05/2014	Version 08	N

NextGen Solar Project, Kigoma Region 9904-P1-0002-CP1	No	05/08/2014	Version 08	N
Mbinga Hydroelectric Project 9904-P1-0003-CP1	No	06/11/2015	Version 08	Y
Yovi Small Hydro Power Project 9904-P1-0004-CP1	Yes	06/11/2015	Version 08	Y
Tulila Hydro-electric Plant 9904-P1-0005-CP1	Yes	06/11/2015	Version 08	Y
Maguta Small Hydro Power Project 9904-P1-0006-CP1	No	07/07/2016	Version 08	N
Ngombeni Biomass Power Plant Project 9904-P1-0007-CP1	Yes	11/08/2016	Version 08	Y
Ikondo Micro Hydro Power Plant 9904-P1-0008-CP1	Yes	14/10/2016	Version 08	Y
Darakuta Mini Hydro Project 9904-P1-0009-CP1	Yes	12/12/2017	Version 08	Y
Mpanda Solar Photovoltaic Power Plant 9904-P1-0010-CP1	No	14/05/2019	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, BVI reviewed the registered PoA-DD version 08, the Monitoring Report. Interview with stakeholders:
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	<p>On various dates, between 07/09/2019 to 12/09/2019, BVI held interviews with the CME's and PP's representatives and the CPAs implementers for the five CPAs, to confirm the implementation structure, the management and operation plan; and reporting structure of the PoA.</p> <p>Onsite inspection</p> <p>BVI further conducted an onsite assessment from 07/09/2019 to 12/09/2019, to ascertain that all physical features (i.e. technology, project equipment, and monitoring and measuring equipment) for the CPAs (9904-P1-0004-CP1, 9904-P1-0005-CP1, 9904-P1-0007-CP1, 9904-P1-0008-CP1 and 9904-P1-0009-CP1) were in place and that the CPAs had been operated as per their respective CPA-DDs and revised approved CPA DDs for the case of CPA 9904-P1-0004-CP1 and CPA 9904-P1-0007-CP1</p>								
Findings	Compliant								
Conclusion	<p>BVI 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 31/12/2018, nine (9) CPAs had been included into the PoA in accordance with the established PoA management structure. CPAs have been included as follows:</p> <table border="1"> <thead> <tr> <th>Description of CPA Category</th><th>Implementation status</th></tr> </thead> <tbody> <tr> <td> CPA Category 1: 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 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: </td><td> Up to the end of the monitoring period only one category 1 CPA had been included i.e. Darakuta Mini Hydro Project, 9904-P1-0009-CP1. </td></tr> <tr> <td> 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: </td><td> Up to the end of the monitoring period the following two CPAs have been included under category 2: - NextGen Solar Project, Kigoma Region, 9904-P1-0002-CP1 - Ngombeni Biomass Power Plant Project, 9904-P1-0007-CP1 </td></tr> <tr> <td> 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: </td><td> Up to the end of the monitoring period the following 6 CPAs have been included under category 3: - Mapembasi Hydro Power Project, 9904-P1-0001-CP1 - Mbinga Hydroelectric Project, 9904-P1-0003-CP1 (<i>Initially included as category 2, is now a category 3 CPA after Post Registration Changes</i>) - Yovi Small Hydro Power Project, CPA 9904-0004 (<i>Initially included as category 2, is now a category 3 CPA after Post Registration Changes</i>) - Tulila Hydro-electric Plant, </td></tr> </tbody> </table>	Description of CPA Category	Implementation status	CPA Category 1: 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 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:	Up to the end of the monitoring period only one category 1 CPA had been included i.e. Darakuta Mini Hydro Project, 9904-P1-0009-CP1.	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:	Up to the end of the monitoring period the following two CPAs have been included under category 2: - NextGen Solar Project, Kigoma Region, 9904-P1-0002-CP1 - Ngombeni Biomass Power Plant Project, 9904-P1-0007-CP1	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:	Up to the end of the monitoring period the following 6 CPAs have been included under category 3: - Mapembasi Hydro Power Project, 9904-P1-0001-CP1 - Mbinga Hydroelectric Project, 9904-P1-0003-CP1 (<i>Initially included as category 2, is now a category 3 CPA after Post Registration Changes</i>) - Yovi Small Hydro Power Project, CPA 9904-0004 (<i>Initially included as category 2, is now a category 3 CPA after Post Registration Changes</i>) - Tulila Hydro-electric Plant,
Description of CPA Category	Implementation status								
CPA Category 1: 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 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:	Up to the end of the monitoring period only one category 1 CPA had been included i.e. Darakuta Mini Hydro Project, 9904-P1-0009-CP1.								
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:	Up to the end of the monitoring period the following two CPAs have been included under category 2: - NextGen Solar Project, Kigoma Region, 9904-P1-0002-CP1 - Ngombeni Biomass Power Plant Project, 9904-P1-0007-CP1								
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:	Up to the end of the monitoring period the following 6 CPAs have been included under category 3: - Mapembasi Hydro Power Project, 9904-P1-0001-CP1 - Mbinga Hydroelectric Project, 9904-P1-0003-CP1 (<i>Initially included as category 2, is now a category 3 CPA after Post Registration Changes</i>) - Yovi Small Hydro Power Project, CPA 9904-0004 (<i>Initially included as category 2, is now a category 3 CPA after Post Registration Changes</i>) - Tulila Hydro-electric Plant,								

	<div data-bbox="1021 150 1439 309"> 9904-P1-0005-CP1 - Maguta Small Hydro Power Project, 9904-P1-0006-CP1 - Ikondo Micro Hydro Power Plant, 9904-P1-0008-CP1 </div> <p>BVI hereby confirms that the CME has implemented the PoA as described in the registered PoA-DD.</p> <p><i>(PoA VVS version 02 paragraph 342)</i></p>
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E.2.2. Implementation and operation of the management system

Means of verification	<p>Document review: BVI reviewed documents including the registered PoA-DD version 08, validation reports for the PoA and the CPA-DDs (including the revised approved versions, where applicable) for the following five CPAs (9904-P1-0004-CP1, 9904-P1-0005-CP1, 9904-P1-0007-CP1, 9904-P1-0008-CP1 and 9904-P1-0009-CP1), together with their respective validation reports and previous verification reports.</p> <p>Onsite inspection and interview with stakeholders: From 07/09/2019 to 12/09/2019, BVI held interviews with the CME representative and CPAs implementers; to confirm the implementation structure, the management and operation plan; and reporting structure of the PoA.</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, until 31/12/2018 (the end of this monitoring period), nine (9) CPAs have been included into the PoA in accordance with the established Operational and management plan. During onsite assessment, it was confirmed that the operation structure is implemented; where REA is the CME and the implemented CPAs, each had 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 used for training, of CPA level CDM Operations.</p> <p>c) It was also confirmed through interviews with the CME, PP representatives and the CPAs implementers, that the meetings for the purpose of improving the management system had been conducted for the CPAs.</p> <p>BVI hereby confirms that the CME has implemented and operated the management system described in the registered PoA-DD.</p> <p><i>(PoA VVS version 02 paragraph 342)</i></p>

E.2.3. Post-registration changes

E.2.3.1. Corrections

There were no post registration changes for the PoA

E.2.3.2. Inclusion of a monitoring plan

There were no post registration changes for the PoA

E.2.3.3. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

There were no post registration changes for the PoA

E.2.3.4. Changes to the programme design

There were no post registration changes for the PoA

E.2.3.5. Addition of CPA inclusion template

There were no addition of CPA inclusion template

E.2.3.6. Change of coordination/managing entity

There was no change to the CME.

E.2.3.7. Changes specific to afforestation and reforestation activities

Not applicable.

E.3. Component project activities**E.3.1. Compliance of the CPA implementation with the included CPA design document**

Means of verification	Review of documents BVI reviewed the monitoring report, respective CPA DDs for the CPAs 9904-P1-0005-CP1, 9904-P1-0008-CP1 and 9904-P1-0009-CP1 (in the case of 9904-P1-0004-CP1, and 9904-P1-0007-CP1 the revised approved versions)												
	Onsite inspection From 07/09/2019 to 12/09/2019 BVI carried out onsite inspection and interviews with stakeholders (CME, PP representatives and CPAs Implementers) for the following three CPAs: CPA 9904-P1-0004-CP1 (Yovi), CPA 9904-P1-0005-CP1 (Tulila) and CPA 9904-P1-0009-CP1 (Darakuta); to ascertain that all physical features (technology, project equipment, and monitoring and measuring equipment) of the included CPAs were in place. The selection of the CPAs for site inspection was informed by the risks analysis and materiality threshold as described in section C of this report. BVI conducted onsite assessment for each of these CPAs on the following dates:												
	<table><tr><td>CPA number</td><td>Onsite assessment date</td><td>Location</td></tr><tr><td>9904-P1-0009-CP1</td><td>08/09/2019</td><td>Darakuta</td></tr><tr><td>9904-P1-0004-CP1</td><td>10/09/2019</td><td>Yovi</td></tr><tr><td>9904-P1-0005-CP1</td><td>12/09/2019</td><td>Tulila</td></tr></table>	CPA number	Onsite assessment date	Location	9904-P1-0009-CP1	08/09/2019	Darakuta	9904-P1-0004-CP1	10/09/2019	Yovi	9904-P1-0005-CP1	12/09/2019	Tulila
	CPA number	Onsite assessment date	Location										
	9904-P1-0009-CP1	08/09/2019	Darakuta										
9904-P1-0004-CP1	10/09/2019	Yovi											
9904-P1-0005-CP1	12/09/2019	Tulila											
Assessment of the other CPAs (i.e. CPA 9904-P1-0007-CP1 (Ngombeni) and CPA 9904-P1-0008-CP1 (Ikondo), was based on document review on site (but the plants were not visited) and interview with the CME (REA) representative.													
Findings	Compliant												
Conclusion	BVI hereby confirms that the CPAs included in the monitoring report have been implemented in accordance with their respective CPA DDs and where applicable the revised approved CPA-DD as follows: a) The implementation status of the CPAs is as follows:												
	<table><tr><td>CPA number</td><td>Implementation status</td></tr><tr><td>9904-P1-004-CP1</td><td>It was proposed that the CPA will be implemented in two phases. Phase 1 was to constitute installation of 1 MW hydro-power plant and Phase 2 to increase the capacity by 1.3 MW. Phase 1 has been implemented. The project was commissioned on 06/11/2015. Implementation of phase 2 is not yet started, the CPA implementer cited financial constrains as a cause. In the first monitoring period, the CPA underwent a post registration</td></tr></table>	CPA number	Implementation status	9904-P1-004-CP1	It was proposed that the CPA will be implemented in two phases. Phase 1 was to constitute installation of 1 MW hydro-power plant and Phase 2 to increase the capacity by 1.3 MW. Phase 1 has been implemented. The project was commissioned on 06/11/2015. Implementation of phase 2 is not yet started, the CPA implementer cited financial constrains as a cause. In the first monitoring period, the CPA underwent a post registration								
CPA number	Implementation status												
9904-P1-004-CP1	It was proposed that the CPA will be implemented in two phases. Phase 1 was to constitute installation of 1 MW hydro-power plant and Phase 2 to increase the capacity by 1.3 MW. Phase 1 has been implemented. The project was commissioned on 06/11/2015. Implementation of phase 2 is not yet started, the CPA implementer cited financial constrains as a cause. In the first monitoring period, the CPA underwent a post registration												

		change that was approved refer to PRC-9904-003.
	9904-P1-0005-CP1	It was proposed that the CPA be implemented in two phases. Phase 1 was to constitute installation 5 MW hydro-power plant and Phase 2 to increase the capacity by 2.5 MW. Phase 1 has been implemented as planned. The project was commissioned on 12/09/2015. Phase 2 had not been implemented within the monitoring period, however the implementer still had intention of implementing phase 2.
	9904-P1-0007-CP1	The CPA constitutes an installation of 2.5 MW biomass power plant. This has been implemented in full as planned. The project was commissioned on 27/01/2014. In the first monitoring period, the CPA underwent a post registration change that was approved refer PRC-9904-002. However during this verification, the CPA was not operational due to technical problems with the boiler. No emission reductions are claimed for the CPA in this verification period.
	9904-P1-0008-CP1	The CPA constitutes addition of capacity, by 350 kW, to an existing 80 kW hydro-power plant. This has been implemented in full as planned. The project was commissioned on 26/01/2016.
	9904-P1-0009-CP1	The CPA constitutes addition of capacity, of 1 MW, to an existing 75 kW hydro-power plant. Implementation was proposed to be in 2 phases (320 kW + 680 kW). In this verification cycle, Phase 1 has already been implemented. The project was commissioned on 19/04/2016. However, in the monitoring period 01/01/2018 – 31/12/2018, that the existing 75 kW plant had not yet been connected to the grid as planned. A temporary deviation has been requested by the CME and has been reviewed by BVI (refer to section E.3.2.1 of this report).
	b) The operation of the CPAs is in accordance with their respective registered CPA-DDs and revised approved CPA-DDs where applicable is as follows:	
	CPA number	Operation
	9904-P1-004-CP1	According to the revised approved CPA DD, the CPA is to supply electricity to the national grid and a mini-grid. During the period 01/01/2018 – 31/12/2018 the CPA supplied power to TANESCO grid only. No electricity was supplied to a mini-grid in the monitoring period since the mini-grid had not yet been constructed.
	9904-P1-0005-CP1	The CPA was designed to supply electricity to the national grid and a mini-grid. During the monitoring period 01/01/2018 – 31/12/2018 the CPA supplied all power to TANESCO mini-grid up to September 2018 and thereafter, to the TANESCO national grid after connecting to the nation grid in the same month.
	9904-P1-0007-CP1	The CPA was designed to supply electricity to a mini-grid. During the period 01/01/2018 – 31/12/2018 the CPA was not operational due to technical problems with the boiler. No emission reductions are claimed for the CPA in the monitoring period.
	9904-P1-0008-CP1	The CPA was designed to supply electricity to the national grid and a mini-grid. During the period 01/01/2018 – 31/12/2018 the CPA has supplied power to both the national grid (Operated by TANESCO) and a mini-grid operated by Matembwe Village Company Limited. During the monitoring period, the meters connecting to the mini-grid operated by Matembwe Village Company Limited were not calibrated; and it was not possible for the CPA implementer to have the meters calibrated in time for request for issuance. Due to this inability to get the meters calibrated in time, the CME proposed a temporary deviation to the

		monitoring plan. BVI has reviewed the deviation and provided its opinion in section E.3.2.1 below.
	9904-P1-0009-CP1	The CPA was designed to supply electricity to the national grid. During the period 01/01/2018 – 31/12/2018, the CPA has supplied electricity to the national grid. It was however noted that the existing 75 kW plant had not yet been connected to the grid as planned. A temporary deviation has been requested by the CME and assessed by BVI (refer to section E.3.2.1 of this report).
	<p>c) Information (data and variables) reported are lower than projected in the respective CPA-DDs for the CPAs indicated above. Appropriate emission factors (0.530 tCO₂e/MWh for electricity supplied to the grid and 0.8 tCO₂e/MWh for electricity supplied to mini-grids) have been used in accordance with the included CPA DDs and revised approved CPA-DD (for the case of CPA-9904-0004 and CPA-9904-0007).</p> <p>d) There is no increase in the actual GHG emission reductions achieved by the CPAs in the current monitoring period as compared to the ex-ante estimates.</p> <p>(PoA VVS version 02 paragraph 342)</p>	

E.3.2. Post-registration changes

E.3.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

In this monitoring period, the CME has proposed two temporary deviations from the registered monitoring plan for CPA 9904-P1-0009-CP1 (Darakuta) and CPA 9904-P1-0008-CP1 (Ikondo). BVI has validated the temporary deviations and issued a positive validation opinion. Refer to: CDM-CPA-PRCV-FORM-Darakuta Mini Hydro Project, version 01.0 and CDM-CPA-PRCV-FORM-Ikondo Micro Hydro Power Project, version 01.0

BVI submits the request for issuance together with the notification of the post-registration change.

E.3.2.2. Corrections

There were no related post registration changes in this monitoring period 01/01/2018 – 31/12/2018.

E.3.2.3. Changes to the start-date of the crediting period

There were no related post registration changes in this monitoring period 01/01/2018 – 31/12/2018.

E.3.2.4. Inclusion of a monitoring plan

Not applicable

E.3.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

There were no related post registration changes in this monitoring period 01/01/2018 – 31/12/2018.

E.3.2.6. Changes to the project design

There were no related post registration changes in this monitoring period 01/01/2018 – 31/12/2018.

E.3.2.7. Changes specific to afforestation and reforestation activities

Not applicable

E.3.3. Compliance of the registered monitoring plan with applied methodologies and standardized baselines

Means of verification	Document review BVI reviewed the CPA-DDs for 9904-P1-0005-CP1, 9904-P1-0008-CP1 and 9904-P1-0009-CP1 and revised approved CPA DDs for CPA 9904-P1-0004-CP1 and 9904-P1-0007-CP1, and the applied methodologies; to establish whether the monitoring plan, as reported in the monitoring report for each of the CPAs, is in line with the monitoring methodologies.
Findings	Compliant
Conclusion	BVI 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 respective CPA DDs and revised approved CPA DDs (where applicable). BVI confirms that the monitoring plan is in accordance with the approved methodologies AMS-I.D version 17 and AMS-I.F version 02. (PoA VVS version 02 paragraph 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, BVI crosschecked the values as reported in the monitoring report version 04 dated 27/05/2020 with values provided in the respective CPA DDs for 9904-P1-0005-CP1, 9904-P1-0008-CP1 and 9904-P1-0009-CP1 and revised approved CPA DDs for CPA 9904-P1-0004-CP1 and 9904-P1-0007-CP1. BVI also assessed the application of the values in calculation of emission reductions.
Findings	Compliant
Conclusion	<u>Category 1 CPAs and the portion of Category 3 CPAs that apply the monitoring requirements for Category 1</u> In the monitoring report, only one CPA reference number 9904-P1-0009-CP1 falls under Category 1 and the following Category 3 CPAs (9904-P1-0004-CP1, 9904-P1-0005-CP1 and CPA 9904-P1-0008-CP1) have applied monitoring requirements for Category 1 CPAs For Category 1 monitoring requirements, the following parameters are fixed ex ante: - EF_{CO₂,grid,y} (CO ₂ emission factor of the grid in year y). The value reported in the monitoring report version 04 dated 27/05/2020 and applied in ER calculations has been crosschecked with the value in the CPA-DDs and found to be correct. The value 0.530 tCO ₂ e/MWh is reported correctly. - EF_{CO₂,m,l,y} (CO ₂ emissions factor of fossil fuel type l used in power unit m in year y). The values reported in the monitoring report version 04 dated 27/05/2020 have been crosschecked with the values in the CPA-DDs 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 _{CO₂,grid,y}), is determined and fixed ex-ante for the first crediting period. The following values are reported correctly: Gas Oil/Diesel Oil – 0.0726 tCO ₂ /GJ and Natural Gas – 0.0543 tCO ₂ /GJ - I_{m,y} (CO ₂ emissions factor of power unit m considered in grid emission factor calculation in year). The values reported in the monitoring report version 04 dated 27/05/2020 have been crosschecked with the values in the CPA-DDs 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 _{CO₂,grid,y}). The following values are

reported:

Plants	Emission Factor $I_{m,y}$ (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 04 dated 27/05/2020 have been crosschecked with the values in the CPA-DDs 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_{CO₂,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%

- $EG_{m,y}$ (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 04 dated 27/05/2020 in accordance with CPA-DDs 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 "Grid emission factor".

- $EG_{k,y}$ (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 04 dated 27/05/2020 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 "Grid emission factor"

Category 2 CPAs and the portion of Category 3 CPAs that apply the monitoring requirements for Category 2

In the monitoring report, only one CPA reference number 9904-P1-0007-CP1 falls under Category 2 and the following Category 3 CPAs (9904-P1-0004-CP1, 9904-P1-0005-CP1 and 9904-P1-0008-CP1) have applied monitoring requirements for Category 2.

For Category 2 monitoring requirements, the following parameter is fixed ex ante:

- **EF_{CO₂,y}** (CO₂ emission factor for displacement of electricity in the mini-grid and/or the captive power plant). The value reported in the monitoring report version 04 dated 27/05/2020 is 0.8 tCO₂e/MWh and is in accordance with the CPA-DDs.

Category 3 CPAs

In the monitoring report, only three CPAs reference number: 9904-P1-0004-CP1, 9904-P1-0005-CP1 and 9904-P1-0008-CP1 were included under Category 3. For Category 3, all parameters included in category 1 and category 2 CPAs as indicated above are applicable.

In addition, the following parameters are fixed for 9904-P1-0008-CP1:

- **EG_{BL,existing,y,grid}** (Estimated net electrical energy that would have been produced and supplied to grid by the existing units). The value reported in the monitoring report version 04 dated 27/05/2020 and applied in ER calculations has been crosschecked with the value in the CPA-DD and found to be correct. The value 69 MWh is reported correctly.

- **EG_{BL,existing,y,MG}** (Estimated net electrical energy that would have been produced and supplied to a mini-grid by the existing units). The value reported in the monitoring report version 04 dated 27/05/2020 and applied in ER calculations has been crosschecked with the value in the CPA-DD and found to be correct. The value 175 MWh is reported correctly.

BVI confirms that the parameters fixed ex ante have been correctly reported and applied in emission reductions calculation

(PoA VVS version 02 paragraph 349 & 350)

E.3.4.2. Data and parameters monitored

Means of verification	<p>Category 1 CPAs:</p> <p>In the monitoring report, only one CPA 9904-P1-0009-CP1 falls in this category. The monitored parameters have been verified as follows:</p> <p>Parameter 1: $EG_{PJ,add,y,grid}$ – (Total net electrical energy supplied to a grid in year y by all units, existing and new project units)</p> <p>MoV: Verification involved onsite review of records (i.e. plant logs) and monthly energy reports for the monitoring period. BVI also crosschecked the data against the invoice to TANESCO for electricity supplied to the grid. The CPA produced electricity throughout the period. The table below shows the amount of electricity supplied to the national grid for the monitoring period:</p> <table border="1" data-bbox="437 1729 1070 1805"> <thead> <tr> <th>CPA</th><th>Amount of $EG_{PJ,add,y,grid}$</th></tr> </thead> <tbody> <tr> <td>9904-P1-0009-CP1</td><td>1,333 MWh</td></tr> </tbody> </table> <p>Parameter 2: $EG_{actual,y}/EG_{BL,existing,y,grid}$ – (Quantity of net electricity supplied to the national grid by the existing units in year y)</p> <p>MoV: Verification involved onsite review of records and interview with CPA implementer and CME. It was noted that the project had not been implemented as planned and therefore the parameter was not monitored. The CME has requested a temporary deviation from the monitoring plan and in its place proposed to apply the maximum possible electricity that can be generated from the existing plant, were it to</p>	CPA	Amount of $EG_{PJ,add,y,grid}$	9904-P1-0009-CP1	1,333 MWh
CPA	Amount of $EG_{PJ,add,y,grid}$				
9904-P1-0009-CP1	1,333 MWh				

operate in an ideal condition i.e. 100% efficiency and a PLF of 1. The following value is applied:

CPA	Maximum $EG_{BL,existing,y,grid}$ for existing 75 kW unit
9904-P1-0009-CP1	657 MWh

BVI confirms that this approach will lead to a conservative estimate of emission reductions (refer to section E.3.2.1 of this report).

Category 2 CPAs:

In the monitoring report, only one CPA 9904-P1-0007-CP1 falls in this category. The CME had indicated that the CPA was not operational during the entire monitoring period and no emission reductions were being claimed. BVI therefore, did not carry out any further verification of the parameters required for monitoring by the CPA. The parameter have been reported as 0, as in the following table:

Parameter	Description	Value
$EG_{BL,y}$	Quantity of net electricity displaced in year y	0
Biomass Consumption	Quantity of biomass consumed in year y	0
$MC_{Biomass}$	Moisture content of the biomass (wet basis)	0
$NCV_{Biomass}$	Net calorific value of biomass type k)	0

Category 3 CPAs:

Three CPAs (9904-P1-0004-CP1, 9904-P1-0005-CP1 and 9904-P1-0008-CP1) fall in this category. The monitored parameters have been verified as follows:

Parameter 1: $EG_{actual,y}/EG_{BL,y}$ (Quantity of net electricity supplied to the national grid in year y)

MoV: Verification involved review of monthly energy reports for the entire monitoring period for the three CPAs and onsite review of records (i.e. plant logs for 9904-P1-0004-CP1 and 9904-P1-0005-CP1). BVI also crosschecked the data against invoices to TANESCO for electricity supplied. During the monitoring period the CPA 9904-P1-0005-CP1 started to supply electricity to the national grid after it was connected in September 2018. Thus the amount of electricity supplied to the national grid is from 18/09/2018 to 31/12/2018. The table below shows the amount of electricity supplied to the national grid by each CPA:

CPA	Period	Electricity supplied to the grid (MWh/year)
9904-P1-0004-CP1	01/01/2018 - 31/12/2018	6,544
9904-P1-0005-CP1	18/09/2018 - 31/12/2018	4,336
9904-P1-0008-CP1	01/01/2018 - 31/12/2018	128

Parameter 2: $EG_{BL,y}$ (Quantity of net electricity supplied to the mini-grid in year y)

MoV: The same means of verification as indicated above (i.e. category 3 CPAs Parameter 1) were employed. During the monitoring period the CPA 9905-0004 did not supply electricity to a mini-grid since the planned mini-grid had not yet been constructed, thus the amount of electricity to a mini-grid for the CPA is reported as zero.

The table below shows the amount of electricity supplied to the mini-grids by each CPA for the monitoring period:

CPA	Quantity of net electricity displaced in TANESCO mini-grid ($EG_{BL,y}$) in MWh	Quantity of electricity supplied to the mini-grid operated by Matembwe Village Company ($EG_{BL,y}$) in MWh
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	9904-P1-0004-CP1	0	N/A
	9904-P1-0005-CP1	18,358	N/A
	9904-P1-0008-CP1	N/A	149*
	*The CPA implementer was unable to have the meters calibrated. The CME has opted not to claim any emission reductions for this portion of electricity. BVI considers this to be a conservative approach.		
Findings	Compliant		
Conclusion	<p>Corresponding to the paragraph 349 of PoA VVS version 02.0, BVI confirms that:</p> <ul style="list-style-type: none"> - Monitoring has been carried out in accordance with the monitoring plan contained in the respective CPA DDs and where applicable, the revised approved CPA-PDDs; with the exception of CPA 9904-P1-0009-CP1, for which an alternative has been proposed and a request for temporary deviation made. - Parameters required by the monitoring plan have been sufficiently monitored and correctly listed as indicated above; also, with the exception of CPA 9904-P1-0009-CP1, for which an alternative has been proposed and a request for temporary deviation made. The monitored data for required parameters have been verified by checking the whole information flow as indicated above. <p>In line with paragraph 350 of PoA VVS version 02.0, BVI confirms that all the parameters are listed and the corresponding means of verification indicated in this table in the first row above.</p>		

E.3.4.3. Implementation of sampling plan

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

E.3.5. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	Verification was done through review of documents (CPA DDs), including onsite review of calibration records (refer to 26, 27, 28, and 29 in Appendix 3), to determine whether the CME had ensured that calibration of the meters was done at the required frequency of once per year and any errors accounted for in ER calculations.																																	
Findings	One clarification request and one corrective action request was raised refer to CL 01 and CAR 02 in Appendix 4																																	
Conclusion	<p>BVI confirms that meter calibration had been completed for the following CPAs: 9904-P1-0004-CP1, 9904-P1-0005-CP1 and 9904-P1-0009-CP1. Calibration of the meters for the CPAs, was done by the Authorized entity (TANESCO). This was further confirmed through interviews with the CPAs implementers during onsite assessment and the calibration certificates provided onsite.</p> <p>For the CPA 9904-P1-0008-CP1, only the meter connecting to the national grid was calibrated. The meters connecting to the mini-grid operated by Matembwe Village Company Limited were not calibrated in the monitoring period; and it was not possible for the CPA implementer to have the meter calibrated in time, for request for issuance. Due to this inability to get the meters calibrated in time, the CME has opted not to claim any emission reductions that could have resulted from supplying electricity to the mini-grid by the CPA.</p> <p>The calibration for the monitoring equipment for the respective CPAs is as follows:</p> <table border="1"> <thead> <tr> <th>CPA</th><th>Main meter SN</th><th>Re-calibration date</th><th>Delayed?</th><th>Calibration results</th></tr> </thead> <tbody> <tr> <td>9904-P1-0004-CP1</td><td>208304008</td><td>24/02/2018</td><td>No</td><td>Within $\pm 2\%$</td></tr> <tr> <td>9904-P1-0005-CP1</td><td>211112553</td><td>28/02/2018</td><td>No</td><td>Within $\pm 2\%$</td></tr> <tr> <td>9904-P1-0007-CP1</td><td>211108280</td><td>N/A</td><td>N/A</td><td>N/A</td></tr> <tr> <td>9904-P1-0008-CP1</td><td>212556509</td><td>18/03/2018</td><td>No</td><td>Within $\pm 2\%$</td></tr> <tr> <td>9904-P1-0009-CP1</td><td>215281802</td><td>28/02/2018</td><td>No</td><td>Within $\pm 2\%$</td></tr> </tbody> </table> <p>(PoA VVS version 02 paragraph 357)</p>				CPA	Main meter SN	Re-calibration date	Delayed?	Calibration results	9904-P1-0004-CP1	208304008	24/02/2018	No	Within $\pm 2\%$	9904-P1-0005-CP1	211112553	28/02/2018	No	Within $\pm 2\%$	9904-P1-0007-CP1	211108280	N/A	N/A	N/A	9904-P1-0008-CP1	212556509	18/03/2018	No	Within $\pm 2\%$	9904-P1-0009-CP1	215281802	28/02/2018	No	Within $\pm 2\%$
CPA	Main meter SN	Re-calibration date	Delayed?	Calibration results																														
9904-P1-0004-CP1	208304008	24/02/2018	No	Within $\pm 2\%$																														
9904-P1-0005-CP1	211112553	28/02/2018	No	Within $\pm 2\%$																														
9904-P1-0007-CP1	211108280	N/A	N/A	N/A																														
9904-P1-0008-CP1	212556509	18/03/2018	No	Within $\pm 2\%$																														
9904-P1-0009-CP1	215281802	28/02/2018	No	Within $\pm 2\%$																														

E.3.6. Assessment of data and calculation of emission reductions or net removals

E.3.6.1. 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 CPA DDs, and where applicable the revised approved CPA-DDs, with 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	Once corrective action request was raised refer to CAR 01																								
Conclusion	<p><u>Category 1 CPAs:</u> In the monitoring period, only one CPA 9904-P1-0009-CP1 falls in this category. The baseline emission for the electricity displaced from the grid by the CPA is calculated as:</p> $BE_{add,CO2,y} = (EG_{PJ,add,y,grid} - EG_{BL,existing,y,grid}) \times EF_{CO2,grid,y}$ <p>Where</p> <p>$EG_{PJ,add,y,grid}$ Total net electrical energy supplied to a grid in year y by all units, existing and new project units</p> <p>$EG_{BL,existing,y,grid}$ Quantity of net electricity supplied to the national grid by the existing units in year y</p> <p>$EF_{CO2,grid,y}$ Grid emission factor in year y</p> <p>Following the formula above baseline emission is calculated as follows:</p> $BE_{add,CO2,y} = (1,990.96- 657.00) \text{ MWh} \times 0.530 \text{ tCO}_2/\text{MWh}$ $= 707 \text{ tCO}_2$ <p><u>Category 2 CPAs:</u> In the monitoring period, only one CPA (9904-P1-0007-CP1) falls in this category. However, the CPA was not operational, hence, the baseline emission were reported as zero (0)</p> <p><u>Category 3 CPAs:</u> In this monitoring period, three CPAs (9904-P1-0004-CP1, 9904-P1-0005-CP1 and 9904-P1-0008-CP1) fall in this category. Baseline emission is calculated as the sum of baseline emission for the component of electricity displaced from the national grid and the baseline emission for the component of electricity displaced from the mini-grid. Baseline emission for the two components is determined as follows:</p> <p><i>Grid component</i> Baseline Emissions = Net electricity supplied to the grid x grid emission factor</p> <p><i>Mini-grid component</i> Baseline emissions = Net electricity supplied to the mini-grid x a default emission factor for a mini-grid</p> <p>The table below shows the values determined using the above formulae</p> <table><tr><th>Description</th><th>9904-P1-0004-CP1</th><th>9904-P1-0005-CP1</th><th>9904-P1-0008-CP1</th></tr><tr><td>Net electricity supplied to the grid in MWh</td><td>6,544</td><td>4,336</td><td>128</td></tr><tr><td>Grid emission factor in tCO₂/MWh</td><td>0.530</td><td>0.530</td><td>0.530</td></tr><tr><td><i>Baseline emission (grid) in tCO₂</i></td><td>3,468</td><td>2,298</td><td>67</td></tr><tr><td>Net electricity supplied to the mini-grid in MWh</td><td>0</td><td>18,358</td><td>149</td></tr><tr><td>Emission factor for a mini-grid in</td><td>0.8</td><td>0.8</td><td>0.8</td></tr></table>	Description	9904-P1-0004-CP1	9904-P1-0005-CP1	9904-P1-0008-CP1	Net electricity supplied to the grid in MWh	6,544	4,336	128	Grid emission factor in tCO ₂ /MWh	0.530	0.530	0.530	<i>Baseline emission (grid) in tCO₂</i>	3,468	2,298	67	Net electricity supplied to the mini-grid in MWh	0	18,358	149	Emission factor for a mini-grid in	0.8	0.8	0.8
Description	9904-P1-0004-CP1	9904-P1-0005-CP1	9904-P1-0008-CP1																						
Net electricity supplied to the grid in MWh	6,544	4,336	128																						
Grid emission factor in tCO ₂ /MWh	0.530	0.530	0.530																						
<i>Baseline emission (grid) in tCO₂</i>	3,468	2,298	67																						
Net electricity supplied to the mini-grid in MWh	0	18,358	149																						
Emission factor for a mini-grid in	0.8	0.8	0.8																						

	tCO ₂ /MWh			
	Baseline emission (min-grid) in tCO₂	0	14,687	N/A refer to E.3.2.1 above
	Baseline emissions tCO₂	3,468	16,985	67
	<p>BVI hereby confirms that a complete set of verifiable data was available and the CME applied the appropriate methods and formulae for calculating baseline GHG emissions. The CME applied a conservative approach by rounding down the calculated values.</p> <p>(PoA VVS version 02 paragraph 360)</p>			

E.3.6.2. 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 CPA DDs and where applicable, revised approved CPA-DDs; with 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.</p> <p>Also, during site visit, assessment had been done to determine whether or not, there were any possible sources of project emissions</p>
Findings	Compliant
Conclusion	<p>The CPAs, as designed and operated do not have any project emissions. Project emissions in the respective CPA DD and revised approved CPA-DDs are reported as zero (0). During onsite assessment, BVI did not come across any indication that deviates from the conclusions in the validation report for the CPAs, that is, no project emissions were identified.</p> <p>BVI hereby confirms that the conclusion on project GHG emissions has been applied correctly.</p> <p>(PoA VVS version 02 paragraph 360)</p>

E.3.6.3. Calculation of leakage GHG emissions

Means of verification	<p>Document review:</p> <p>Verification was done by crosschecking information in the CPA DDs and where applicable, revised approved CPA-DDs, with 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.</p> <p>An onsite assessment had been done, to determine whether or not, there are any possible sources of leakage emissions</p>
Findings	Compliant
Conclusion	<p>The CPAs, as designed and operated do not have any leakage emissions. Leakage emissions in the respective CPA DD and revised approved CPA-DDs are reported as zero (0). During onsite assessment, BVI did not come across any indication that deviates from the conclusions in the validation report for the CPAs, that is, no leakage emissions were identified.</p> <p>BVI hereby confirms that the conclusion on leakage GHG emissions has been applied correctly.</p> <p>(PoA VVS version 02 paragraph 360)</p>

E.3.6.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	Verification was done by crosschecking information in the CPA DDs and where applicable, revised approved CPA-DDs, with 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	The emission reductions have been calculated as follows for each of CPAs as

	<p>Emission reduction = baseline emissions – project emissions – leakage</p> <p>A summary of the calculations is provided in the succeeding table below.</p> <p>BVI hereby confirms that :</p> <p>(a) All data for the CPAs 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 and last day, for the CPAs, in which CERs are being claimed has been correctly specified</p>
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Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or 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
Yovi Small Hydro Power Project 9904-P1-0004-CP1	3,468	0	0	N/A	3,468	3,468
Tulila hydroelectric plant 9904-P1-0005-CP1	16,985	0	0	N/A	16,985	16,985
Ngombeni biomass power plant project 9904-P1-0007-CP1	0	0	0	N/A	0	0
Ikondo micro hydro power plant 9904-P1-0008-CP1	67	0	0	N/A	67	67
Darakuta Mini Hydro Project 9904-P1-0009-CP1	707	0	0	N/A	707	707
Total	21,227	0	0	N/A	21,227	21,227

E.3.6.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	<p>Document review</p> <p>Comparison of emission reductions in the CPA DDs and where applicable, revised approved CPA-DDs, for the monitoring period, against the actual emission reductions realised and reported in the monitoring period.</p>
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Findings	Compliant
Conclusion	The combined estimated ex ante emission reductions for the monitoring period, for the CPAs according to the respective CPA-DDs and revised approved CPA DDs is 45,487 tCO ₂ e. The corresponding actual emission reduction in the monitoring period as reported in the monitoring report and verified by BVI is 21,227 tCO ₂ e. This represent 53 % less emission reductions than projected in the included CPA-DDs. None of the CPAs generated more emission reductions than projected in their respective CPA DDs. A comparison of the estimated emission reductions and actual emission reduction for each CPA is summarized in the succeeding table below.

Title and UNFCCC reference number of the CPA	Actual values achieved by the CPAs during this monitoring period	Value estimated in ex ante calculation in the included CPA-DD(s)
Yovi Small Hydro Power Project 9904-P1-0004-CP1	3,468	7,668
Tulila hydroelectric plant 9904-P1-0005-CP1	16,985	23,585
Ngombeni biomass power plant project 9904-P1-0007-CP1	0	12,019
Ikondo micro hydro power plant 9904-P1-0008-CP1	67	1,416
Darakuta Mini Hydro Project 9904-P1-0009-CP1	707	799
Total	21,227	45,487

E.3.6.6. Remarks on difference from estimated value in included CPA

Means of verification	Document review Review of the monitoring report and interview with CPAs Implementers.												
Findings													
Conclusion	<p>BVI considers the lowers emissions reductions realised by the CPAs would have been expected. The table below shows the causes for the reduced emission reduction compared to the estimates in the CPA-DDs:</p> <table border="1"> <thead> <tr> <th>CPA</th><th>Reason</th></tr> </thead> <tbody> <tr> <td>9904-P1-0004-CP1 (Yovi)</td><td>Yovi CPA was to be implemented in two phases. Phase 1 consisting of 1 MW is implemented, while phase 2 consisting of 1.3 MW has not been implemented.</td></tr> <tr> <td>9904-P1-0005-CP1 (Tulila)</td><td>Phase 2 consisting of an additional 2.5 MW has not been implemented.</td></tr> <tr> <td>9904-P1-0007-CP1 (Ngombeni)</td><td>In Ngombeni CPA, the CPA was not operational during the monitoring period. No emission reductions were realised.</td></tr> <tr> <td>9904-P1-0008-CP1 (Ikondo)</td><td>CME has not claimed emission reduction from electricity supplied to the mini-grid due to lack of calibration of necessary meters</td></tr> <tr> <td>9904-P1-0009-CP1 (Darakura)</td><td>For Darakuta CPA, the existing unit has not been connected to the grid hence a conservative estimate approach was used leading to lower emission reduction.</td></tr> </tbody> </table>	CPA	Reason	9904-P1-0004-CP1 (Yovi)	Yovi CPA was to be implemented in two phases. Phase 1 consisting of 1 MW is implemented, while phase 2 consisting of 1.3 MW has not been implemented.	9904-P1-0005-CP1 (Tulila)	Phase 2 consisting of an additional 2.5 MW has not been implemented.	9904-P1-0007-CP1 (Ngombeni)	In Ngombeni CPA, the CPA was not operational during the monitoring period. No emission reductions were realised.	9904-P1-0008-CP1 (Ikondo)	CME has not claimed emission reduction from electricity supplied to the mini-grid due to lack of calibration of necessary meters	9904-P1-0009-CP1 (Darakura)	For Darakuta CPA, the existing unit has not been connected to the grid hence a conservative estimate approach was used leading to lower emission reduction.
CPA	Reason												
9904-P1-0004-CP1 (Yovi)	Yovi CPA was to be implemented in two phases. Phase 1 consisting of 1 MW is implemented, while phase 2 consisting of 1.3 MW has not been implemented.												
9904-P1-0005-CP1 (Tulila)	Phase 2 consisting of an additional 2.5 MW has not been implemented.												
9904-P1-0007-CP1 (Ngombeni)	In Ngombeni CPA, the CPA was not operational during the monitoring period. No emission reductions were realised.												
9904-P1-0008-CP1 (Ikondo)	CME has not claimed emission reduction from electricity supplied to the mini-grid due to lack of calibration of necessary meters												
9904-P1-0009-CP1 (Darakura)	For Darakuta CPA, the existing unit has not been connected to the grid hence a conservative estimate approach was used leading to lower emission reduction.												

E.3.7. Assessment of reported sustainable development co-benefits

Means of verification	N/A
Findings	N/A

Conclusion	N/A
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E.3.8. Global stakeholder consultation

Means of verification	No comments were submitted to BVI for review
Findings	N/A
Conclusion	N/A

SECTION F. Internal quality control

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

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

Bureau Veritas India Pvt Ltd has conducted the third 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 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.

Monitoring activities for the PoA in this third period have been reported in batches. This verification and certification report covers activities as reported in the monitoring report number 01, version 04 dated 27/05/2020. The monitoring report covers the following five CPAs, included in the PoA, in their respective categories:

- a) Yovi Small Hydro Power Project, UNFCCC reference number 9904-P1-0004-CP1; a CPA in category 3
- b) Tulila hydroelectric plant, UNFCCC reference number 9904-P1-0005-CP1; a CPA in category 3

c) Ngombeni biomass power plant project, UNFCCC reference number 9904-P1-0007-CP1; a CPA in category 2

d) Ikondo micro hydro power plant, UNFCCC reference number 9904-P1-0008-CP1, a CPA in category 3

e) Darakuta Mini Hydro Project, UNFCCC reference number 9904-P1-0009-CP1, a CPA in category 1

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 CPAs' Monitoring Plan as indicated in the CPA DDs and revised approved CPA-DDs. 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 CPAs, all being the responsibility of the management of the programme.

Bureau Veritas India Pvt Ltd confirms that the programme is implemented as described in validated and registered PoA design document, the CPA DDs, and revised approved CPA-DDs where applicable. Installed equipment being essential for generating emission reductions run reliably, with the exception of Ngombeni biomass power plant project (9904-P1-0007-CP1) which was not operational in the monitoring period. The monitoring system is in place and the CPAs are generating GHG emission reductions. Post registration changes have been proposed as temporary deviations from the monitoring plan. Bureau Veritas India Pvt Ltd, has reviewed the changes and the CME's proposed alternatives; and considers them to be in line with CDM project standard for programmes of activities version 02.

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 **21,227 tCO₂e**. Our opinion here relates to the PoA's resulting GHG emission reductions for the five CPAs mentioned above (as reported in monitoring report number 01, version 04 dated 27/05/2020); and to the valid and registered baseline, registered monitoring plan and associated documents for the CPAs.

SECTION H. Certification statement

Bureau Veritas India Pvt Ltd has conducted the second 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's goal is to increase access to modern energy services in Tanzania by promoting both the off-grid (isolated mini-grid) and national grid connected renewable energy projects, within the country. The technologies promoted by the PoA 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. 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: 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: 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: comprises installation of one or more renewable energy technologies (hydro, wind, biomass or PV) not exceeding 15 MW, and supply the generated electricity both to the main national grid and 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.

Monitoring activities for the PoA in this third period have been reported in batches. This verification and certification report covers activities as reported in the monitoring report number 01, version 04 dated 27/05/2020. The monitoring report covers the following five CPAs, included in the PoA, in their respective categories:

- a) Yovi Small Hydro Power Project, UNFCCC reference number 9904-P1-0004-CP1; a CPA in category 3
- b) Tulila hydroelectric plant, UNFCCC reference number 9904-P1-0005-CP1; a CPA in category 3
- c) Ngombeni biomass power plant project, UNFCCC reference number 9904-P1-0007-CP1; a CPA in category 2
- d) Ikondo micro hydro power plant, UNFCCC reference number 9904-P1-0008-CP1, a CPA in category 3
- e) Darakuta Mini Hydro Project, UNFCCC reference number 9904-P1-0009-CP1, a CPA in category 1

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 CPAs' Monitoring Plan as indicated in the CPA DDs and revised approved CPA-DDs. 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 CPAs, all being the responsibility of the management of the programme.

Bureau Veritas India Pvt Ltd confirms that the programme is implemented as described in validated and registered PoA design document, the CPA DDs, and revised approved CPA-DDs where applicable. Installed equipment being essential for generating emission reductions run reliably, with the exception of Ngombeni biomass power plant project (9904-P1-0007-CP1) which was not operational in the monitoring period. The monitoring system is in place and the CPAs are generating GHG emission reductions.

Bureau Veritas India Pvt Ltd confirms that, in this PoA there was a post registration change to the CPA 9904-P1-0009-CP1 (Darakuta Mini Hydro Project) and CPA 9904-P1-0008-CP1 (Ikondo micro hydro power plant). The post registration changes have been proposed as temporary deviations from the monitoring plan. Bureau Veritas India Pvt Ltd, has reviewed the changes and the CME's proposed alternatives; and considers them to be in line with CDM project standard for programmes of activities version 02.

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 **21,227 tCO₂e**. Our opinion here relates to the PoA's resulting GHG emission reductions for the five CPAs mentioned above (as reported in monitoring report number 01, version 04 dated 27/05/2020); and to the valid and registered baseline, registered monitoring plan and associated documents for the CPAs.

CDM-PoA-VCR-FORM

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:

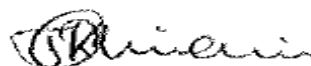
CPA no.	Reporting period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Emission Reductions (tCO ₂ e)
9904-P1-0004-CP1	01/01/2018 – 31/12/2018	3,468	0	0	3,468
9904-P1-0005-CP1	01/01/2018 – 31/12/2018	16,985	0	0	16,985
9904-P1-0007-CP1	01/01/2018 – 31/12/2018	0	0	0	0
9904-P1-0008-CP1	01/01/2018 – 31/12/2018	67	0	0	67
9904-P1-0009-CP1	01/01/2018 – 31/12/2018	707	0	0	707
Total	01/01/2018 – 31/12/2018	21,227	0	0	21,227



Mr. Samuel Onsongo

Team Leader

30/07/2020



Mr. James Chirchir

Internal Technical Reviewer

05/06/2020

Appendix 1. Abbreviations

Abbreviations	Full texts
BVI	Bureau Veritas India Pvt Ltd
CAR	Corrective Action Request
CDM	Clean Development Mechanism
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
PCP	CDM project cycle procedure for programmes of activities
PDD	Project design document
PP	Project Participant
PRC	Post-Registration Change
PS	CDM project standard for programmes of activities
REA	Rural Energy Agency
SSC	Small Scale
TANESCO	Tanzania Electric Supply Company Limited
UNFCCC	United Nations Framework Convention on Climate Change
VVS	CDM validation and verification standard for programmes of activities

Appendix 2. Competence of team members and technical reviewers

Mr. Samuel Onsongo	BVI	Team Leader He has a degree in Physics with over 10 years' experience in renewable energy and climate change out of which 7 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.
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Mr. James Chirchir	BVI	Technical Reviewer 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.
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Mr. Sanjay Patankar	BVI	Technical Specialist supporting Technical Reviewer 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. Working for the last 10 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.
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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	REA	Monitoring report version 02	08/08/2019	CME
2	REA	Emission reduction calculation spreadsheet version 01	20/2/2018	CME
3	BVI	Verification certification report-v2	07/06/2019	UNFCCC
4	BVI	Verification certification report-v2.2	22/11/2018	UNFCCC
5	BVI	Verification certification report-1.3	08/02/2019	UNFCCC
6	REA	Tanzania PoA - MR - 2nd VER	07/06/2019	UNFCCC
7	REA	Tanzania PoA MR - I 01Nov2018	01/11/2018	UNFCCC
8	REA	2_Monitoring report version 02	07/02/2019	UNFCCC
9	REA	Tanzania Renewable Energy Programme Version 08	23/04/2014	UNFCCC
10	EB 61	AMS I.D. Grid connected renewable electricity generation, Version 17	03/06/2011	UNFCCC
11	EB 61	AMS I.F. Renewable electricity generation for captive use and mini-grid, Version 02	03/06/2011	UNFCCC
12	REA	Yovi Small Hydro Power Project version 05	31/01/2018	UNFCCC
13	REA	CPA-DD: Tulila Hydro-electric Plant version 02	26/10/2015	UNFCCC
14	REA	CPA-DD: Ikondo Micro Hydro Power Plant version 05	08/09/2016	UNFCCC
15	REA	CPA-DD: Ngombeni Biomass Power Plant Project version 06	14/07/2018	UNFCCC
16	REA	CPA-DD: Darakuta Mini Hydro Project version 09	13/11/2017	UNFCCC
17	AENOR	Validation report-Tulila version 02	27/10/2015	UNFCCC
18	AENOR	Validation report – Yovi version 02	26/10/2015	UNFCCC
19	BVI	Yovi PRC- Assessment Opinion version 1.1	14/01/2019	UNFCCC
20	AENOR	Ngombeni Validation report version 02	10/08/2016	UNFCCC
21	BVI	PRC-Ngombeni validation report version 02	14/07/2018	UNFCCC
22	AENOR	Ikondo Validation report version 02	12/10/2016	UNFCCC
23	AENOR	Validation report – Darakuta version 05	13/12/2017	UNFCCC
24	REA	Emission reduction calculation spreadsheet version 02	13/06/2018	CME
25	REA	Monitoring report version 04	27/05/2020	CME
26	TANESCO	Calibration certificate (9904-P1-0004-CP1) - Yovi	24/02/2018	CME
27	TANESCO	Calibration certificate (9904-P1-0005-CP1) - Tulila	28/02/2018	CME
28	TANESCO	Calibration certificate (9904-P1-0008-CP1) - Ikondo	18/03/2018	CME
29	TANESCO	Calibration certificate (9904-P1-0009-CP1) - Darakuta	28/02/2018	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				
None				
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	01	Section no.	D	Date: 07/10/2019
Description of CL				
For CPA 9904-P1-0008-CP1: Ikondo Micro Hydro Power Plant, the calibration records for power meters installed at the distribution points of the mini-grid in Ikondo are missing. The CME is requested to provide the missing document.				
CME response				Date: 06/05/2020
The first calibration for the distribution meters was carried out on 12/01/2017. The validity of the first calibration ended on 11/01/2018. No calibration of these meters was done after the end of first calibration validity due to difficulties in arranging for calibration services by the CPA implementer. For conservativeness, the CER generation from the amount of electricity exported to the mini-grid is assumed to be zero. The CER generation from Ikondo CPA is 67 tCO ₂ and total CERs from all 5 CPAs is 21,227 tCO ₂ . The MR and ER sheet are revised accordingly.				
Documentation provided by the CME				
<ul style="list-style-type: none"> Monitoring report version 03 ER sheet version 03 				
DOE assessment				Date: 23/05/2020
This amounts to a deviation in the monitoring plan. However it is not reported as such in the relevant section of the monitoring report				
CME response				Date: 27/05/2020
This temporary deviation has been mentioned in the section C.3.1 of the document now.				
Documentation provided by the CME				
<ul style="list-style-type: none"> Monitoring report version 04 				
DOE assessment				Date: 28/05/2020
The corrective action has been reviewed and accepted. CL 01 is closed				

Table 3. CARs from this verification

CAR ID	01	Section no.	F	Date: 07/10/2019
Description of CAR				
For CPA8: Ikondo Micro Hydro Power Plant, the values of Net electricity supplied to the mini grid (MWh), for the months of April, July and September (refer to table 25) do not correspond with the aggregate values of the data summary sheets provided, for the said months.				
CME response				Date: 06/05/2020

The following corrective actions are taken in the ER sheet, version 03 dated 04/05/2020.

- As per the plant meter reading document, the initial and final meter readings of Mulunga village for the month of April 2018 are 9,912 and 14,040 respectively. The net electricity supplied to the Mulunga village for the month of April 2018 is 4,128 kWh (=14,040 – 9,912). However, the correct meter readings are 9,912 and 10,400 for the month of April 2018. The final meter reading value is erroneously mentioned as 14,040 instead of 10,400 in the plant meter reading document. Therefore, the project developer has corrected the meter reading document and the same is now provided (attachment 1).
- The plant meter reading document for the month of July has the initial and final meter readings of Kanikelele (Igoga) village as 22,090 and 24,881. Therefore, the net electricity supplied to the village for the month of July should be 2,791 kWh (=24,881 – 22,090). However, in the meter reading document, the net electricity supplied to the village is erroneously mentioned as 1,291 kWh instead of 2,791 kWh. Hence, the project developer has corrected the net electricity supplied value in the plant meter reading document and the same is now provided (attachment 2).
- The initial and final energy meter readings of Ukalawa village for the month of September 2018 in the plant meter reading document are 20,920 and 22,760 respectively. The net electricity supplied to the village is 1,840 kWh (=22,760 – 20,920). However, in the "Ikondo Power consumers excel database", the initial meter reading is erroneously mentioned as 20,987 instead of 20,920. Due to this, the net electricity supplied is wrongly estimated as 1,773 kWh (=22,760 – 20,987). Hence, the database has been corrected (attachment 3) as per the plant meter reading document and the ER sheet & MR (table 25) has been revised accordingly. The change in the value of net electricity supplied to the Ukalawa village has no significant impact on the net energy supplied to the mini grid for the month of September 2018 and in the total CERs as well.

Corresponding changes are made in the revised MR and ER sheet.

Documentation provided by the CME

- Monitoring report version 03
- ER sheet version 03
- Corrected meter reading document for the month of April 2018 (attachment 1)
- Corrected meter reading document for the month of July 2018 (attachment 2)
- Ikondo power consumers excel database – consolidated data 2018 (attachment 3)

DOE assessment

Date: 23/05/2020

The correction has been reviewed and accepted. CAR 01 is closed

CAR ID	02	Section no.	D	Date: 07/10/2019
Description of CAR				
<ul style="list-style-type: none"> The date on the calibration certificate for Darakuta Mini Hydro Power Plant meters is incorrect The serial number for the check meter as indicated in the calibration certificate for Yovi Mini Hydro Power Plant does not correspond to the serial number for the actual meter installed. 				
CME response				Date: 06/05/2020
<p>The calibration testing date in the calibration certificate for the energy meters installed at Darakuta Mini Hydro Power Plant is wrongly mentioned as 30/02/2018. The calibration testing date has been now corrected in the certificate by TANESCO as 28/02/2018 and the same is provided (attachment 4).</p> <p>The serial number of the check meter in the calibration certificate of Yovi Mini Hydro Power Plant is erroneously mentioned as 208202546. The correct serial number is 208302546. The calibration certificate, dated 24/02/2018, with the correct serial number of the check meter is now provided by TANESCO (attachment 5).</p>				
Documentation provided by the CME				
<ul style="list-style-type: none"> Calibration certificate of Darakuta CPA dated 28/02/2018 (attachment 4) Calibration certificate of Yovi CPA dated 24/02/2018 (attachment 5) 				
DOE assessment				Date: 23/05/2020
The correction has been reviewed and accepted. CAR 02 is closed				

Table 4. FARs from this verification

FAR ID	xx	Section No.		Date: DD/MM/YYYY
Description of FAR				
None				
CME response				Date: DD/MM/YYYY
Documentation provided by the CME				
DOE assessment				Date: DD/MM/YYYY

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN); • Make structural and editorial improvements.
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	5 June 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: programme of activities, verifying and certifying		