



**Validation report form for renewal of crediting period for
CDM project 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 project activity	Mwenga Hydro Power Project UNFCCC ID: 9550 8003025585 – 20/138
Number and duration of the next crediting period	CP-No.: 2 30/01/2020 – 29/01/2027 (incl. both days)
Version number of the validation report	1.0
Completion date of the validation report	27/01/2021
Version number of PDD to which this report applies	18.0
Project participants	Mwenga Hydro Limited (United Republic of Tanzania) Swedish Energy Agency (Sweden)
Host Party	United Republic of Tanzania
Applied methodologies and standardized baselines	Methodologies: AMS-I.F - Renewable electricity generation for captive use and mini-grid, version 3.0 AMS-I.D - Grid connected renewable electricity generation, version 18.0 Standardized baseline: Not applicable
Mandatory sectoral scopes	Scope: 1 Energy industries (renewable / non-renewable sources)
Conditional sectoral scopes, if applicable	-
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	10,695 tCO ₂ e
Name and UNFCCC reference number of the DOE	TÜV NORD CERT GmbH UNFCCC Ref. No.: E-0022
Name, position and signature of the approver of the validation report	Stefan Winter Final Approver

SECTION A. Executive summary

Mwenga Hydro Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out validation of the request for renewal of crediting period (RCP) for the project:

“Mwenga Hydro Power Project”

with regard to the relevant requirements for CDM project activities.

The small-scale greenfield project activity is a 3.486MW run-of-river hydro power plant supplying electricity to the local processing factories and the Tanzania national grid. Prior to the implementation of the project activity, the processing factories were supplied with electricity from the Tanzanian grid and the local communities used diesel and kerosene for their power needs.

The project was registered on 30/01/2013 under the UNFCCC registration No. 9550. The PPs chose a 7-year crediting period which is now due for renewal.

The objective of this RCP validation is the review by an independent entity whether the project is still compliant with the applicable sections of:

- the CDM project standard;
- the CDM cycle procedure;
- the applied small-scale baseline and monitoring methodologies: AMS-I.F version 3.0, and AMS-I.D version 18.0; and
- the methodological tool “Assessment of the validity of the original / current baseline and update of the baseline at the renewal of the crediting period”.

As per the requirements of the CDM Validation and Verification Standard¹ (section 10) the validation is based on

- the registered and/or latest updated version of the PDD (including revisions of the monitoring plan),
- the updated emission reduction calculation spread sheet,
- the updated grid emission factor calculation spread sheet,
- further supporting documents made available to the validator as well as
- information collected through performing interviews and during the on-site assessment.

Furthermore, publicly available information, such as the host country legislation, was considered as far as available and required.

Details of the project location are given in table A-1 below:

Table A-1: Project Location

No.	Project Location	
Host Country	United Republic of Tanzania	
Region:	Iringa	
Project location address:	P.O. Box 555, Mafinga, Iringa, Mufindi District	
Latitude:	Power House: 8°37'27.07" S	Weir & Silt Collection: 8°37'18.63" S
Longitude:	Power House: 35°41'22.82" E	Weir & Silt Collection: 35°41'30.54" E

Basic technical details of the project are summarized in table A-2.

Table – A-2: Technical data of the project activity

Parameter	Unit	Value
Turbine		
Quantity	set	1
Manufacturer		Serman Energy
Type		Francis (vertical axis)
Power (turbine axis)@ 100% flow	MW	3.612
Generator		
Quantity	set	1
Type	-	GSAF-V-Synchronous 3 Phases
Rated power output capacity	MW	3.486
Rated voltage (interlinked)	kV	6.6
Power factor	cos φ	0.9
Frequency	Hz	50
Operating Hours (average)	hours/year	8,520
Maximum Output	MWh/year	29,000
Design Flow	m ³ /s	7.0
Design Head	m	60.0
Load Factor	%	82.8
Net Generation (average)	MWh/year	24,000
Inefficiencies	%	11,7
Line losses	%	4.0
Headrace	m	70
Penstock	m	340
Manufacturer	-	Electroputere S.A.
Serial Number	-	118957

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

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)	Validation findings
1.	Team Leader / Technical Expert	EI	Lubanga	David	-	x	-	x	x

B.2. Technical reviewer and approver of the validation report for RCP

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	EI	Kochaniewicz	Grzegorz	-
2.	Approver	IR	Winter	Stefan	TN CERT GmbH

SECTION C. Means of validation**C.1. Desk/document review**

During the desk review all documents initially provided by the client and publicly available documents relevant for the validation were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan^{/PDD1/},
- the last revision of the validation report^{/VAL/},
- documentation of previous verifications^{/VER/}
- the grid emission factor calculation spreadsheet^{/ER/}.
- the emission reduction calculation spreadsheet^{/ER/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

C.2. On-site inspection

Duration of Audit:				
No.	Activity performed on-site	Site location	Date	Team member

The on-site inspection did not take place in line with §30 of the CDM Validation and Verification Standard for project activities (version 02.0) due to the following reasons:

- a) The estimated annual average of greenhouse gas (GHG) emission reductions or net anthropogenic GHG removals is less than 100,000 tCO₂e;
- b) There is no pre-project information that is relevant to the requirements for renewal of CP of the project activity and that may not be traceable after the registration, as explained below.
- c) Less than three years have elapsed since the last on-site inspection was conducted for verification for the project activity;
- d) Exemptions due to the COVID-19 global pandemic

During the desk review, the relevant documents, including the registered PDD^{/PDD/} and corresponding validation report and the monitoring and verification reports for the 1st, 2nd, 3rd, and 4th monitoring periods.

The validation team has carried out an interview by telephone^{/IM01/} in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria. During the interview, it was confirmed that no changes have occurred with regards to the project design or the monitoring plan since the last verification.

The project description in the PDD for the periodic verification was already verified from these documents as well as through the on-site visit for the previous verification, that took place on 16/05/2018.

Verification team can therefore confirm the project design, implementation, operation and monitoring plan as explained in the latest approved PDD have not been changed.

C.3. Interviews

N o.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Kottulinsky	Franz	Director/ Mwenga Hydro Ltd /IM01/	Diverse dates	<ul style="list-style-type: none"> • Implementation status, • Any changes • Grid data 	David Lubanga

C.4. Sampling approach**C.4.1 Sampling during validation**

<input checked="" type="checkbox"/>	No sampling approach has been used by the PP to determine the monitored parameters				
<input type="checkbox"/>	A sampling approach has been taken for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

¹⁾ Sampling Approaches:

- SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling

²⁾ Sampling Types:

- PS: Parameter Sampling

C.4.2 Sampling approaches during validation

<input checked="" type="checkbox"/>	No sampling approach has been used by the VT to verify the monitored parameters				
<input type="checkbox"/>	A sampling approach has been applied by the VT for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

¹⁾ Sampling Approaches:

- SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling

²⁾ Sampling Types:

- AS: Acceptance Sampling
 PS: Parameter Sampling
 COM: Full data check at higher data aggregation levels and sampling at original data levels

During the remote validation, no sampling approach has been used by the validation team since there is one site. The monitored parameters as listed in section B.7.1 of the revised PDD are verified against the applied methodology and initial registered PDD for correctness.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form (D.1)	0	5	0
Application and selection of methodologies and standardized baselines (D.2)	0	0	0
Validity of original baseline or its update (D.3)	1	2	0
Estimated emission reductions or net anthropogenic removals (D.4)	0	2	0
Validity of monitoring plan (D.5)	0	0	0
Crediting period (D.6)	0	0	0
Project participants (D.7)	0	0	0
Post-registration changes (D.8)	0	0	0
Others (please specify) (D.9)	0	1	0
Total	1	10	0

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	<p>A draft revised PDD was submitted to the validation team by the project participants.</p> <p>By means of the UNFCCC website it has been checked whether the latest applicable PDD template CDM-PDD-FORM has been used.</p> <p>Further, it has been checked whether the latest instructions for filling out the PDD template have been followed. Every section has been checked against the respective guidance.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /PDDT/ • /unfccc/ 	
Findings	<input checked="" type="checkbox"/>	The latest reporting template CDM-PDD-FORM as listed on the UNFCCC website has been used for the PDD.
	<input type="checkbox"/>	The latest instructions for filling out the PDD have been followed. No adverse finding has been identified in the course of this validation.
	<input checked="" type="checkbox"/>	<p>The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:</p> <p>CAR 01, CAR 06, CAR 07, CAR 08, CAR 09</p>
Conclusion	<input type="checkbox"/>	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
		<p>In line with the requirements of the project standard only the sections of the registered PDD relating to the applicability of methodology, baseline, estimated GHG emission reductions and the monitoring plan have been updated. All other sections have basically only been migrated to this version.</p> <p>It has further been checked whether the information included in the PDD sections and appendices that have not been part of the registered PDD are in line with the valid version of CDM-PDD-FORM template and in compliance with the project standard.</p> <p>The project participants used a later version of the PDD form for the updated PDD than the version of the PDD form of the registered PDD. The validation</p>

	team can confirm after relevant corrections, the information transferred to the later version of the PDD form is materially the same as that in the registered PDD.
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D.2. Application and selection of methodologies and standardized baselines

Means of validation	<p>By means of comparison of the PDD with</p> <ul style="list-style-type: none"> (i) the applied CDM methodology (ii) all applicable CDM Meth tools and (iii) if applicable, a standardized baseline <p>The validation team has checked whether the updated PDD is in compliance with the requirements of the applied methodology / tools.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /TL/ • /AMSIF//AMSID/ • /unfccc/ 				
Findings	<input checked="" type="checkbox"/>	The updated PDD is completely in accordance with the approved methodology applicable for the CDM project			
	<input checked="" type="checkbox"/>	The breakdown of PDD accordance of the referenced tools is as follows:			
		1.	Title (of the tool)	Tool to calculate the emission factor for an electricity system	
			Version	07.0	
			MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)	
		2.	Title (of the tool)	Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period	
			Version	03.0.1	
			MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A	
		<input checked="" type="checkbox"/>	3.	Title (of the tool)	Assessment of debundling for small-scale project activities
				Version	4.0
				MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A
		<input checked="" type="checkbox"/>	4.	Title (of the tool)	Demonstration of additionality of microscale project activities
				Version	9.0
MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A				
<input type="checkbox"/>	The breakdown of PDD accordance of the applicable SB is as follows:				
	1	Title (of the SB)	N/A		
		Version	-		
		MP compliance	-		
<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:				
	CAR 02				

Conclusion	<input type="checkbox"/>	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
		By means of checking the UNFCCC website it is confirmed that the selection of the applied methodology and methodological tools has been done correctly in line with the applicable requirements for the renewal of the project crediting period. All applicability conditions of the updated methodologies and tools are still met. Thus, the methodologies are deemed fully applicable for the new crediting period and no request for deviation with regards to the applicability of the methodology is required.

D.3. Validity of original baseline or its update

Means of validation	<p>In order to check the validity of the original baseline or its updates the validation team has applied the following stepwise approach:</p> <p><i>Step 1:</i> Check of Applicability of a Standardized Baseline</p> <p><i>Step 2:</i> Check of Baseline Scenario</p> <p><i>Step 3:</i> Compliance check of the baseline with relevant policies</p> <p><i>Step 4:</i> Assessment of impact of circumstances</p> <p><i>Step 5:</i> Assessment of likeliness of investments</p> <p><i>Step 6:</i> Validity check of ex-ante determined parameters.</p> <p>All necessary documentation has been either provided by the client or the validation team has acquired appropriate information required for assessment independently. For a detailed list of reviewed documentation please refer to appendix 3.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /AMSIF//AMSID/ • /ER/ • /TL/ • /unfccc/ • /dnaHC/ • /CLA/
Findings	<p><u><i>Step 1: Applicability of a Standardized Baseline:</i></u></p> <p>No standardized baseline is applicable to the project activity. This has been checked by an analysis of the current list of valid standardized baselines.</p> <p>The validity of the current baseline is assessed using the following Sub-steps:</p> <p><u>Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies</u></p> <p>The baseline scenario as defined by the applied methodologies has not been changed during the second crediting period and is in compliance with all the relevant mandatory national and / or sectoral policies. The validation team has checked the Tanzania Energy Policy Paper (2015)¹, and publications in the Ministry of Energy website² and the DNA, , there are no major policy changes for power generation using hydropower or renewable energy. It can be evidenced that the company is still following relevant mandatory national and / or sectoral policies and that they have not been changed from the time the PA was registered and implemented.</p> <p><u>Step 1.2: Assess the impact of circumstances</u></p> <p>The circumstances existing at the time of requesting renewal of crediting period are the same as existing at the initial validation stage of the PA. The estimated baseline emissions using hydropower to supply renewable electricity to the processing</p>

¹ <http://www.ewura.go.tz/wp-content/uploads/2016/08/National-Energy-Policy.pdf>

² <https://www.nishati.go.tz/renewable-energy-section/>

factories, the local villages and the Tanzania national grid that is currently dominated by fossil fuel power plants as per the applied methodologies.

According to observations from documents review online, the baseline scenario identified at the validation of the PA and defined by both methodologies is the continuation of the current practice without any investment. Therefore, this project is a voluntary undertaking.

The emission factor of the Tanzania national grid applied for the 1st crediting period was calculated ex-post annually, and is now updated to **0.4983 tCO₂/MWh** and now fixed for the renewed crediting period. This is due to the continued difficulty and length in getting the required dispatch data from the grid operator for the relevant monitoring periods.

It can be confirmed that electricity is still partly generated by fossil fuel power plants during the last years.

The validation team has independently checked whether there are changes in circumstances which have an impact on the baseline, such as searching the website of national government^{/dna/}, verifying the Power Purchase Agreement^{/PPA/} or any changes thereof, and interview with the PP.

No such changes have been identified and therefore, no revisions are necessary due to changes in circumstances.

At the time of requesting renewal of the crediting period, the conditions used to determine the baseline scenario in the previous crediting period are still valid.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested

This is a greenfield project, there is no baseline equipment which is to be exchanged. Furthermore, no other reasons for a possible investment – other than possible legal requirements – have been identified.

Thus, the validation team confirms the conclusion that no changes to the baseline are required due to the likeliness of investments in equipment, which impacts the baseline.

Step 1.4: Assessment of the validity of the data and parameters

The grid emission factor was determined annually during the previous crediting period Simple adjusted OM approach and applying the dispatch data for the monitoring period. With the renewing of the crediting period, the grid emission factor has to be updated by applying the most recent data released by Tanzania grid operator using the latest and valid version of the tool and the applied methodology.

As per paragraph 42 of the Tool07, for the simple OM, the simple adjusted OM and the average OM, the emissions factor can be calculated using either ex-ante or ex-post data vintages. Thus, the tool allows for either of the OM calculation approaches at validation stage without specifying the crediting period, and therefore a PRC is not mandatory at revalidation of the project. Due to difficulty and length of time it takes to get grid generation data from TANESCO at every monitoring period, the PP has opted to use the ex-ante option for both the OM and BM for CPII, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for revalidation.

The PP has also changed from Simple adjusted OM applied during the first crediting period (CPI) to Simple OM for CPII, since LCMR resources constitute less than 50% of total grid generation for the last 5 years. Since the tool does not require that the project should use the initially chosen approach for all the crediting periods, this change therefore does not constitute a PRC. The same was confirmed through the clarification (AM_CLA_0280)^{/CLA/} by the methodology panel.

The operating margin grid emission factor has been calculated and fixed ex-ante based on generation values from the most recent 3 years of 2017 to 2019.

For the second crediting period, the build margin emission factor has been updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. As per para

	<p>73 of the tool, Option 1 has been selected and followed by the PP.</p> <p>The version of the "Tool to calculate the emission factor for an electricity system" applied is version 07.0, which is deemed appropriate.</p> <p>The calculated combined margin emission factor is 0.4983 tCO₂e/MWh applicable for the second crediting period.</p> <p>The assessment team has reviewed the calculations against the data provided and requirements of the tool and can confirm that the emission factor applied is correct and conservative.</p>																
	<p>Step 2: Check of the update to the current baseline and the data and parameters</p> <p><i>Step 2.1: Check of the update to the current baseline</i></p> <p>As per the check in step 1 above, it is confirmed that the current baseline does not need to be re-assessed but the baseline values have been updated. The new baseline values are as follows: -</p>																
	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> <th>Applied value</th> <th>Means of validation</th> </tr> </thead> <tbody> <tr> <td>EF_{grid,OM,y}</td> <td>Operating Margin CO₂ emission factor in year y</td> <td>0.5081 tCO₂/MWh</td> <td rowspan="3">The value is calculated in accordance to the tool to calculate the emission factor for an electricity system version 07.0.</td> </tr> <tr> <td>EF_{grid,BM,y}</td> <td>Build Margin CO₂ emission factor in year y</td> <td>0.4950 tCO₂/MWh</td> </tr> <tr> <td>EF_{grid,CM,y}</td> <td>Combined Margin CO₂ emission factor in year y</td> <td>0.4983 tCO₂/MWh</td> </tr> </tbody> </table>			Parameter	Description	Applied value	Means of validation	EF _{grid,OM,y}	Operating Margin CO ₂ emission factor in year y	0.5081 tCO ₂ /MWh	The value is calculated in accordance to the tool to calculate the emission factor for an electricity system version 07.0.	EF _{grid,BM,y}	Build Margin CO ₂ emission factor in year y	0.4950 tCO ₂ /MWh	EF _{grid,CM,y}	Combined Margin CO ₂ emission factor in year y	0.4983 tCO ₂ /MWh
	Parameter	Description	Applied value	Means of validation													
	EF _{grid,OM,y}	Operating Margin CO ₂ emission factor in year y	0.5081 tCO ₂ /MWh	The value is calculated in accordance to the tool to calculate the emission factor for an electricity system version 07.0.													
EF _{grid,BM,y}	Build Margin CO ₂ emission factor in year y	0.4950 tCO ₂ /MWh															
EF _{grid,CM,y}	Combined Margin CO ₂ emission factor in year y	0.4983 tCO ₂ /MWh															
<p><i>Step 2.2: Check of the update to the data and parameters</i></p> <p>As per above</p>																	
<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:</td> </tr> <tr> <td></td> <td>CL 01, CAR 03, CAR 04</td> </tr> </table>			<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:		CL 01, CAR 03, CAR 04											
<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:																
	CL 01, CAR 03, CAR 04																
Conclusion	<table border="1"> <tr> <td><input type="checkbox"/></td> <td>No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.</td> </tr> </table>			<input type="checkbox"/>	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.										
	<input type="checkbox"/>	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.															
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.															
<p>The original baseline scenario of the project as per the registered PDD is still valid for the 2nd crediting period.</p> <p>The baseline grid emission factor EF_{grid,CM,y} has been correctly re-determined for the baseline emission calculation as per the latest Tool07 and methodology requirements esp. using correct weighing factors of 0.25 for OM and 0.75 for BM.</p>																	

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	<p>For validation of the estimated GHG emission reductions the client has provided the validation team with the following documentation:</p> <ul style="list-style-type: none"> - Updated PDD - ER spreadsheet <p>Further, the validation team has downloaded from the UNFCCC website the applicable version of the CDM methodology and all referenced methodological tools.</p> <p>The ER calculation has been duly checked. Further, it has been checked whether the results have been correctly transferred to the updated PDD for determination of ex-ante ER. The validation team has further checked the updated PDD against the latest versions of the applicable methodologies incl. the referenced methodological tools for consistency. Special focus was laid on any changes</p>
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	<p>against the previous crediting period.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /AMSIF//AMSID/ • /ER/ • /VER/ • /unfccc/
Findings	<input checked="" type="checkbox"/> The calculation of ERs is done as per the applied methodologies. The calculation in the Excel spreadsheet and the corresponding calculation tables in the PDD have been checked and no mistakes have been identified. The estimation of emission reductions for the 2 nd crediting period is deemed plausible and conservative.
	<input type="checkbox"/> The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:
Conclusion	<input checked="" type="checkbox"/> No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/> The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	<p>The calculation in the ER spreadsheet and the corresponding calculation tables in the updated PDD have been checked. After appropriate estimations of emission reductions for the 2nd crediting period are deemed plausible and conservative.</p>

D.5. Validity of monitoring plan

Means of validation	<p>The validation team has checked the monitoring plan of the updated PDD against the required changes due to the update of the baseline and other methodological changes. Further, changes due to editorial updates of the applicable templates have been checked.</p> <p>In detail all parameters, ex-ante values and applicable formulae have been checked to determine the required changes for the next crediting period.</p> <p>Besides, based on documents review and interviews with related personnel the validation team has assessed the feasibility of the required changes.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /AMS1F//AMSID/ • /VER/ • /unfccc/ 												
Findings	<div> <input checked="" type="checkbox"/> <table border="1"> <tr> <th>Parameter</th><th>Description</th><th>Applied value</th><th>Means of validation</th></tr> <tr> <td>EG_{BL,y,1}</td><td>Quantity of net electricity displaced in year y</td><td>2,910 MWh</td><td>The amount of electricity generated derived from the registered PDD</td></tr> <tr> <td>EG_{BL,y,2}</td><td>Quantity of net electricity generation</td><td>18,553 MWh</td><td>The amount of electricity generated derived from the</td></tr> </table> </div> <p>The monitoring plan in the PDD has been updated to comply with the latest applicable versions of the monitoring methodologies. The basic changes from the current crediting period can be summarized as follows:</p> <p>The data / parameter representation remains unchanged to be in accordance with the requirements of AMS-I.F version 3.0, and AMSI.D version 18.0;</p>	Parameter	Description	Applied value	Means of validation	EG _{BL,y,1}	Quantity of net electricity displaced in year y	2,910 MWh	The amount of electricity generated derived from the registered PDD	EG _{BL,y,2}	Quantity of net electricity generation	18,553 MWh	The amount of electricity generated derived from the
Parameter	Description	Applied value	Means of validation										
EG _{BL,y,1}	Quantity of net electricity displaced in year y	2,910 MWh	The amount of electricity generated derived from the registered PDD										
EG _{BL,y,2}	Quantity of net electricity generation	18,553 MWh	The amount of electricity generated derived from the										

		supplied by the project plant/unit to the grid in year y	registered PDD.
		<p>Additionally, the PP has decided to monitor the <i>Total electricity produced from the power plant</i> and the <i>Electricity delivered to the villages at the transformer for each village</i>, as part of QA/QC and for backup purposes.</p> <p>The validation team has duly assessed all the required changes due to the upgraded methodological requirements and the re-assessment of the baseline. The validation team has concluded that</p> <ul style="list-style-type: none"> - all necessary changes have been appropriately reflected in the updated PDD - the monitoring plan in the updated PDD is in compliance with the applied monitoring methodology, - the monitoring arrangements described in the updated PDD can be implemented and are feasible within the project design. 	
	<input checked="" type="checkbox"/>	<p>The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:</p> <p>CL 01, CAR 03, & CAR 04</p>	
Conclusion	<input type="checkbox"/>	<p>No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</p>	
	<input checked="" type="checkbox"/>	<p>The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</p> <p>The metering points are included in the PDD, and the procedure for calibration, accuracy and maintenance of monitoring equipment and the responsibilities are clearly mentioned in section B.7.3 of the updated PDD.</p> <p>The meters will be tested, calibrated and installed in accordance with the manufacturer specifications. However, for the installed ISKRA and EDM1-mK10E metres, no calibration is required as per manufacturer specifications.</p> <p>Data monitored for CDM purposes will be aggregated, summarized, calculated and recorded until two years after the end of the crediting period. Therefore, the monitoring plan can be implemented and all monitoring arrangements are feasible within the project design.</p> <p>After appropriate corrections, the monitoring of the parameters data, measurement, QA/QC procedures are considered appropriate and in compliance to the applied methodology.</p> <p>Based on TÜV NORD's local and sectoral knowledge, the measurement methods, recording procedures, meter maintenance and trouble-shooting procedures described in the monitoring plan can fully meet the requirements of the CDM methodology.</p>	

D.6. Crediting period

Means of validation	<p>The PA was registered on 30/01/2013 and the previous first renewable crediting period is from 30/01/2013 to 29/01/2020, both dates inclusive.</p> <p>As per paragraph 270 of the CDM project cycle procedure for project Activities, version 2.0, the new crediting period shall start on the day immediately after the expiration of the current crediting period regardless of the date when the crediting period is deemed renewed. Therefore, the 2nd crediting period starts on 30/01/2020 until 29/01/2027.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> • /PDD/ • /MR/ • /VVS/ • /unfccc/
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Findings	<input checked="" type="checkbox"/>	As the respective requirements are met, the project's 2 nd crediting period may start immediately after the expiration of the 1 st one, given that all other applicable criteria are met. It is further confirmed that the start date 30/01/2020 and the length of the crediting period (7 years) are in compliance with the project standard.
	<input type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:
Conclusion	<input checked="" type="checkbox"/>	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	As per EB meeting report of 100 meeting, "Notification of renewal intention from project participants is no longer required, and therefore there is no longer a penalty of "unclaimable period" of CERs for late notification". Thus, the 2 nd crediting period started after the first crediting period expired, that is. 30/01/2020. It is thus confirmed that the start date and the length of the 2 nd crediting period (7 years) are in compliance with the latest EB meeting report.	

D.7. Project participants

Means of validation	The validation team has checked the revised PDD and UNFCCC website esp. the latest version of the Modalities of Communication and host country approval to check whether the listed project participants have duly been authorized and if communication requirements are met. The following sources of information have been used in this context: <ul style="list-style-type: none"> • /PDD/ • /MoC/ • /unfccc/ • /LoA/ 	
Findings	<input checked="" type="checkbox"/>	The names of the project participants as listed in the revised PDD (sections A.4. and appendix 1) are consistent with those listed on the dedicated UNFCCC project website as well as in the last version of the modalities of communication.
	<input type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context:
Conclusion	<input checked="" type="checkbox"/>	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	It can be confirmed that the names of the participants are consistent with the names stated at the project page in UNFCCC, MoC annex 2, Host Country Approval.	

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring	N/A	-	-

plan, monitoring methodology or standardized baseline			
Corrections	N/A	-	-
Inclusion of a monitoring plan to a registered project activity	N/A	-	-
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	N/A	-	-
Changes to the project design of a registered project activity	N/A	-	-
Types of changes specific to afforestation and reforestation project activities	N/A	-	-

SECTION E. Internal quality control

Before the submission of the final VAL RCP report a technical review of the whole validation procedure was carried out. The technical reviewers are competent GHG auditors being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the validation team and thus not involved in the decision-making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may have been confirmed or revised. Furthermore, reporting improvements might have been achieved.

After the successful technical review an overall (esp. procedural) assessment of the complete validation has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the submission for requesting the renewal of crediting period is conducted

SECTION F. Validation opinion

Mwenga Hydro Limited has commissioned the TÜV NORD JI/CDM Certification Program to re-validate the project “**Mwenga Hydro Power Project**” for the purpose of renewal of the crediting period. The validation is based on the relevant UNFCCC requirements.

The review of the updated project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews have provided TÜV NORD JI/CDM Certification Program with sufficient evidence to validate the fulfilment of the stated criteria applicable for RCP.

In detail the conclusions can be summarized as follows:

The current baseline of the project is in line with the national and/or sectoral policies and circumstances at the time of requesting renewal of crediting period.

The monitoring plan is transparent and adequate and in line with the applicable monitoring methodologies (AMS-I.F version 3.0, and AMS-I.D version 18.0).

The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated annual emission reductions of **10,695 tCO₂e** are most likely to be achieved within the second renewable crediting period of 7 years.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the renewal of the crediting period.

Nairobi, 27/01/2021




David Lubanga
TÜV NORD JI/CDM Certification Program

Validation Team Leader

Appendix 1. Abbreviations

Abbreviations	Full texts
BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Certification Program // Crediting Period
DNA	Designated National Authority
DPI	Department of Planning and Investment
EB	CDM Executive Board
ER	Emission Reductions
ETS	Emission Trading Scheme
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MHL	Mwenga Hydro Limited
MOC	Modalities of Communication
PCP	CDM Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	CDM Project Standard
QC/QA	Quality control/Quality assurance
RCP	Renewal of Crediting Period
TANESCO	Tanzania Electric Supply Company Limited
UTTL	Unilever Tea Tanzania Ltd.
UNFCCC	United Nations Framework Convention on Climate Change
VT	Validation and Verification Team
VVS	CDM Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers



Statement of Competence
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program

Mr. David Lubanga

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2021-10-20
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2021-10-20


Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand
13.2	Manure

251 - Rev. 7, Date: 2018-10-19

251_S01-VA060-F20_2018-10-19_rev7.doc

S01-VA060-F20 rev3 / 2012-10-25



Statement of Competence
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program

Mr. Grzegorz Kochaniewicz

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2022-02-08
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2022-02-08

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy Demand
13.1	Solid waste and wastewater
14.1	Afforestation and Reforestation

173 - Rev. 9, Date: 2019-04-18

173_S01-VA060-F20_2019-04-18_rev9

S01-VA060-F20 rev3 / 2012-10-25

Appendix 3. Documents reviewed or referenced

No	Author	Reference	Title	References to the document	Provider
1.	UNFCCC	/AMS1D/	AMS-I.D: Grid connected renewable electricity generation, version 18.0	https://cdm.unfccc.int/methologies/SSCmethodologies/approved	Other
2.	UNFCCC	/AMS1F/	AMS-I.F: Renewable Electricity Generation for Captive use and Mini Grid, version 3.0	https://cdm.unfccc.int/methologies/SSCmethodologies/approved	Other
3.	UNFCCC	/GT/	Glossary "CDM terms" (version 10.0)	https://cdm.unfccc.int/filestore/e/x/t/extfile-20150226124447549-glos_CDM.pdf/glos_CDM.pdf?t=UmZ8bnFjODI3fDCW9A3vJwR03kQQh4sbLiYu	Other
4.	UNFCCC	/KPI/	Kyoto Protocol (1997)	http://unfccc.int/kyoto_protocol/items/2830.php	
5.	UNFCCC	/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)	http://cdm.unfccc.int/Reference/COPMOP/index.html	

No	Author	Reference	Title	References to the document	Provider
6.	UNFCCC	/PDDT/	Project Design Document Form (CDM-PDD-FORM) - Version 11.0	http://cdm.unfccc.int/Reference/PDDs_Forms/index.html#reg	Other
7.	UNFCCC	/PCP/	CDM project cycle procedure, version 02.0	http://cdm.unfccc.int/Reference/Standards/index.html	Other
8.	UNFCCC	/PS/	CDM project standard, version 02.0	http://cdm.unfccc.int/Reference/Standards/index.html	Other
9.	UNFCCC	/TL/	<p>Methodological Tool07: Tool to calculate the emission factor for an electricity system version 07.0</p> <p>Methodological Tool11: “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1</p> <p>Methodological Tool19: Demonstration of additionality of microscale project activities_v9.0</p> <p>Methodological Tool20: Assessment of debundling for small-scale project activities_v4.0</p>	http://cdm.unfccc.int/DNA/Reference/tools/index.html	Other
10.	UNFCCC	/VVS/	CDM Validation and Verification Standard, Version 02.0	http://cdm.unfccc.int/Reference/Standards/index.html	Other
11.	UNFCCC	/PDD/	<ul style="list-style-type: none"> - Registered Project Design Document for CDM project: “Mwenga Hydro Power Project” version 3.0, dated 28/01/2013 - Registered Project Design Document for CDM project: “Mwenga Hydro Power Project” version 14.0, dated 07/05/2019 - Revised Project Design Document for CDM project: “Mwenga Hydro Power Project” version 15.0, dated 13/10/2020 - Project Design Document for CDM project: “Mwenga Hydro Power Project” version 16.0, dated 19/10/2020 - Project Design Document for CDM project: “Mwenga Hydro Power Project” version 17.0, dated 	https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view	Other

No	Author	Reference	Title	References to the document	Provider
			22/10/2020 - Project Design Document for CDM project: "Mwenga Hydro Power Project" version 18.0, dated 24/11/2020		
12.	SGS	/VAL/	Validation Report for CDM project "Mwenga Hydro Power Project" version 3.0, dated 29/01/2013	https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view	Other
13.	TUV NORD	/PRC/	Post Registration Assessment Opinion for CDM project "Mwenga Hydro Power Project" version 04.0 dated 20/05/2015 Post Registration Assessment Opinion for CDM project submitted with this issuance request: "Mwenga Hydro Power Project" version 03.0 dated 13/05/2019	https://cdm.unfccc.int/PRC/Container/DB/prcp647230527/view	Other
14.	UNFCCC	/VER/	Monitoring Report and Verification report for MP1 to MPIV	https://cdm.unfccc.int/Projects/DB/SGS-UKL1359468904.98/view	Other
15.	IPCC	/IPCC/	<ul style="list-style-type: none"> IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000 Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual 	www.ipcc-nggip.iges.or.jp	Other
16.	DOE	/CPM/	TÜV NORD JI / CDM Certification Program Manual (incl. procedures and forms)		Other
17.	PP	/ER/	<ul style="list-style-type: none"> GEF and Emission reduction calculation spreadsheet version 1.0 dated 13/10/2020 GEF and Emission reduction calculation spreadsheet version 2.0 dated 19/10/2020 GEF and Emission reduction calculation spreadsheet version 3.0 dated 24/11/2020 		PP
18.	UNFCCC	/MoC/	Modalities of Communication, dated 18/10/2013 Modalities of Communication Annex 2 dated 07/02/2019, and valid from 11/02/2019	https://cdm.unfccc.int/Projects/DB/RWTUV1267024124.41/view	Other
19.	UNFCCC	/COVID/	Covid-19 pandemic decision	https://cdm.unfccc.int/newsroom/latestnews/releases/2	Other

No	Author	Reference	Title	References to the document	Provider
				020/01041_index.html	
20.	MHL/MTC	/PPA1/	PPA between Mwenga Hydro Limited and Mufindi Tea & Coffee Company Ltd, dated 23/04/2014		MHL
21.	MHL/UTL	/PPA2/	PPA between Mwenga Hydro Limited and Unilever Tea Tanzania Limited, dated 22/05/2015		MHL
22.	MHL/UTL	/PPA3/	PPA between Mwenga Hydro Limited and TANESCO, dated 19/01/2010		MHL
23.	TANESCO	/INTC/	Interconnection Certificate, dated 17/09/2012 from TANESCO		MHL
24.	ISRAEME CO	/IMS/	ISKRA Meter Description and Technical Specification (MT830/MT831). <i>"The meter is designed and manufactured in such a way that it does not need maintenance during the entire meter lifetime. Measuring stability assures that no recalibration is required."</i> (page 40)		ISKRA website & PP
25.	Wei Seng	/EMS/	Email response to PP from EDMi-mK10E manufacturer, dated 21/09/2018 indicating that the meters do not require calibration after installation		PP
26.	UNFCCC	/CLA/	(AM_CLA_0280) Clarifications on updating DATEBaselineRetrofit of ACM0002 and on changing the grid emission factor calculation approach from ex post to ex ante	https://cdm.unfccc.int/methologies/PAmethodologies/clarifications/69901	Other
27.	SEA	/sea/	Swedish Energy Agency	http://www.energimyndigheten.se/en/	SEA
28.	UNFCCC	/unfccc/	UNFCCC	http://cdm.unfccc.int	UNFCCC
29.	IPCC	/ipcc/	IPCC publications	www.ipcc-nggip.iges.or.jp	IPCC
30.	RVE	/rve/	Rift Valley Energy	http://www.riftvalleyenergy.com/projects/mwenga-hydro/	RVE
31.	CD4CDM	/cd4cdm/	Capacity Development for CDM	http://www.cd4cdm.org/sub-Saharan%20Africa/Tanzania/GridEmissionFactor_Tanzania.xls	CD4CDM
32.	MOE	/MoE/	Ministry of Energy	https://www.nishati.go.tz/en/	Other
33.	EWURA	/Ewura/	Energy and Water Utilities Regulatory Authority (EWURA)	https://www.ewura.go.tz/	Other
34.	DNA	/dnaHC/	DNA of Tanzania		Other

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

Table 3. CL from this validation

CL ID	01	Section no.	B.4	Date	16/10/2020
Description of CL					
PDD version 15.0, Section B.4:					
Step 1.1: The PP has not discussed any relevant mandatory national and/or sectoral policies which have come into effect after the submission of the project activity for validation of the first crediting period, if applicable, in line with TOOL11					
Project participant response (1st round)					Date
					19/10/2020
There are no any relevant mandatory national and/or sectoral policies which have come into effect after the submission of the project activity for validation of the first crediting period and have impact on current baseline of project activity. Thus, the current baseline scenario of project activity continues for second crediting period. The PDD is revised in line with TOOL 11.					
Documentation provided by project participant (1st round)					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B.4		New version No.: 16.0	
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:	
<input type="checkbox"/>	Other:				
DOE assessment (1st round)					Date
					21/10/2020
PDD version 16.0, Section B.4					
The PP shall include appropriate and credible references on how the same has been checked					
Project participant response (2nd round)					Date
					22/10/2020
The Section B.4 of PDD is revised to include the relevant Govt. Web sites related to electricity and found that there is no any mandatory national or sectoral policies which changes the baseline scenario and also current baseline is in compliance with all the relevant mandatory national and/or sectoral policies.					
Documentation provided by project participant (1st round)					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B.4		New version No.: 17.0	
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:	
<input type="checkbox"/>	Other:				
DOE assessment (2nd round)					Date
					26/10/2020
PDD version 17.0, Section B.4					
The revised PDD now includes the references to mandatory national and/or sectoral policies which could affect electricity generation and distribution in Tanzania, as per the defined baseline. It is concluded that there are no relevant mandatory national and/or sectoral policies which have come into effect after the submission of the project activity for validation of the first crediting period and have impact on current baseline					
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed			

Table 4. CAR from this validation

CAR ID	01	Section no.	A.1	Date	16/10/2020
Description of CAR					
PDD version 15.0, Section A.1:					
<ol style="list-style-type: none"> To be completed as per template guidelines The grid emission factor indicated has not been updated 					
Project participant response (1st round)					Date
					19/10/2020

1. Section A.1 of PDD is updated with Type of project activity as per point 4 of PDD completion guidance. Projects covers Type 1 – Renewable Energy Projects.
2. The grid emission factor is calculated as ex-ante combined margin emission factor as per TOOL 7 - Tool to calculate the emission factor for an electricity system. The steps and equations followed for calculation of grid emission factor are mentioned in revised PDD.

Documentation provided by project participant (1 st round)			
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): A.1	New version No.: 16.0
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/>	Other:		
DOE assessment (1 st round)			Date
PDD version 16.0, Section A.1			21/10/2020
<ol style="list-style-type: none"> 1. Section A.1 of the revised PDD now includes the project type 2. The grid emission factor and corresponding emission reductions have been updated accordingly 			
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CAR ID	02	Section no.	A.7	Date	16/10/2020
Description of CAR					
PDD version 15.0, Section A.7:					
The de-bundling has not been updated					
Project participant response (1 st round)					Date
					19/10/2020
The PDD is revised with the latest version of tool de-bundling - TOOL 20, Methodological tool "Assessment of de-bundling for small scale project activities" version 04.0					
Documentation provided by project participant (1 st round)					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): A.7	New version No.: 16.0		
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:		
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:		
<input type="checkbox"/>	Other:				
DOE assessment (1 st round)					Date
PDD version 16.0, Section A.7					21/10/2020
The tool has been correctly updated to the latest methodological TOOL20: Assessment of de-bundling for small-scale project activities					
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed			

CAR ID	03	Section no.	B.6.1	Date	16/10/2020
Description of CAR					
PDD version 15.0, Section B.6.1					
<ol style="list-style-type: none"> 1. Step 4: All options and equations in the calculation of the OM and BM are required to be included and discussed in line with the applied TOOL07 2. Step 5: All steps and the equation in the calculation of the BM shall be included and discussed in line with the applied TOOL07 					
Project participant response (1 st round)					Date
					19/10/2020
<ol style="list-style-type: none"> 1. Step 4 has been followed in line with TOOL 7 and applicable steps. Paragraphs, and equations followed for calculation of simple OM has been followed. 2. Step 5 has been followed in line with TOOL 7 and applicable steps. Paras, and equations followed for calculation of BM has been followed. 					
Documentation provided by project participant (1 st round)					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B.6.1	New version No.: 16.0		
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:		
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:		
<input type="checkbox"/>	Other:				

DOE assessment (1st round)		Date	21/10/2020
PDD version 15.0, Section B.6.1			
1. Sep 4: All steps, equations have been included and justified 2. Step 5: The PDD has been updated and now includes all the prescribed BM steps in line with the latest version of the TOOL07			
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CAR ID	04	Section no.	B.6.1	Date	16/10/2020	
Description of CAR						
PDD version 15.0, Section B.6.1: GEF Calculations						
1. GEF Step 4 tab: The reference equation is equation 5, not 3 (Cell J10)						
Project participant response (1st round)					Date	19/10/2020
GEF Step 4 - Cell J-10 is updated with correct number of formula as formula 5						
Documentation provided by project participant (1st round)						
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B.6.1		New version No.: 16.0		
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:		
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:		
<input type="checkbox"/>	Other:					
DOE assessment (1st round)					Date	21/10/2020
PDD version 16.0, Section B.6.1						
The correction has been done to equation 5 in line with the GEF tool						
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed				

CAR ID	05	Section no.	B.6.1	Date	14/10/2020	
Description of CAR						
PDD version 15.0, Section B.6.1						
The PE _y and LE _y shall be defined as per the latest versions of AMS-I.F and AMS-I.D						
Project participant response (1st round)					Date	19/10/2020
The PDD is revised with correct para of AMS I.F (Component 1) and AMS I.D (Component 2) for Project emissions and Leakage emissions.						
Documentation provided by project participant (1st round)						
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): B.6.1		New version No.: 16.0		
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:		
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:		
<input type="checkbox"/>	Other:					
DOE assessment (1st round)					Date	21/10/2020

PDD version 16.0, Section B.6.1

AMS-I.F

In line with AMS-I.F version 3.0, project emissions are considered as zero as this is a renewable energy hydropower project that does not result in a reservoir. With the backup diesel generator, the project emissions are considered to be negligible, and also discussed under component 2.

Therefore, PEy = 0 tCO₂e

Leakage is not considered as the project does not make use of biomass residues

Therefore, LEy = 0 tCO₂e

AMS-I.D

In line with AMS-I.D version 18.0, project emissions are considered as zero as this is a renewable energy hydropower project that does not result in a reservoir. With the backup diesel generator, the project emissions are considered to be negligible, but the same will be monitored.

Therefore, PEy = 0 tCO₂e

Leakage is not considered as the project does not make use of biomass residues;

Therefore, LEy = 0 tCO₂e

However, PP shall clarify why diesel consumption and PEy is monitored under component 2, while the same is declared negligible

Project participant response (1st round)		Date	22/10/2020
Since the emissions related to diesel consumption from the back up diesel generator are negligible, diesel consumption will not be considered for monitoring purposes. This information has been reflected in the revised version of the PDD. As per para 326 of VVS version 02.0, being a micro scale project, an omission, misstatement, or erroneous reporting of information is immaterial below 10% threshold. Thus, negligible project emissions from diesel consumption will not be accounted for emission reduction calculations.			
Documentation provided by project participant (1st round)			
<input checked="" type="checkbox"/> Changes in the PDD	Section(s): B.6.1	New version No.: 17.0	
<input type="checkbox"/> Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/> Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/> Other:			
DOE assessment (1st round)		Date	17/10/2020
PDD version 17.0, Section B.6.1			
Project emissions from diesel consumption are negligible and will therefore not be accounted for emission reduction calculations. The validation team could verify this information through the two onsite visits conducted in previous verifications.			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

CAR ID	06	Section no.	C.2	Date	14/10/2020	
Description of CAR						
PDD version 15.0, Section C.2: Shall be completed in line with the requirements of the template for this section						
Project participant response (1st round)					Date	19/10/2020
PDD is revised in line with PDD template for section C.2						
Documentation provided by project participant (1st round)						
<input checked="" type="checkbox"/> Changes in the PDD	Section(s): C.2		New version No.: 16.0			
<input type="checkbox"/> Changes in MR	Section(s):		New version No.:			
<input type="checkbox"/> Changes in XLS	Worksheet(s):		New version No.:			
<input type="checkbox"/> Other:						
DOE assessment (1st round)					Date	21/10/2020
PDD version 16.0, Section C.2:						
Section now completed in years and months						
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed				

CAR ID	07	Section no.	C.3.1	Date	16/10/2020
Description of CAR					
PDD version 15.0, Section C.3.1:					
Shall be completed in line with the requirements of the template for this section					
Project participant response (1st round)				Date	19/10/2020
PDD is revised in line with PDD template for section C.3.1					
Documentation provided by project participant (1st round)					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s):	C.3.1	New version No.:	16.0
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:	
<input type="checkbox"/>	Other:				
DOE assessment (1st round)				Date	21/10/2020
PDD version 16.0, Section C.3.1					
Section now completed in line with template guidelines showing the type crediting period and number.					
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed			

CAR ID	08	Section no.	C.3.2	Date	16/10/2020
Description of CAR					
PDD version 15.0, Section C.3.2:					
Shall be completed in line with the requirements of the template for this section					
Project participant response (1st round)				Date	19/10/2020
PDD is revised in line with PDD template for section C.3.2					
Documentation provided by project participant (1st round)					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s):	C.3.2	New version No.:	16.0
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:	
<input type="checkbox"/>	Other:				
DOE assessment (1st round)				Date	21/10/2020
PDD version 16.0, Section C.3.2					
Section now completed in line with template guidelines with date format DD/MM/YYYY					
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed			

CAR ID	09	Section no.	C.3.3	Date	16/10/2020
Description of CAR					
PDD version 15.0, Section C.3.3:					
Shall be completed in line with the requirements of the template for this section					
Project participant response (1st round)				Date	19/10/2020
PDD is revised in line with PDD template for section C.3.3					
Documentation provided by project participant (1st round)					
<input checked="" type="checkbox"/>	Changes in the PDD	Section(s):	C.3.3	New version No.:	16.0
<input type="checkbox"/>	Changes in MR	Section(s):		New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:	
<input type="checkbox"/>	Other:				
DOE assessment (1st round)				Date	21/10/2020
PDD version 16.0, Section C.3.1					
Section now completed in line with template guidelines					
Conclusion <i>Tick the appropriate checkbox</i>		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed			

CAR ID	10	Section no.	General	Date	13/11/2020
Description of CAR					

PDD version 17.0:

The following issues arising from the independent technical review shall be clarified and/or corrected

1. Section A.1: Missing Additional specific instructions for small-scale project activities.
2. Section A.3.: The monitoring equipment and their locations not described
3. Section A.3.: Fig. A.6 states that CO₂-emitting power plants not as per tool
4. Section B.1: Not all applied tools have been listed while others are repeated
5. Section B.2: Applicability conditions of applied tools are not discussed
6. Section B.6.1.: step 3: It is not clear if hourly data on generation and fuel consumption for all power plants are available = dispatch analysis.
7. Section B.6.1: step 4: The source of the Conversion factor (GEF Step 4, column G) was not provided (as per excel old PDD as a source = cannot be accepted)
8. Section B.6.1: step 4: Incorrect 2019 value for Tanzanian grid. The net generation of HYDRO for 2019 is listed (excel 2019, 18764)
9. Section B.6.1: step 5: it was not clearly stated if this is ex ante option in line with para. 72.
10. Section B.6.1: step 5: it was not clarified if any of the power units were registered as CDM
11. Section B.6.1: step 5: Clarify what means "many" is it 2 or 5? And if the TGP is younger or older than 10 years.
12. Section B.6.1: step 5: Clarify what is the SET sample.
13. Section B.6.1: Project Emissions: Incomplete assessment. This conclusion was done before the para 25 and 26 were evaluated. Also, in line with ACM0002 the paragraph 36 was not taken in to consideration.
14. Section B.6.2: Clarify if the information is public and include link if available.
15. B.7.1: *EGBL,y,1(2); unit and description* Not as per AMS-I-F, Clarify what standard for calibration is followed. Where the "Whenever" is coming from. Provide calibration specification of Iskrameter.

Project participant response (1st round)**Date**

24/11/2020

PDD version 18.0, Section All:

1. Section A.1 of PDD is revised. Information about Type I, micro scale project type, both components related to AMS I.F and AMS I.D are mentioned in section A.1 of PDD.
2. Section A.3 of PDD is revised. Note is added "Please refer section B.7.3 for monitoring equipment's (i.e Energy meters) locations.
3. For EF calculations, grid connected power plants are considered and CO₂ emission factor is calculated, hence Information of "TANESCO -Grid-connected CO₂- emitting power plant" is appropriate
4. For additionality no any tool is applied, however used Guidelines for Demonstrating Additionality of Microscale Project Activities" (version 4)
The below tools are added further now
Methodological TOOL03 "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion" Version 03.0
Methodological Tool "Tool to determine the remaining lifetime of equipment" Version 01
5. The applicability of emission factor tool is mentioned now. Methodology AMS I.D is mentioned now
6. Hourly data on generation and fuel consumption for all power plants are not available. As per tool, Simple OM is followed for project activity.
7. The source of Average net energy conversion efficiency (GEF Step 4, column G) is provided now. This data is provided by TANESCO. The reference of registered PDD is removed.
8. The values are corrected with correct linking of cells. Recently commissioned 2 power plants are considered for BM calculations
9. PDD is revised with mention of ex-ante option.
10. PDD is revised with mention of no any CDM registered project considered to identify set of five power plants
11. The TGP is excluded from set of sample and recently commissioned 5 power plants and generation more than 20% are considered as Set of sample.
12. Recently commissioned 5 power plants and generation more than 20% are considered as Set of sample
13. The para is revised with mention of para 24, 25 and 26. The para 36 is not applicable for project activity
14. The information is not public, hence no web link mentioned as source of data is TANESCO.
15. The unit and description of parameters as per AME I.F and AMS I.D component is revised All testing and calibration will be performed in accordance with manufacturer's specifications. Currently ISKRA make meters are used for project activity and as per manufacturers recommendation, no calibration is required.

Documentation provided by project participant (1st round)

<input checked="" type="checkbox"/>	Changes in the PDD	Section(s): Various	New version No.: 18.0
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:

<input type="checkbox"/> Other:			
DOE assessment (1st round)		Date	24/11/2020
PDD version 18.0: 1. Section A.1 has been revised to include the type of the project activity 2. Section A.3 now includes the measuring equipment and location of energy meters 3. The GEF is calculated based on CO2-emitting power plants in the grid and therefore correct 4. Repeated tools have been deleted. Relevant tools are TOOL07, TOOL11, and TOOL19 5. Applicability condition of TOOL07 has been included 6. Hourly data is not available. Hence, it is appropriate to use Simple OM in line with the tool 7. The source of Average net energy conversion efficiency has been provided and cross-checked for correct application 8. The value has been revised and now correctly linked 9. The ex-ante option selected is now clearly stated 10. Set of five power units does not include CDM projects 11. Set sample is correctly determined as per the TOOL07 12. Set sample is correctly determined as per the TOOL07 13. Relevant paragraphs have been mentioned. P _{Ey} = 0 tCO _{2e} 14. OK information is not publicly shared by the government and is only provided on direct request 15. The parameter is correctly described. Meters are factory calibrated and require no further calibration in line with manufacturer specifications			
Conclusion Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed	

Table 5. FAR from this validation

FAR ID	xx	Section no.	Date: DD/MM/YYYY
Description of FAR			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
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 project activities” (CDM-EB93-A05-STAN) and version 02.0 of the “CDM project cycle procedure for project activities” (CDM-EB93-A06-PROC); • Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Renewal of crediting period Keywords: crediting period, project activities, validation report		