




Validation report form for CDM project activities

(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for CDM project activities" at the end of this form.

VALIDATION REPORT

Title of the project activity	NURU Light - Cameroon
Version number of the validation report	04.7
Completion date of the validation report	08/07/2016
Version number of PDD to which this report applies	PDD Version 03.5 dated: 27/06/2016
Date when PDD was uploaded for global stakeholder consultation	29/03/2013
Project participant(s)	S2 Services Sarl Swedish Energy Agency
Host Party	Cameroon
Estimated annual average GHG emission reductions or net removals in the crediting period (tCO₂e)	38,668tCO ₂ e/annum
Sectoral scope(s) and selected methodology(ies)	01: Energy Industries (renewable/ non – renewable sources) AMS-III.AR./Version 05.0
Name of DOE	Lloyd's Register Quality Assurance (LRQA) Limited
Name, position and signature of the approver of the validation report	 Ketan Deshmukh CDM Quality Manager

SECTION A. Executive summary

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Lloyd's Register Quality Assurance Limited (LRQA) has been contracted by S2 Services Sarl, representing the project participants (PP), to undertake validation of the proposed project activity "NURU Light - Cameroon". The validation has been performed through a process of document review based on the project design document, Version 01.1¹ dated 26/03/2013 initially submitted for validation, interviews with the stakeholders, resolution of outstanding issues and issuance of the validation report.

Project activity intends to displace kerosene lamps with efficient Nuru lights thereby reducing the GHG emissions. In Cameroon, traditionally kerosene lamps are being used for household lighting purpose. The project participant has planned a distribution network to facilitate the use of efficient lighting in Cameroon. Nuru light is a portable light (Nuru Light) that can be charged mechanically using its designed pedal (Nuru POWERcycle). Project lamps distributed by the project activity will be charged by renewable energy systems i.e. mechanical systems and will therefore replace the kerosene lamps being used currently, which are GHG intensive. Therefore, the project activity will avoid significant GHG emission (primarily CO₂ emission) by installing an efficient lighting system.

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

The validation team has found through the validation process 05 CARs, and 06 CLs. The PP has taken action and submitted to LRQA revised PDD, ER spreadsheet and Letter of Approval (LoA). The validation team is of the opinion that the proposed project activity as described in the project design document Version 03.5 dated: 27/06/2016 meets all the relevant UNFCCC requirements for the CDM, as well as the host country's national requirements and if implemented as designed, is likely to achieve the emission reductions and contribute to the sustainable development of the host country. LRQA therefore requests the registration of "NURU Light - Cameroon" to the CDM Executive Board as a CDM project activity.

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 review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Jain	Ankush	LRQA India	✓			✓

¹ Version 01 was revised after initial completeness check performed before webhosting

2.	Team Leader ²	IR	Pattanaik	Archak	LRQA India	✓	✓	✓	✓
3.	Validator	IR	Deb	Arnab	LRQA India	✓			✓
4.	Host country expert	EI	Dongmo	Nicolas R	External Expert		✓	✓	

B.2. Technical reviewer and approver of the validation 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 and expert	EI	T	Ramesh	External Individual
2.	Approver	IR	Deshmukh	Ketan	LRQA Ltd.

SECTION C. Means of validation

C.1. Desk review

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The validation is performed primarily based on the desk review of the project design document (PDD) and the other supporting documentation.

The PDD Version 01.1 dated 26/03/2013 was initially reviewed. LRQA requested the PP to present supporting information and documents relating to the project design and such additional information and documents were also reviewed by LRQA. The outcome of the review of such additional supporting information and documents were the basis for site visit planning and further validation activities.

Through the process of the validation, the PDD and the supporting documents of the same were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by LRQA. The documents reviewed by LRQA are listed in Appendix 3.

² Archak Pattanaik was team leader for this project till 10/08/2014.

C.2. On-site inspection

Duration of on-site inspection: 13/05/2013 to 15/05/2013				
No.	Activity performed on-site	Site location	Date	Team member
1.	1. Introduction 2. Objectives of the assessment 3. Assessment Plan 4. Project Description 5. Project Boundary issues 6. Project Location 7. Baseline determination 8. Monitoring plan 9. Training 10. Record keeping 11. Data collection system 12. Survey procedure 13. Training 14. Stakeholder feedback	Douala, Cameroon	13/05/2013	Archak Pattanaik Nicolas R Dongmo
2.	1. Data collection system 2. Survey procedure 3. Unique identification 4. Stakeholder feedback	Missole, Cameroon	14/05/2013	Archak Pattanaik Nicolas R Dongmo
3.	1. Discussion on sampling plan & criteria 2. Sales & inventory management tool 3. System and procedures of record keeping at the office 4. Issues with local Stakeholders 5. Project contribution to sustainable development 6. Discussion on site visit findings 7. Closing meeting	Douala, Cameroon	15/05/2013	Archak Pattanaik Nicolas R Dongmo

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Herve	Azemtsa	S2 Services Sarl	13-15/05/2013	Project description	Archak Pattanaik Nicolas R Dongmo
2.	Edith	Laong Kinerta	S2 Services Sarl	13 and 15/05/2013	Project boundary	
3.	Joseph	Dlinga	S2 Services Sarl	13 and 15/05/2013	Project location	
4.	Theophile	Kenfack	S2 Services Sarl	13-15/05/2013	Baseline determination	
					Monitoring plan	
					Training	
					Record keeping	
					Survey details	
					Stakeholders consultation	
5.	Appolinasre	Mama	Entrepreneur	14/05/2013	Data collection system	Archak Pattanaik Nicolas R Dongmo
6.		Gocsngo	Household		Survey procedure	
7.	Juwel	Njohkike	Entrepreneur		Stakeholders consultation	
8.	Moise	Tlobou	Household		Sustainable development	
9.	Luc	Ekanindougssa	Entrepreneur			

C.4. Sampling approach

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Only pilot study was conducted at the time of site visit. LRQA has audited the systems of data capture and reporting for the pilot study. Sampling could not be applied as distribution has not started.

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

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Global stakeholder consultation	NIL	NIL	NIL
Approval	NIL	1	NIL
Authorization	NIL	NIL	NIL
Contribution to sustainable development	NIL	NIL	NIL
Modalities of communication	NIL	1	NIL
Project design document	NIL	1	NIL
Description of project activity	NIL	NIL	NIL
Application of selected baseline and monitoring methodology and selected standardized baseline			
- Applicability of methodology and standardized baseline	1	NIL	NIL
- Deviation from methodology	NIL	NIL	NIL
- Clarification on applicability of methodology, tool and/or standardized baseline	NIL	NIL	NIL
- Project boundary	1	NIL	NIL
- Establishment and description of baseline scenario	NIL	NIL	NIL
- Demonstration of additionality	1	NIL	NIL
- Emission reductions	1	1	NIL
- Monitoring plan	1	1	NIL
Duration and crediting period	1	NIL	NIL
Environmental impacts	NIL	NIL	NIL
Local stakeholder consultation	NIL	NIL	NIL
Others (please specify)	NA	NA	NA
Total	6	5	NIL

SECTION D. Validation findings

D.1. Global stakeholder consultation

Means of validation	LRQA has made the PDD publicly available for global stakeholders' consultation and comments were invited from 29/03/2013 to 27/04/2013 in accordance with section 4.3 of PCP, Version 09. There are no comments received during this period.
Findings	NA
Conclusion	LRQA confirms that process of global stakeholders' consultation has been correctly followed and there are no outstanding issues.

D.2. Approval

Means of validation	<p>The project participant has submitted the LoA Ref: No. 00280/MINEPDED/SG/PCN-MDP/SCN-MDP dated: 23/02/2015 from Ministry of Environment, Cameroon and LoA Ref: 2015-6749 dated: 29/09/2015 from Swedish Energy Agency, Sweden. It has been correctly issued by the DNAs of the Parties involved and was confirmed from the list of DNAs available at UNFCCC website at http://cdm.unfccc.int/DNA/index.html.</p> <p>The host party LoA confirms:</p> <ul style="list-style-type: none"> (a) Cameroon ratified the Kyoto Protocol on July 2003. (b) The participation is voluntary. (c) The proposed CDM project activity contributes to the sustainable development of the country? (d) The LoA indicates the precise title of the proposed project activity as indicated in the PDD. <p>The annex I Party LoA confirms:</p>
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	<p>(a) Sweden ratified the Kyoto Protocol on 31 May 2002.</p> <p>(b) The participation is voluntary.</p> <p>(c) The LoA indicates the precise title of the proposed project activity as indicated in the PDD.</p> <p>Both LoAs are unconditional with respect of above.</p> <p>For details please refer the Protocol in Appendix 5 of the report.</p>
Findings	CAR-01 was raised as LoA was not submitted earlier. It was closed after LoA was submitted.
Conclusion	LoA is issued by the correct organisation and confirms the written requirements in paragraph 44 of VVS.

D.3. Authorization

Means of validation	<p>LoA issued by Cameroonian DNA authorises 'S2 Services Sarl' as project participant.</p> <p>LoA issued by Swedish DNA authorises 'Swedish Energy Agency' as project participant.</p> <p>The PDD, in section A.4 and Annex I, correctly specify 'S2 Services Sarl' and 'Swedish Energy Agency' as project participants. Further, the contact information of the PPs is correctly provided in Annex I of the PDD. There are no entities other than those authorised as PP of the proposed CDM project activity is included in the PDD.</p> <p>For details please refer the Protocol in Appendix 5 of the report.</p>
Findings	NA
Conclusion	The project participants are authorised by the DNA of the Parties involved and relevant contact information is correctly provided.

D.4. Contribution to sustainable development

Means of validation	LoA from the host Party DNA, Ref: No. 00280/MINEPDED/SG/PCN-MDP/SCN-MDP dated: 23/02/2015, confirms the contribution of the proposed CDM project activity to its sustainable development.
Findings	None
Conclusion	LoA confirms the contribution of sustainable development.

D.5. Modalities of communication

Means of validation	Filled Modalities of Communication (MoC) form has been submitted by S2 Services Sarl, PP to LRQA.			
	LRQA has validated the corporate identity of project participants based on the review of Certificate of incorporation and websites.			
	Further, the personal identities of authorised signatories, Durando Ndongsok and Ola Hansen, were confirmed as below			
	Name	Personal identity	Specimen signature	Employment status
	Durando Ndongsok	Passport	Passport	Power of attorney
	Ola Hansen	Passport	Passport	Power of attorney
	LRQA further confirms that:			
	(a) The valid version of the form “Modalities of Communication statement” (F-CDM-MOC) has been used;			
	(b) The information required as per the F-CDM-MOC, including its annex 1, is correctly completed;			
	(c) The project participants’ authorized signatories signing the F-CDM-MOC correspond to the project participants’ authorized signatories included in F-CDM-MOC, annex 1.			
	For details of validation of MoC please refer the Protocol in Appendix 5 of the			

	report.
Findings	CAR-02 was raised MoC was not submitted. It was later closed after MoC was submitted.
Conclusion	LRQA confirms that it has performed the due diligence on the MoC statement in accordance with the requirements of VVS. LRQA further confirms that MoC statement complies with all relevant forms and requirements.

D.6. Project design document

Means of validation	The PDD Version 03.5 dated: 27/06/2016 was prepared using the latest version of the PDD form and correctly filled following the instruction therein.
Findings	None
Conclusion	LRQA confirms that PDD was correctly filled following the latest version of the form and instructions therein.

D.7. Description of project activity

Means of validation	The project activity is use of efficient renewable lighting system. It is a distributive project covering entire Cameroon; geographical coordinates are mapped to major cities in Cameroon as below.		
		City	Latitude (North) Longitude (East)
	1	Kumba	4.6333 9.4499
	2	Kumbo	6.2095 10.6859
	3	Dschang	5.4499 10.0666
	4	Maroua	10.5823 14.3275
	5	Garoua	9.2999 13.3999
	6	Ngaoundere	7.3239 13.5836
	7	Bertoua	4.5754 13.6846
	8	Ambam	2.384 11.2663
	<p>Project activity intends to displace kerosene lamps with efficient Nuru lights. Nuru has developed a portable light (Nuru Light) that can be charged mechanically using its designed pedal (Nuru POWERcycle). Currently, most households (50% of the population) in Cameroon use kerosene as their main source of lighting, but it is prohibitively expensive, bad for the environment and detrimental to respiratory health. Project lamps distributed by the project activity will be charged by renewable energy systems i.e. mechanical systems and will therefore replace the kerosene lamps being used currently, which are GHG intensive. Therefore, the project activity will avoid significant GHG emission (primarily CO₂ emission) by installing an efficient lighting system.</p> <p>The project activity is a small scale activity reduces the GHG emissions Validation team confirms the description from the document review and site visit. For details on the validation of the project description please refer to the Protocol in Appendix 5 of the report.</p>		
Findings	CAR-03 was raised as PDD description was not in accordance with the instructions. It was later closed after revised PDD correctly includes the description.		
Conclusion	Validation team confirms the project description from the review of supporting documents, technical specifications of the lights involved, baseline survey and site visit. Based on the review team confirms that the description provided in the PDD is complete and accurate.		

D.8. Application of selected baseline and monitoring methodology and selected standardized baseline**D.8.1. Applicability of methodology and standardized baseline**

Means of validation	The PP has applied the methodology AMS.III.AR, Version 05. This is the most
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	<p>recent version at the time of submission and valid for the project activity. During the validation, the PP has updated the methodology version.</p> <p>The PDD presents the detailed justification of these applicability conditions. For each of the applicability conditions including the steps taken to assess relevant information please refer to the Protocol. For details of validation of applicability conditions of the methodology please refer to the Protocol in Appendix 5 of the report.</p>
Findings	CL-01 was raised as PDD does not discuss all the applicability conditions and justification was not adequate including sources and references are incomplete. The PP has correctly revised the PDD to discuss all the applicability conditions with adequate justification and clearly referencing sources. Therefore, finding was closed.
Conclusion	LRQA confirms that the project activity meets the applicability conditions of the methodology.

D.8.2. Deviation from methodology

Means of validation	No deviation from the methodology was required.
Findings	NA
Conclusion	No deviation was required

D.8.3. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	No clarification on the applicability of the methodology or tool was required.
Findings	NA
Conclusion	No clarification was required.

D.8.4. Project boundary

Means of validation	<p>The PDD considers project lamp as well as charging system in the project boundary. This approach is in accordance with the applied methodology, AMS.III.AR, Version 05.</p> <p>For details of validation of project boundary please refer to the Protocol in Appendix 5 of the report.</p>
Findings	CL-02 was raised as project boundary diagram does not represent geographical boundary. In response to the finding, the PP has revised the PDD to correctly include the geographical boundary. Therefore, finding was closed.
Conclusion	The project boundary was validated from the review of the PDD, applied methodology, technical specification of lighting system and onsite inspection. Further, the identified boundary and selected sources and gases justifies for the proposed project activity.

D.8.5. Establishment and description of baseline scenario

Means of validation	The PDD has described the baseline scenario as use of existing kerosene lamps. For details of the validation of baseline scenario please refer to the Protocol in Appendix 5 of the report.
Findings	NA
Conclusion	<p>Based on the steps presented in the protocol section, LRQA confirms:</p> <ul style="list-style-type: none"> • All the assumptions and data used by the project participants or the coordinating/managing entity are listed in the PDD, including their references and sources; • All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD; • Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable; • Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD; • The approved baseline methodology has been correctly applied to identify the most plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed

CDM project activity.

D.8.6. Demonstration of additionality

Means of validation	The project activity is fulfils the requirement of positive list of technologies listed under the additionality tool for small-scale project activities. The project activity uses lighting system for household and commercial uses with each unit comprising less than 5% of the threshold for small scale project activity. As per the tool, no documentation was required for demonstrating the barrier. No further analysis was required. For details of the validation of additionality demonstration please refer to the Protocol in Appendix 5 of the report.
Findings	CL-03 was raised as backup calculation to demonstrate that it meets the requirement of positive list was not available. In response to the finding, the PP has submitted the supporting calculation to demonstrate that its emissions are not greater than 5% of the small scale threshold. Therefore, finding was closed.
Conclusion	Based on the review of the PDD, technical specifications of the light, and positive list of technologies presented in the additionality tool for small-scale project activities, the project demonstrates the additionality requirement.

D.8.7. Emission reductions

Means of validation	The calculation provided in the PDD and ER spreadsheet is correctly done in accordance with the applied methodology, AMS.III.AR Version 05. The baseline emissions calculations were correctly done in accordance with the methodology including the parameters fixed ex-ante. The PP has used default value of lamp emission factor as provided by the methodology. Grid factor of 1 was correctly used as hand crank charging was being done. Lastly, dynamic baseline factor of 1 was used which is conservative. The parameters fixed ex-ante has been correctly used in the emission reduction calculations. In accordance with the applied methodology, the PP has correctly presented Number of lamps distributed and operating fraction as monitored parameters. The number of lamps distributed is correctly considered from the sales records and operating fraction will be monitored using sampling approach. The PP has correctly applied Standard for sampling and survey for the parameter monitored using sampling approach. For details please refer the Protocol in Appendix 5 of the report.
Findings	CL-04 was raised as BE and PE are incorrectly presented as ex-ante fixed parameters. It was corrected in response to the finding and removed from the ex-ante fixed parameters list. CAR-05 was raised since emission reduction were not calculated using the approach defined in the methodology. In response to the finding, the PP has corrected the ER calculation process in-line with the methodology.
Conclusion	The PDD correctly lists assumption and data used by the PP for estimating emission reduction including their references and sources. Source of data and assumptions are correctly quoted and interpreted in the PDD. All values used in the PDD including GWPs are considered reasonable in the context of the proposed CDM project activity. The baseline methodology and corresponding tools have been correctly applied to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD. The sampling efforts were undertaken in accordance with the latest version of "Standard for sampling surveys for CDM project activities and programme of activities".

D.8.8. Monitoring plan

Means of validation	The monitoring plan in the PDD was prepared using the applied methodology, AMS.III.AR, Version 05. Validation team confirmed from the document review that the list of parameters including the means of monitoring is described in accordance with the applied methodology. The detailed list of parameters is provided in the Protocol in Appendix 5 of the report. The monitoring plan was in compliance with the applied methodology.
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	<p>Validation team also confirmed, based on the interview of the PP, that monitoring plan is feasible with the design. Further, the PP had sufficiently detailed the plan including data management, quality assurance and quality control procedures to ensure that emission reduction can be reported and verified. The sampling technique used by the PP provides parameter value in an unbiased and reliable manner and sampling plan was prepared in accordance with the latest version of “Standard for sampling and survey for CDM project activities and programme of activities”.</p> <p>For details please refer the Protocol in Appendix 5 of the report.</p>
Findings	<p>CAR-04 was raised as QA/QC procedures are not adequately presented. In response to the finding, the PP has presented the QA/QC procedures.</p> <p>CL-05 was raised as PDD does not sufficiently explain as to how the sampling plan meets the requirements of the sampling standard. In response to the finding, the PP has proposed to use simple random sampling which is meeting the requirements. Therefore, finding was closed.</p>
Conclusion	Monitoring plan included in the PDD complies with the applied methodology AMS.III.AR, Version 05 and latest version of Standard for sampling and survey.

D.9. Duration and crediting period

Means of validation	<p>Start date of the project activity was considered as 15/09/2016 when lamps and PowerCycle will be ordered. Start date was confirmed from the interview of the PP.</p> <p>The PP has chosen 10 years fixed crediting period. LRQA has confirmed it based on the review of PDD. Based on the interview and site visit, it was confirmed that the average lifetime of the lamp was 6 years. Further, the business plan for light distribution was about 6 years considered for this project activity. Therefore, validation team confirms that average lifetime of the lighting system of about 10 years is reasonable.</p>
Findings	CL-06 was raised as start date was incorrectly taken for the pilot project. No investment has yet been made in the project. Therefore, the PP has revised the start date to a future date.
Conclusion	The start date crediting period chosen was in accordance with the VVS.

D.10. Environmental impacts

Means of validation	Environmental impact assessment was not required by the host Party.
Findings	None
Conclusion	Environmental impact assessment was not required by the host Party.

D.11. Local stakeholder consultation

Means of validation	<p>Validation team confirmed from the review of newspaper “MUTATION” dated 18/02/2013 that a public invitation was published in both French and English inviting local stakeholders. Validation team further confirmed that stakeholders’ meeting was held on 28/02/2013 through the review of photographs, attendance and interview of selected local stakeholders and the PP. Based on the review of minutes of meeting and interview, it was confirmed that the description of the project was clearly explained and comments/discussions during the meeting was correctly reported in the PDD.</p> <p>For details please refer the Protocol in Appendix 5 of the report.</p>
Findings	None
Conclusion	Based on the document review, interview and site visit, LRQA is of the opinion that local stakeholders’ consultation process was adequate and comments received have been adequately addressed.

SECTION E. Internal quality control

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A technical review by a qualified person independent from the validation team and a review by an authorised decision maker were conducted before the submission of the validation report to the PP and before requesting the registration of the project activity.

SECTION F. Validation opinion

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LRQA has undertaken the validation of the proposed project activity, "NURU Light - Cameroon" based on the requirements of CDM as set out in Article 12 of the Kyoto Protocol, the CDM M&P, the present annex, subsequent decisions made by the COP/MOP and CDM-EB, and the other rules applicable to the proposed project activity including the host country's legislation and its specific requirements for sustainable development.

The project activity is distribution of renewable lighting system in Cameroon. The project activity will distribute Nuru LED lamps of having illuminance greater than 50 lux at a distance of 0.75m. These lamps would use rechargeable batteries charged through human powered mechanical pedalling system. The absence of the project activity, traditional kerosene based lamp would have been used. The project would reduce the GHG emissions by reducing the fossil fuel consumption for lighting purpose.

To arrive at the final validation conclusions and opinion, LRQA carried out review of project documents, assessment of compliance with and application of the approved baseline and monitoring methodology as well as the approved methodological tools, field survey and physical on site assessment of the project site and interviewing the local stakeholders. There was no project component or issues excluded from the validation.

Through the validation process, the validation team identified 05 CARs and 06 CLs. The PP has taken action on the raised issues and submitted to LRQA the revised PDD and other supporting evidence LRQA reviewed the response and actions taken by the PP, and all the findings were closed through the process.

The validation team is of the opinion that the proposed project activity conforms to all the relevant UNFCCC requirements for the CDM as well as the host country's national requirements, and if implemented as designed, is likely to achieve the validated emission reductions of 38,668 tCO₂ and contribute to the sustainable development of the host country. Therefore LRQA requests the registration of "NURU Light – Cameroon" to the CDM Executive Board as a CDM project activity.

Signed by
Decision Maker



Ketan Deshmukh
CDM Quality Manager
08 Jly 2016

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline emissions
CARs	Corrective action requests
CDM	Clean development mechanism
CDM-EB	Executive board of clean development mechanism
CDM M&P	Modalities and procedures for a clean development mechanism
CERs	Certified emission reductions
CLs	Clarification requests
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
DNA	Designated national authority
DOE	Designated operational entity
EF	Emission factor
EIA	Environmental impacts assessment
ERPA	Emissions reduction purchase agreement
FAR	Forward action requests
GHG	Greenhouse gas
GSP	Global stakeholders' consultation process
IPCC	Intergovernmental panel on climate change
IRR	Internal rate of return
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
kW / kWh	Kilowatt / Kilowatt hour
LE	Leakage emissions
LoA	Letter of approval
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
MW / MWh	Mega watt / Mega watt hour
NCV	Net calorific value
NGO	Non governmental organisation
ODA	Official development aid
PDD	Project design document
PE	Project emissions
PP	Project participant
RfR	Request for Registration
tCO ₂ e	Tonnes of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
CDM VVS	CDM Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

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

Name of Person	Assigned Roles
Ankush Jain	Team Leader ³ and Sector Expert
Archak Pattanaik	Team Leader ³ and Sector Expert
Arnab Deb	Team Member
T Ramesh	Technical Reviewer and Sector Expert
Ketan S Deshmukh	Decision Maker

Signed by
Decision Maker



Ketan Deshmukh
CDM Quality Manager
08 July 2016

³ Archak was the team leader for this project till 10/08/2014. Ankush joined as team leader on 11/08/2014.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	S2	PDD	Version 01 dated: 10/03/2013	S2
2.	S2	PDD	Version 01.1 dated: 26/03/2013	S2
3.	S2	PDD	Version 02 dated: 20/01/2016	S2
4.	S2	PDD	Version 03 dated: 15/02/2016	S2
5.	S2	PDD	Version 3.2 dated: 07/04/2016	S2
6.	S2	PDD	Version 3.3 dated: 11/05/2016	S2
7.	S2	PDD	Version 03.4 dated: 09/06/2016	S2
8.	S2	PDD	Version 03.5 dated: 27/06/2016	S2
9.	S2	Emission Spreadsheet	Version 01 dated: 10/03/2013	S2
10.	S2	Emission Spreadsheet	Version 02 dated: 15/02/2016	S2
11.	S2	Monitoring Manual	Version 01 dated: 15/02/2016	S2
12.	S2	Warranty card	-	S2
13.	S2	Stakeholders minutes of meeting including pictures	Dated: 28/02/2013	S2
14.	Ministry of finance	Certificate of incorporation – S2 Services Sarl	Dated: 07/12/2010	S2
15.	University of Yaoundé	Paper: access to electricity in rural Cameroon	NA	S2
16.	National Statistics Institute	Population survey: Republic of Cameroon	September 2012	S2
17.	Rainbow environment consult	Presentation on project light4all - Cameroon	15/05/2010	S2
18.	Rainbow environment consult	Lighting project in rural and semi-urban areas of Cameroon	May 2010	S2
19.	National Institute of Statistics	Demographic chart	2007	S2
20.	S2	Baseline survey for potential consumers	Dated: 11/11/2007	S2
21.	S2	Baseline survey for Kerosene sellers	Dated: 11/11/2007	S2
22.	Nuru	Technical specification sheet for light NL3-800	2015.04	S2
23.	Shenzhen Bontek Compliance Testing Laboratory Co. Ltd	Certificate of conformity for Nuru light NL3/Laerdal light against the product directive 2004/108/EC Electromagnetic Compatibility EN 550145: 2013 and EN 61547:2009	Certificate No: BCT15AC-0100E dated: 29/01/2015	S2

24.	Lighting Global	Lighting Global product testing verification NL3-800	Reference: nuru-nl3800-2015	S2
25.	S2	Monitoring Manual	Version 01	S2
26.	Ministry of Environment, Cameroon	Letter of Approval	Ref: No. 00280/MINEPDED/SG/PCN-MDP/SCN-MDP dated: 23/02/2015	S2
27.	Swedish Energy Agency	Letter of Approval	Ref: 2015-6749 dated: 29/09/2015	S2
28.	UNFCCC	Validation and Verification Standard	Version 9.0	Website
29.	UNFCCC	AMS.III.AR	Version 5.0	Website
30.	UNFCCC	PDD form for small scale CDM project activities	Version 6.0	Website
31.	UNFCCC	Validation report form	Version 1.0	Website

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

Table 1. CL from this validation

CL ID	01	Section no.	D.8.1	Date:	03/06/2013
Description of CL					
<ul style="list-style-type: none"> Section B.2 of the web hosted PDD does not address all applicability conditions of the applied methodology. The justifications provided for methodology applicability are not adequate. Source and references to support the presented data for methodology applicability are incomplete. PP to clarify how lamp meets the criteria for the illuminance for the applicability criteria of the applied methodology. 					
Project participant response					Date: 23/10/2015
Justification of all the applicability conditions of the methodology is now presented in the revised PDD. Sources and references are clearly indicated. The PDD has been revised to describe the correct technical specifications of the Nuru lights that will be used for the project. The technical specifications meet the illuminance criteria of 50 lux.					
Documentation provided by project participant					
Revised PDD					
DOE assessment					Date: 05/01/2016
Justification of all the applicability conditions is correctly presented and sources and references are correctly made. Based on the description in the revised PDD, validation team is of the opinion that all the applicability conditions are met by the project activity. Validation team confirmed from the revised PDD that technical specifications of Nuru light NL3-800 have been correctly presented. This light meets the illuminance criteria of 50 lux. Further, technical specifications were confirmed from the lighting Global website for NL3-800 light. Therefore, finding was closed.					

CL ID	02	Section no.	D.8.4	Date:	03/06/2013
Description of CL					
Project Boundary diagram presented in the section B.3 of the web hosted PDD is not representing the geographical boundary of the proposed project activity.					
Project participant response					Date: 23/10/2015
Geographical boundary of the project activity is now corrected and presented in the revised PDD.					
Documentation provided by project participant					
Revised PDD					
DOE assessment					Date: 05/01/2016
Revised PDD correctly presents the project boundary. The presented boundary is in accordance with the actual project and the applied methodology. Validation team confirms the project boundary from the review of the PDD, supporting documents, and site visit. Therefore, finding was closed.					

CL ID	03	Section no.	D.8.6	Date:	03/06/2013
Description of CL					
Demonstration of additionality in section B.5 of the web hosted PDD, does not address footnote 1 of methodological tool for demonstration of additionality for small-scale project activities.					
Project participant response					Date: 23/10/2015
The emission reduction from each unit is presented as 0.092tCO ₂ /annum which is less than 5% of the small scale threshold. PDD was revised to include that the project meets this requirement.					
Documentation provided by project participant					
ER spreadsheet					
DOE assessment					Date: 05/01/2016
ER spreadsheet correctly calculates the emission reduction from each lighting system and is less than 5% of the small scale threshold, i.e. 60,000 tCO ₂ e/annum. Revised PDD correctly presents the justification and meets the requirement of positive list of technologies as per the methodological tool. Therefore, finding was closed.					

CL ID	04	Section no.	D.8.7	Date:	03/06/2013
Description of CL					
<i>BE_y and PE_y are included in section B.6.2 as ex-ante parameters. Please clarify how these parameters can be fixed ex ante.</i>					
Project participant response					Date: 23/10/2015
<i>It was a typographical error and BE/PE were removed from the section of ex-ante fixed parameter.</i>					
Documentation provided by project participant					
<i>Revised PDD</i>					
DOE assessment					Date: 05/01/2016
Revised PDD correctly removes BE and PE as ex-ante fixed parameters. Therefore, finding was closed.					

CL ID	05	Section no.	D.8.8	Date:	03/06/2013
Description of CL					
<i>Please clarify how proposed sampling plan for multistage sampling described under section B.7.2 in the web hosted PDD, confirm to the requirements of the latest sampling standard (EB 69 Annex 4) and sampling guideline (EB69 Annex 5).</i>					
Project participant response					Date: 23/10/2015
<i>The PDD has been revised on the sampling procedures to include random sampling method instead of multistage sampling. Further details of sampling are now included in the monitoring manual including evidence kept for verification.</i>					
Documentation provided by project participant					
<i>Revised PDD Monitoring Manual, Version 01</i>					
DOE assessment					Date: 05/01/2016
The PDD and monitoring manual further covers the details of how sampling is being conducted including the evidence kept for verification. Therefore, finding was closed.					

CL ID	06	Section no.	D.9	Date:	03/06/2013
Description of CL					
<i>During on site assessment it was confirmed that, the contract with NURU Energy Design and Development light was signed on 29/02/2012. Please clarify how the start date considered in web hosted PDD comply with the definition of the start date as per the latest CDM glossary of terms.</i>					
Project participant response					Date: 23/10/2015
<i>The PP accepts the misunderstanding of the CDM rules to describe start date as date of start of pilot programme. The project is still in nascent stage with only pilot study. The purchase of NURU lighting equipment dated: 29/02/2012 was only for the pilot study for decision making. The project activity has not yet started and S2 is looking for investment prior to starting the project activity. The start date is again revised in the PDD.</i>					
Documentation provided by project participant					
<i>None</i>					
DOE assessment					Date: 05/01/2016
Validation team confirms from the site visit that the project activity has not yet started and the funds are awaited. The pilot study for investment decision making was not considered for start date. Therefore, finding was closed.					

Table 2. CAR from this validation

CAR ID	01	Section no.	D.2	Date:	03/06/2013
Description of CAR					
<i>LoA has not been submitted.</i>					
Project participant response					Date: 23/10/2015
<i>LoA vide approval number 00280 dated 23/02/2015 has now been submitted. The Annex I PP, Swedish Energy Agency, has also been added. LoA from Swedish DNA reference 2015-6749 dated: 29/09/2015 was also submitted.</i>					
Documentation provided by project participant					

LoA	
DOE assessment	Date: 05/01/2016
LoA from the host Party and Annex I Party DNA has correctly been submitted. Validation team confirms that LoA has been issued by the correct organisation from the DNA list maintained at UNFCCC website http://cdm.unfccc.int/DNA/index.html . The name of the project has been correctly presented. Name of the PP authorised is correct. Host country DNA correctly confirms the sustainable development. Therefore, finding was closed.	

CAR ID	02	Section no.	D.5	Date: 03/06/2013
Description of CAR				
<i>MoC has not been submitted</i>				
Project participant response				Date: 23/10/2015
<i>MoC has been submitted along with the supporting evidence.</i>				
Documentation provided by project participant				
<i>MoC Supporting information</i>				
DOE assessment				Date: 05/01/2016
The PP has correctly submitted the MoC in the latest form available at the UNFCCC website. Names of the PP are consistent with the PDD and the LoAs. Contact details, employment status and signatures have been validated from the attorney letters and passport. Therefore, finding was closed.				

CAR ID	03	Section no.	D.6	Date: 03/06/2013
Description of CAR				
<i>Following requirements of guideline for completing PDD, are not followed in the webhosted PDD;</i>				
<i>Section A.1: Project Scenario, pre project scenario and baseline scenario is not clearly described.</i>				
<i>Section A.2: Geographical co-ordinates are described in section A.2.1 instead of A.2.4.</i>				
<i>Section A.3: A description on the performance of Nuru light as compared baseline lamp (kerosene) is missing. Also a statement on technology transfer is absent.</i>				
Project participant response				Date: 23/10/2015
<i>Revised PDD now correctly include the description of project scenario, pre-project scenario and baseline scenario. The geographical coordinates of major cities is now correctly described. Lastly, statement on technology transfer has been correctly included.</i>				
Documentation provided by project participant				
<i>Revised PDD</i>				
DOE assessment				Date: 05/01/2016
The PDD correctly includes the description, geographical coordinates and the statement on technology transfer. Project description was confirmed from the review of supporting documents and site visit. Geographical coordinates were confirmed from the project description and cross verified from web-search. The statement on the technology transfer was confirmed from the interview. Therefore, finding was closed.				

CAR ID	04	Section no.	D.8.8	Date: 03/06/2013
Description of CAR				
<ul style="list-style-type: none"> <i>QA/QC procedure for monitored parameters is not presented in the monitoring plan.</i> <i>For the parameter OFy, please explain how the referring to the sampling plan is an appropriate QA/QC procedure.</i> 				
Project participant response				Date: 23/10/2015
<i>QA/QC procedure has now been included in the PDD. For the number of lights sold, the procedures include regular checking of the digital data. And for operating fraction, the procedures include training of the surveyor by competent person. The information of QA/QC procedures is further explained in the monitoring manual.</i>				
Documentation provided by project participant				
<i>Revised PDD Monitoring Manual, Version 01</i>				
DOE assessment				Date: 05/01/2016

QA/QC procedures have been sufficiently detailed in the PDD and the monitoring manual. These procedures ensure adequate control over the monitoring process to ensure that results can be verified. Therefore, finding was closed.

CAR ID	05	Section no.	D.8.7	Date: 03/06/2013
Description of CAR				
<i>Following requirements of guideline for completing PDD, are not followed in the webhosted PDD;</i>				
<i>Section B.6.1: Methodological steps applied for calculating project emissions, baseline emissions, leakage and emission reductions are missing.</i>				
<i>Section B.6.3: The step wise calculations are not transparently presented. Further linkage with sampling plan is missing.</i>				
<i>Section B.7.3: Please justify why B.7.3 is not applicable to the monitoring plan of the project activity. Further as per the PDD template there is no provision for description directly under section B.7.</i>				
Project participant response				Date: 23/10/2015
<i>The revised PDD now correctly includes the methodological steps including stepwise calculation of emissions. Further, information of sampling plan and its linkage with ER is now presented. The sampling plan is now presented in the PDD.</i>				
Documentation provided by project participant				
<i>Revised PDD</i>				
DOE assessment				Date: 05/01/2016
Revised PDD correctly includes the stepwise calculation in accordance with the applied methodology. The sampling plan was correctly presented in the revised PDD. The sampling plan was in accordance with the latest version of "Standard for sampling and survey for CDM project activities and programme of activities"				

Table 3. FAR from this validation

Appendix 5. Validation Protocol

	Validated situation	Conclusion
SECTION 1. Global stakeholder consultation		
1. Please provide the link and period of receiving global stakeholders comment?	https://cdm.unfccc.int/Projects/Validation/DB/GLXDXXAJRTAILL4T78NE4JJLCKMSYM/view.html . The commenting period was from 29/03/2013 and 27/04/2013. No comments were received during this period.	OK
2. If case additional clarification was sought, has it been included in the original comment highlighting as clarification.	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/> No comments were received for the project activity.	OK
3. Has a request for forwarding complaints received, if any, from the host Party (ies) DNA about the project activity/programme? Please describe how those comments were been taken into consideration in the tables below.	No complaint has been received by the DNA.	OK

Please use below table to respond to the comments. –N/A

S. No.	Nature of comment	PPs response	Validated situation	Conclusion

Comments received by the DNA

S. No.	Nature of comment	PPs response	Validated situation	Conclusion

	Validated situation	Conclusion
4. Please summarise the major changes to the PDD/PoA-DD/CPA-DD after publication?	During the course of validation only minor changes were made to the PDD such as updating the form, correcting inconsistencies etc. Also, Annex I, PP was added during the course of validation.	OK
5. State the name of the PP with whom LRQA has contractual relationship for validation. Confirm that the same entity is still the PP. If not, PDD/PoA, it has to be republished.	S2 Service Sarl. There was no change in the name of the PP that has signed contract with LRQA.	OK
6. If there are significant changes made in the project or programme design. Significant change could mean changes in capacity, output, location etc. Please seek additional guidance from CDM-QM on significant changes.	Validation team is of the opinion that no significant changes were made.	OK
7. If approved baseline and monitoring methodology, the approved standardised baseline or a combination was changed	No, only one methodology AMS.III.AR was applied. There was no change in the methodology except the version number was updated.	OK

	Validated situation	Conclusion
SECTION 2. Approval and contribution to sustainable development		
Host Country Approval		
1. Has the Host country DNA provided a written approval?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> ⁴ CAR 01 was issued as LoA was not submitted for validation. It was subsequently closed when LoA was submitted. The LoA was issued vide approval number 00280 dated 23/02/2015. After verifying the approval letter with other LoA from the same DNA, the finding was closed.	CAR-01 OK
2. Confirm that the letter has been issued by the Party's DNA and is valid for the proposed CDM project activity/ Programme under validation	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> LoA was issued on 23/02/2015 by the Ministry of Environment, Nature Protection and Sustainable Development (MINEPDED) Cameroon which is the Designated National Authority (DNA) of the host country Party as per http://cdm.unfccc.int/DNA/index.html . The LoA is issued for the proposed project activity.	OK

⁴For each section and question where a YES / NO / NA answer is required, explain your choice.

	Validated situation	Conclusion
3. Mention the means of validation employed to assess the authenticity of the Letter of Approval. Indicate the source of the LoA (for example, PP or directly from the DNA)	The LoA was made available by the host Party PP. Comparison with other approved projects by the DNA was also conducted to check the authenticity of the letter. The LoA was issued vide approval number 00280 dated 23/02/2015.	OK
4. Does the written Letter of Approval confirm the following: (a) The Party is a Party to the Kyoto Protocol (including ratification)? (b) Participation is voluntary? (c) The proposed CDM project activity contributes to the sustainable development of the country? (d) It refers to the precise proposed CDM project activity/Programme title in the PDD/PoA-DD being submitted for registration?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> LoA confirms the requirement of written approval.	OK
5. Is the letter of approval unconditional with respect of (a) to (d) above?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> The LoA does not add any specific condition to the points stated therein.	OK
6. Does the LoA from the host party acknowledge the bundle activity (if applicable)?	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/> NA as it is not a bundled activity	NA
7. If PoA is covering several host parties, has CME submitted one specific case CPA for each host Party	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	NA
8. Confirm that each CPA has only one host Party.	NA	NA
Annex I Party Approval		
9. Has the Annex I country DNA provided a written approval?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> The PP has added the Annex I Party PP during the course of validation. The LoA from the Annex I Party has been submitted.	OK
10. Confirm that the letter has been issued by the Party's DNA and is valid for the proposed CDM project activity/Programme under validation.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> The Letter of Approval reference 2015-6749 dated: 29/09/2015 was submitted for validation. The LoA was issued by Swedish Energy Agency, the DNA of Sweden.	OK

	Validated situation	Conclusion
11. Mention the means of validation employed to assess the authenticity of the Letter of Approval. Indicate the source of the LoA (for example, PP or directly from the DNA).	The LoA was made available by the host Party PP. The DNA of the Annex I Party is the PP. Team reviewed the LoA with the sample Swedish LoA available at the DNA website and similar registered cases.	OK
12. Does the written Letter of Approval confirm the following: (a) The Party is a Party to the Kyoto Protocol (including ratification)? (b) Participation is voluntary? (c) It refers to the precise proposed CDM project activity/Programme title in the PDD/PoA-DD being submitted for registration?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> LoA confirms the requirement of written approval.	OK
13. Is the letter of approval unconditional with respect of (a) to (c) above?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	OK
Host Country and Annex I Party Approval		

	Validated situation	Conclusion
<p>14. Do any of the Letters of Approval contain additional specification of the project activity? Like:</p> <ul style="list-style-type: none"> - PDD/PoA-DD Version number? - Validation report version number? <p>Make sure that the request for registration is made on the basis of the documents specified in any of the letters.</p> <p>If LRQA is unable to submit the precise version of the validation report as above, one of the following options shall be selected:</p> <p>(a) Insert a statement in the validation report to indicate that the final letter of approval has not been received and that a request for registration will not be submitted until it has been received; or</p> <p>(b) Update the validation report to reflect the receipt of the letter of approval. If this option is selected, the validation report major number shall remain unchanged and the minor number shall be increased. Confirm in the validation report that this is the only change that has been made to the version referred to in the letter of approval.</p>	<p>The LoAs do not refer to a specific version number of the PDD or validation report.</p>	<p>OK</p>

		Validated situation		Conclusion
SECTION 3. Authorisation				
1	Confirm that the PPs are listed in a tabular form in section A.4 of PDD/PoA-DD and that this information is consistent with the contact details provided in Annex 1 of the PDD/PoA-DD and with the contact details in the MoC.	Host Party PP name in PDD/PoA-DD cover page	S2 Services Sarl	OK
		Host Party PP name in PDD (PoA-DD)/ A.4	S2 Services Sarl	
		Host Party PP name in PDD (PoA-DD)/ Annex 1	S2 Services Sarl	
		Host Party PP name in MoC	S2 Services Sarl	
		Annex 1 Party PP name in PDD/PoA-DD cover page	Swedish Energy Agency	
		Annex 1 Party PP name in PDD (PoA-DD)/ A.4	Swedish Energy Agency	
		Annex 1 Party PP name in PDD (PoA-DD)/ Annex 1	Swedish Energy Agency	
		Annex 1 Party PP name in MoC	Swedish Energy Agency	
2	Confirm that each of the PPs has been approved by at least one Party involved.	Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/> S2 Services Sarl has been approved by Cameroonian DNA Swedish Energy Agency is the Swedish DNA and approved itself to participate in this project.		OK
3	Confirm that no entities other than those approved as PPs are included in section A.4 of PDD/PoA-DD.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> PDD includes only S2 Services Sarl and Swedish Energy Agency as PP. No other entity has been identified as PP.		OK
4	Ensure that the approval of participation has been issued from the relevant DNA. If in doubt verify this with the corresponding DNA.	LoAs from the host Party DNA and Annex I Party DNA has been received and submitted. Authenticity of the LoAs was confirmed from the similar registered projects.		OK

		Validated situation	Conclusion
SECTION 4. Modalities of communications			
1	<p>Validate the corporate identity of all the PPs and the focal point included in the MoC letter:</p> <ul style="list-style-type: none"> - Validate the signatures - Validate the employment status. <p>To validate this use any of the following options:</p> <ol style="list-style-type: none"> Directly checking with evidence from PPs and the corresponding companies, for example, contracts, personal identity card or passport, HR records. Notarised documentation, for example, power of attorney for signing on behalf of the company and the other PPs. Written confirmation from the PP that all the personal details are valid and accurate. 	<p>LRQA validated the corporate identity of S2 Services Sarl from the review of Certificate of Incorporation dated: 07/12/2010. The signature and employment status of the signatories were validated based on the review of Passport copy and power of attorney letter dated: 21/12/2015.</p> <p>LRQA validated the corporate identity of Swedish Energy Agency from the review of its website http://www.energimyndigheten.se/en/. It was confirmed that Swedish Energy Agency is a government agency. The signature and employment status of the signatories were validated based on the review of power of attorney dated: 24/01/2013.</p> <p>LRQA validated the accuracy of details for Swedish Energy Agency from the review of confirmation letter submitted by S2. Further, information is presented below.</p> <p>CAR-02 was raised as MoC statement was not submitted earlier. In response to the finding, the PP has submitted the MoC statement along with necessary evidence. Therefore, finding was closed.</p>	<p>CAR-02</p> <p>OK</p>
2	<p>If a written confirmation (option c) is chosen from the options above, the following issues shall be validated:</p> <ul style="list-style-type: none"> - The PP sending the written confirmation and signing it shall be the one signing the contract with LRQA. - The person signing the written confirmation and the person signing the MoC (if they are different persons) are duly authorised to do so on behalf of all the PPs, that is, they have a signed authorisation from the other PPs and the identity and role of the person who has signed this authorisation has been checked. 	<p>The written confirmation on accuracy of details has been submitted by S2 Services Sarl. S2 has signed the contract for validation with LRQA.</p> <p>The written confirmation is signed by Durando Ndongsok. Durando has signed the MoC on behalf of the PP, S2 Services Sarl. Durando has also been authorised by the Board to sign on their behalf.</p>	OK

<p>3 Has the MoC been completed as per the latest “Procedures for MoC between the project participants and the Executive Board”?</p> <ul style="list-style-type: none"> - valid version of the form “Modalities of Communication statement” (F-CDM-MOC) has been used; - No modifications to the template / form should be made and each document should be clearly dated - Title of the project and names of project participants and focal points should be fully consistent with those indicated in all other project documentation - Focal point scopes should be clearly and correctly indicated - Contact details and specimen signatures of focal point entities including those of project participants in Annex 1 should be correctly entered. Only one telephone, fax, email contact should be entered per authorized signatory. In cases where additional contact details are included, only the first indicated information will be taken into account and only the official business address of the proposed entity should be provided on the F-CDM-MOC form. - The Statement of Agreement in Section 3 should be signed by one authorized signatory for each project participant; signatures made available in Section 3 should correspond to those indicated in the related Annex 1 document; focal point entities who are not designated as project participants should not sign Section 3. 	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/></p> <p>The MoC has been correctly filled using the current guidance. LRQA confirms that:</p> <p>CDM-MOC-FORM, Version 2.3 has been used. Form is valid for submission at the time of preparation of this report No modification has been made to the template/form (CDM-MOC-FORM). Form is clearly dated. Title of the project and name of the PP are fully consistent. Contact details are correctly presented. Statement of Agreement has been signed by both the Parties.</p>	<p>OK</p>
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	Validated Situation	Conclusion
SECTION 5. Project design document		
<p>1. Is the project activity/Programme Small Scale or Normal Scale?</p> <p>(when combination include a large scale methodology, then Project/Programme is large scale)</p>	<p>Normal Scale <input type="checkbox"/> Small Scale <input checked="" type="checkbox"/> Bundled Small Scale <input type="checkbox"/></p> <p>(cross as appropriate)</p> <p>The project is type III small scale activity with average emission reduction of 38,668 tCO₂ per year; the maximum annual emission reduction value is 59,294 tCO₂ per year which is still less than the small scale threshold of 60 ktCO₂/year.</p>	OK
<p>2. Is CPA to be included in the PoA Small Scale or Normal Scale?</p> <p>(when combination include a large scale methodology, then CPA is large scale)</p>	<p>Normal Scale <input type="checkbox"/> Small Scale <input type="checkbox"/> NA <input checked="" type="checkbox"/></p> <p>(cross as appropriate)</p>	NA
<p>3. Has the PDD/PoA-DD and CPA-DD used the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM Website? Please justify here that valid version of form is applied during the validation</p> <p>Check if the instructions included in the form are correctly applied.</p> <p>Check outputs from the completeness check.</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>The PDD initially submitted was prepared using the form F-CDM-SSC-PDD Version 04.1. During the validation the form was updated. The PP has now used the latest PDD template, CDM-SSC-PDD-FORM Version 6.0.</p> <p>The PDD was correctly filled using the instructions included in the form.</p>	OK

	Validated situation	Conclusion
SECTION 6. Description of project activity		
<p>1. For PoA, describe the process undertaken to validate that the description of the framework of proposed CDM programme of activities as contained in the PoA-DD sufficiently covers all relevant elements, is accurate, and that it provides the reader with a clear understanding of the nature of the proposed CDM PoA.</p> <p>2. Describe how generic CPA section(s) in the PoA conform to the programme framework.</p> <p>Do the PoA and generic CPAs describes various combinations of technologies/measures and/or approved methodologies that will be implemented.</p> <p>Please describe it for each technology/measure.</p>	NA	NA
<p>3. Describe the process undertaken to validate that the description of the proposed CDM project activity as contained in the PDD/CPA-DD sufficiently covers all relevant elements, is accurate, and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity.</p> <p>If there is any registered project or included CPA which could interfere with the project activity/CPA, please describe the reference number, and how it has been considered for the baseline determination, additionality assessment and emission reduction calculation.</p>	<p>The project activity is replacement of fossil fuel based lighting with renewable lighting system.</p> <p>Based on the survey conducted by S2, the households (more than 50%) in Cameroon are currently using kerosene lamps for lighting purposes. Validation team confirms the baseline situation based on the survey and interview of the personnel involved. Team also visited the households to confirm the baseline situation.</p> <p>In the project scenario, the household would be using Nuru lights, i.e. battery powered LED lights. Nuru lights are charged using renewable energy systems, i.e. manual pedalling system, called Nuru POWERcycle.</p> <p>The project activity intends to reduce GHG emissions by displacing the fossil fuel with renewable energy.</p> <p>The PP, S2 Services Sarl, intends to provide necessary distribution and other infrastructure for development of Nuru lights in Cameroon. The PP plans to identify and use village level entrepreneurs (VLE) for distribution and light recharging facilities. The PP is planning to develop these VLEs by providing them adequate training, infrastructure such as Nuru POWERcycle.</p>	CAR-03 OK

	Validated situation	Conclusion
	<p>The Nuru lights in the project scenario would be having a capacity of 0.5W each, having three different lighting modes, i.e. low, medium and high. Total lighting output at high mode is 50 lux at 0.75m. It uses rechargeable Lithium Iron Phosphate batteries with output voltage of 3.2Volts.</p> <p>The Nuru POWERcycle comprises of pedalling system producing 65W of power when pedalled at 60rpm. A total of 5 lights can be recharged simultaneously in 20 minutes.</p> <p>Team confirmed the technical details of the lights from the Nuru brochure and site visit.</p> <p>The team confirmed the project activity through the review of PDD, specifications of Nuru lights, review of the baseline survey, document review and site visit. Team also reviewed the business plan for distribution of Nuru lights with total of 660,000 lights being sold in six years. It was also estimated that 100% of the lights will be working in first three years and thereafter only 95% of the lights will be working; total lifetime of the lights is considered as 7 years. The average annual emission reduction over the ten year crediting period is 38,668 tCO₂; and maximum in a year is 59,294 tCO₂, less than 60,000 tCO₂.</p> <p>Team confirms that the PDD sufficiently covers all the relevant elements of the project activity accurately and provide the reader with clear understanding of the project activity.</p> <p>Team further confirms that there is no project activity or CPA which will interfere with this project activity.</p> <p>CAR 03 was initially raised as the description in the PDD was not in accordance with the guideline/instructions: Project Scenario, pre project scenario and baseline scenario is not clearly described. Further, description on the performance of Nuru light as compared baseline lamp (kerosene) and information on technology transfer was missing. In response to the finding, the PP has correctly revised to PDD to correctly include the above information. Therefore, finding was closed.</p>	

	Validated situation		Conclusion																											
<p>4. Confirm that the exact project location is provided in the PDD/PoA-DD/CPA-DD with Geographical coordinates, check the accuracy of them and the format of the notation (Grades, minutes, seconds or decimal indicating latitude N or S and Longitude E or W)</p> <p>Assess the boundary of the PoA. Confirm based on the review of generic CPA, if the boundary covers all the CPAs implemented under this PoA.</p> <p>Please include here the Geographical coordinates:</p>	<p>The PDD states that the project activity targets entire Cameroon where electricity is not available. Further, the geographical coordinates of the major cities in each state of Cameroon is provided as below.</p> <table><tr><td>City</td><td>Latitude (North)</td><td>Longitude (East)</td></tr><tr><td>Kumba</td><td>4.6333</td><td>9.4499</td></tr><tr><td>Kumbo</td><td>6.2095</td><td>10.6859</td></tr><tr><td>Dschang</td><td>5.4499</td><td>10.0666</td></tr><tr><td>Maroua</td><td>10.5823</td><td>14.3275</td></tr><tr><td>Garoua</td><td>9.2999</td><td>13.3999</td></tr><tr><td>Ngaoundere</td><td>7.3239</td><td>13.5836</td></tr><tr><td>Bertoua</td><td>4.5754</td><td>13.6846</td></tr><tr><td>Ambam</td><td>2.384</td><td>11.2663</td></tr></table> <p>Team confirmed the geographical coordinates from the google maps and web-search; and confirms that it covers entire Cameroon.</p> <p>CAR 03 was raised as geographical coordinates are not described in section A.2.4 of the PDD; it was instead mentioned in section A.2.1. In response to the finding, the PP has revised the PDD and geographical coordinates are correctly described in section A.2.4 of the PDD. Therefore, finding was closed.</p>		City	Latitude (North)	Longitude (East)	Kumba	4.6333	9.4499	Kumbo	6.2095	10.6859	Dschang	5.4499	10.0666	Maroua	10.5823	14.3275	Garoua	9.2999	13.3999	Ngaoundere	7.3239	13.5836	Bertoua	4.5754	13.6846	Ambam	2.384	11.2663	<p>CAR 03</p> <p>OK</p>
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Bertoua	4.5754	13.6846																												
Ambam	2.384	11.2663																												
<p>5. Confirm that the physical site inspection reflects the description in the PDD/CPA-DD of the proposed CDM project activity/Programme.</p> <p>Describe briefly the physical site inspection: Travel details and installations, facilities and buildings visited.</p>	<p>The validation team conducted a physical site visit and confirmed consistency of the described project activity in the PDD and the actual implementation. The PP has implemented a pilot program to check the efficacy of the program and will start the actual program when finances will be received.</p> <p>The Team visited the PP's office, pilot project site and local villages.</p>		<p>OK</p>																											
<p>6. If the team did not undertake a physical site inspection, describe the justification as approved by the CDM Quality Manager. (VVS 09.0: 72-73)</p>	<p>Team has undertaken site visit on 13-15/05/2013.</p>		<p>NA</p>																											
<p>7. If the proposed CDM project activity or CPA involves</p>	<p>Pre-project</p>	<p>Project activity</p>	<p>NA</p>																											

	Validated situation		Conclusion
the alteration of an existing installation or process, ensure that the project description clearly states the differences resulting from the project activity compared to the pre-project situation.	NA The project is a Greenfield activity.	NA The project is a Greenfield activity.	
8. Confirm if the proposed CDM project or CPA is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs. (VVS 09.0: Para 76)	NA		NA
9. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance (ODA).	Validation team confirmed from the interview with the PP that the project does not involve diversion of ODA.		OK
10. If the project activity is a small scale one, confirm that it is not a debundled component of a large scale project, in line with the Methodological tool: Assessment of de-bundling for SSC project activities. Check if there is another registered small scale project activity or an application to register one. Take into account specific debundling requirements for Type I project activities. Describe how this has been validated.	<p>The debundling was validated in accordance with the Methodological tool: Assessment of debundling for small-scale project activities (Version 04.0).</p> <p>The project activity involves independent lighting subsystems. The emission reduction by one lighting subsystem is 0.092tCO₂e/annum which is less than 1% of the small scale threshold of 60ktCO₂/annum. These lighting subsystems are installed at multiple locations.</p> <p>Therefore, in accordance with paragraph 14 in section 5.2 of the methodological tool, the project is exempted from performing de-bundling check.</p> <p>CAR 03 was raised as back up calculation to demonstrate that each independent subsystem is not greater than 1% of the small scale threshold was not provided. In response to the finding, the PP has provided the backup calculations and it was within the threshold. Therefore, finding was closed.</p>		CAR 03 OK

	Validated situation	Conclusion
SECTION 7. Application of the selected baseline and monitoring methodology applicability		
<p>1. Have the baseline and monitoring methodologies selected by the project participants been previously approved by the CDM Executive Board, that is, does it appear on the methodologies page of the UNFCCC website?</p> <p>Confirm that the CME have listed in the PoA-DD and the generic CPA-DD the combinations of technologies/measures and/or approved methodologies implemented in the PoA.</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/></p> <p>AMS III.AR.: "Substituting fossil fuel based lighting with LED/CFL lighting systems" --- Version 5.0 is the most recent and valid version at the time of submission of the project activity.</p> <p>During the course of validation, the methodology version was updated.</p>	OK
<p>2. If the project activity is a Small Scale one; does it qualify within the threshold of the three possible types of small scale projects? Confirm information provided in the PDD/PoA-DD/CPA-DD.</p>	<p>Project activity falls under type III activities with small scale threshold of 60ktCO₂/annum of emission reduction. Based on the plan submitted by the PP, the maximum emission reductions in a year is 59,294 tCO₂ which is within the threshold.</p>	OK
<p>3. If the project activity is a Small Scale one; which approved small scale methodology does the project apply? Confirm that the SSC methodology is applied with the general guidelines to SSC CDM methodologies.</p>	<p>AMS III.AR.: "Substituting fossil fuel based lighting with LED/CFL lighting systems" --- Version 5.0 is the most recent and valid version at the time of submission of the project activity.</p> <p>The team also confirmed that the SSC Meth is applied in conjunction with the General guidelines to SSC CDM methodologies (Version 19) for the proposed CDM project activity.</p>	OK
<p>4. For PoA, has the combination of methodologies been approved by the Board? If not, has the CME justified that it does not have any cross-effects in accordance with "Guidelines for the consideration of interactive effects for application of multiple CDM methodologies for a programme of activities".</p> <p>In case it is not clearly demonstrated seek clarification from the Board.</p>	NA	NA

	Validated situation	Conclusion
<p>5. For PoA, if the CME applies combinations of technologies/measures and/or methodologies for a SSC-PoA confirm that in the PoA-DD and the specific CPA-DD it is demonstrated that there are no cross effects between the technologies/measures applied. Combinations of approved methodologies contained in the General guidelines to SSC CDM methodologies may be applied without further assessment of cross effects</p> <p>Check if the situation for applying combinations of technologies/measures and/or methodologies is eligible in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities</p>	NA	NA
<p>6. For PoA, if the CME applies combinations of large scale methodologies for PoA or combination of large scale with SSC methodologies, confirm that only combinations explicitly permitted in the methodologies have been applied. Otherwise prior-approval from the EB is required.</p> <p>In other cases, the CME shall submit a request for clarification to the secretariat by following the latest applicable procedure for the eligibility of the proposed combination.</p>	NA	NA

	Validated situation	Conclusion
<p>7. Determine whether the methodology selected is applicable to the project activity/Programme including that the used version is valid.</p> <p>Describe steps taken to assess the relevant information contained in the PDD in the table below.</p>	<p>The team confirmed that the methodology selected is the most recent version and applicable for the proposed CDM project activity. Steps taken to assess the applicability of the methodology is detailed below:</p> <p>CL 01 is raised as the following points were not addressed:</p> <ul style="list-style-type: none"> Section B.2 of the web hosted PDD does not address all applicability conditions of the applied methodology. The justifications provided for methodology applicability are not adequate. Source and references to support the presented data for methodology applicability are incomplete. <p>In response to the finding, the PP has corrected the PDD to include all the applicability conditions, justification of such conditions, and presented the supporting data. Therefore, finding was closed.</p>	<p>CL-01 OK</p>

No.	Applicability conditions in the AMSIII.AR.: “Substituting fossil fuel based lighting with LED/CFL lighting systems” --- Version 5.0	Information in the PDD	Steps taken to assess PDD information	Conclusion
3	<p>This methodology is applicable only to project lamps whose batteries are charged using one of the following options:</p> <p>a) Charged by a renewable energy system included as part of the project lamp (e.g. a photovoltaic system or mechanical system such as a hand crank charger);</p> <p>b) Charged by a standalone distributed generation system (e.g. a diesel generator set) or a mini-grid, i.e. that is not connected to a national or regional grid;</p> <p>c) Charged by a grid that is connected to regional/national grid.</p>	<p>The Nuru lights batteries are charged as described above in this same section by a mechanical POWERCycle, thus justifying the option 3</p> <p>(a) of the methodology used.</p> <p>(b), Not applicable as there is not mini-grid or generator are involved</p> <p>(c), Not applicable as there is no regional/national grid in the project locations.</p>	<p>The Nuru lights are being charged by mechanical power cycle as confirmed by product technical specification, Lighting Africa quality assurance test and site visit.</p> <p>Part (b) and (c) is not applicable as system charging does not require any diesel generator or connection to grid including mini grid. This was confirmed from the review of the project description, site visit and interview of the PP.</p> <p>Validation team confirmed the description from the review of the PDD, PowerCycle charging system and site visit.</p>	OK

4	At a minimum project lamps shall be certified by their manufacturer to have a rated average life of at least: a) 5,000 hours for Option 1, paragraph 17; b) 10,000 hours for Option 2, paragraph 18.	Option 4 (b) is used. And it refers to paragraph 18. Paragraph 18 (b) says “... As an alternative to long-term measurement of light output over the full lifetime of the lamp, a shortened measurement period of 2,000 hours may be chosen. If a 2,000 hour test period is used, the relative luminous flux shall not decrease by more than 15 per cent during the 2,000 hours of continuous operation...” ⁵ Lighting Global has certified that the lumen maintenance remains at 100% after 2000 hours, and this justify the selection of this Option 4 (b). ⁶	Based on the interview of the PP it was confirmed that the lights of rated life more than 10,000 hours will be used. The rated life has been confirmed for the shorter period based on the procedures described in paragraph 18(b) of the applied methodology and presented below.	OK
17	Option 1 Project lamps are assumed to operate for two years after distribution to end-users. Therefore, under this option, emission reductions may only be claimed for two years.		Option 1 has not been used.	NA
18	Option 2 Project lamps are assumed to operate for up to seven years after distribution to end-users, and thus emission reductions can be claimed for up to seven years per project lamp, if all of the following conditions are met: (a) Unless specified otherwise in this document, the currently-applicable requirements to meet the Lighting		Option 2 has been used as described above. The project lamps are assumed to operate till seven years. It was noted that the LED lamp NL3-800 meets the Lighting Global product requirements. Validation team confirmed it from the lighting global testing report (Reference nuru-nl3800-2015).	OK

⁵Full text of paragraph 18 (b) reads: “At a minimum, project lamps must be certified by their manufacturer to have a useful operational life of 10,000 hours. Within this time span, the relative luminous flux shall not decrease by more than 30 per cent as per equation (1). Such claims shall be confirmed by a third-party testing organization using an applicable standard and testing protocol. As an alternative to long-term measurement of light output over the full lifetime of the lamp, a shortened measurement period of 2,000 hours may be chosen. If a 2,000 hour test period is used, the relative luminous flux shall not decrease by more than 15 per cent during the 2,000 hours of continuous operation. If the average life value is not available ex ante, it shall be made available for verification.”

⁶See certification Lighting Global attached as “LG-SSS_nuru-nl3800 v2” (paragraph “Lighting details”)

	<p>Global Minimum Quality Standards at the time of project application shall be met by project lamps based on IEC/TS 62257-9-5 and IEC 60529, or an equivalent national standard, or the approved norms indicated in paragraph 15(h);</p> <p>(b) At a minimum, project lamps must be certified by their manufacturer to have a useful operational life of 10,000 hours. Within this time span, the relative luminous flux shall not decrease by more than 30 per cent as per equation (1). Such claims shall be confirmed by a third-party testing organization using an applicable standard and testing protocol. As an alternative to long-term measurement of light output over the full lifetime of the lamp, a shortened measurement period of 2,000 hours may be chosen. If a 2,000 hour test period is used, the relative luminous flux shall not decrease by more than 15 per cent during the 2,000 hours of continuous operation. If the average life value is not available ex ante, it shall be made available for verification.</p> <p>(c) The project lamps use a replaceable, rechargeable battery. In addition, there must be documented measures in place to ensure that lamp owners have access to replacement batteries of comparable quality;</p> <p>(d) With regard to physical ingress and water protection, mechanical durability, and the quality of workmanship the project lamps shall achieve a minimum level of protection, based on the type of lamp, in accordance with Lighting Global Minimum Quality Standards, IEC/TS 62257-9-5 and IEC 60529, or</p>		<p>Further, the lighting global testing report (Reference nuru-nl3800-2015) confirms that at least 85% of the initial brightness is maintained over 2000 hours.</p> <p>It was confirmed from the interview of the PP that the battery can be replaced. This information was confirmed from the review of technical specification of the system NL3-800.</p> <p>Nuru light NL3-800 meets the lighting global product requirements which covers the requirement related to physical ingress protection. Validation team confirmed it from the review of Lighting Global quality standard Version 5 March 2015 and Lighting Global quality assurance, Version 2 July 2013.</p> <p>Technical requirements are confirmed by the laboratory partner of lighting global. The testing policy covers that each sample is randomly selected. The test laboratories under it should have ISO 17025 accreditation for conducting tests. Validation team confirmed from the review of Lighting Global product testing policy (Version 1.0) March 2014.</p> <p>It was confirmed from the PP that each individual light and PowerCycle will have unique number and location making it traceable.</p>	
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	<p>an equivalent national standard, or the approved norms indicated in paragraph 15;</p> <p>(e) Compliance with the technical requirements in paragraph 18 are confirmed by a third-party testing organization based on appropriately sampled (random or market-selected) tests of project lamps using applicable national standards where such are available, or alternatively, the standards or test protocols indicated in paragraph 15 of this methodology may be used. The laboratory conducting and certifying the tests shall comply with the requirements of a relevant national or international standard such as ISO/IEC 17025. If the testing results are not available ex ante, they shall be made available at project verification;</p> <p>(f) Project lamps shall be marked for clear, unique identification to associate them with each unique CDM project. The method to meet this requirement includes, but is not limited to, the following:</p> <ul style="list-style-type: none"> (i) Permanent marking of CDM project number and name on each of the project lamps along with other specifications; (ii) Marking using special codes, for example each project is permanently marked 'for CDM project, not for sale/resale' followed by project specific marking/labelling; (iii) Other forms of identification using communication technologies (e.g. GPS, mobile phone networks) or lease/rental payment. 			
5	Rated average life is the life certified by the manufacturer or responsible vendor as being	As indicated in the eligibility criteria above (paragraph 4 of the methodology), Lighting	Validation team confirmed the rated life of the LED lamp from the review of	OK

	the time at which the lamp's initial light output will decline by no more than 30 per cent. In addition, for project lamps charged using Option 3(c) as provided for in paragraph 3 above, the manufacturer shall certify that the battery-charging-circuit efficiency of the project lamps, at the time of the purchase, is at least 50 per cent. For project lamps charged under option indicated in paragraph 3(b), if the mini-grid or distributed generation system is not entirely powered by renewable energy generation unit(s), the manufacturer shall certify that the project lamp's battery charging circuit efficiency, at the time of purchase, is at least 50 per cent.	Global has certified that the light output after 2000 hours is 100%. This 2000 hours can be considered for the moment as the rated average life since by then the light output will decline by no more than 30%. Options 3(b) and 3(c) are not applicable for this project activity	lighting global testing report (Reference nuru-nl3800-2015). It meets the requirement by using the shorter period of 2000 hours as specified in paragraph 18(b) of the applied methodology. The justification is provided above.	
6	Project lamps shall meet warranty requirements of the Lighting Global Minimum Quality Standard. The project lamps shall have a warranty of a minimum of one year from the time the end-user takes ownership or begins using the lamp. At a minimum, the warranty shall cover free replacement or repair of any failed lamps, batteries, and where applicable solar panels. The warranty shall be clearly communicated and supported through the supply chain and available to end-users of the project lamps during the warranty period. In a situation where the project lamps are distributed through intermediaries, the one year warranty shall commence from the time that the project lamps are distributed to end-users. The full warranty terms shall be available in writing, in a regionally appropriate language and included with each unit.	The Nuru Lights are sold with a one year warranty card to the users. The warranty card has the serial number of the lamp, the name of both the user and the seller to easily identify the lamp The one year warranty starts when the user gets the lamp and fill in the given warranty card in two copies. One copy is kept by the user and the other one by us. The one year warranty covers any damage to the lamp and replacement (no repair and free of charge) is done directly by the VLE on site who collects the damaged light and give new light to end-user. That light is later collected by our field staff and send back to the headquarter that will follow the procedure described in the "Batteries disposal plan" Each Nuru light comes in a box that contains also a warranty card where the warranty is clearly explained to the end user (although the VLE is also trained to explain the warranty to end users during distribution of lights). The warranty card in the French speaking part of Cameroon is in French and in the English speaking part is in English.	The validation team checked the warranty card of the Nuru Lamps which provides 1 year warranty to the user from the seller, and found it to be appropriate.	OK
7	Project lamps shall meet or exceed the following minimum performance		The validation confirmed the details provided in the PDD of illuminance, and	OK

	<p>characteristics, which should be proven by third-party test results:</p> <p>(a) Light Output - luminous flux of 25 lumens or illuminance of 50 lux over an area ≥ 0.1 m² when suspended at a distance of 0.75 meters or self-supported. The light output over a 2,000 hour lumen maintenance test should not decline by more than 15%;</p> <p>(b) Run Time and Battery Capacity - Daily Burn Time (DBT)⁷ shall meet the following requirements:</p> <p>(i) DBT shall be equal to or greater than 4 hours; For charging Option 3(a) with solar PV, the DBT is defined by the Solar Run Time for the project lamp (as determined per paragraph 9(g))</p> <p>(ii) For other technologies in Option 3(a), the DBT is defined based on typical expected patterns of use.</p> <p>(iii) For charging Options 3(b) and 3(c):</p> <p>a. The maximum claimed DBT shall be less than or equal to the typical capabilities of the regional or local energy system at delivering reliable power sufficient for recharging;</p> <p>b. The autonomous (full battery) run-time of the project lamps shall be equal to or greater than 200 per cent of the DBT of the project lamps;</p> <p>c. The project lamp shall be fully recharged from a discharged state after eight hours of charging.</p>	<p>(a) More than 50 lux at 0.75m (on the High setting)⁸</p> <p>(b) (i) The DBT is greater than 4 hours (4.6 hours)⁹</p> <p>(b) (ii) and (b) (iii) do not apply here since charging Option selected is 3(a)</p>	<p>DBT from manufacturer's test certificate and found it to be appropriate as it fulfils the requirement of the approved methodology.</p>	
8	The project design document shall explain the	As mentioned in section A1, the project	The validation team confirmed the	OK

⁷ Definitions of terms are included under section 4.

⁸ See document "LG-SSS_nuru-nl3800 v2"

⁹ See document "LG-SSS_nuru-nl3800 v2"

	<p>proposed distribution method of the project lamps. It shall also explain how the proposed project activity shall:</p> <ul style="list-style-type: none"> (a) Ensure that the replaced baseline lamps are those that directly consume fossil fuel. This can be done through documentation of the common practice of fuel usage for lighting in the project region (e.g. based on representative sample surveys, official data or peer reviewed literature) that demonstrates that fossil fuel is a commonly used fuel for lighting; (b) Encourage the consumers, targeted by the project activity, to use the project lamps and discourage hoarding; (c) Eliminate potential double counting of emission reductions that could occur, for example, if more than one entity (e.g. lamp manufacturers, suppliers of solar and/or battery equipment, etc.) claims credit for emission reductions for the project lamps. At a minimum, project lamps shall be marked as CDM project lamps; (d) Ensure compliance with prevailing regulations pertaining to the use and disposal of batteries. 	<p>activity consist of a combination of a product (Nuru Light lamps) and a service (Recharge of the lamps).</p> <p>(a) 294¹⁰ household surveys were conducted by S2 in 4 regions, aggregating on the result of other existing surveys in the country, plus the data provided by the report of the National Institute of Statistics on Kerosene lamps use in household.</p> <p>(b) Naturally, since the project lamps are cheaper and of better quality than kerosene lamps that they are replacing, consumers, once they acquire Nuru lamps will adapt those without further encouragement. But, Village Level Entrepreneurs (VLEs) that sell lamps and recharges are trained to continuously encourage consumers on the importance of using Nuru lamps. And since VLEs are incentivized by the share of recharge fees, they will continue to do their work of encouraging households to use Nuru lights. And there are field staffs permanently working to support VLEs in their daily activities, to ensure more lamps are sold and most importantly are recharged. Also, Nuru lamps are not distributed free of charge, and households that are rural poor will not buy unnecessary lamps and hoard. At the same time, VLEs are trained to present the product very well to households that they buy only number of lights necessary to replace their kerosene lanterns. And since VLEs have percentage of recharge fees, they will make sure Nuru lamps bought are recharged frequently and not just accumulated. And finally, each Nuru light is</p>	<p>appropriateness of the information provided in the PDD by checking the below provided documents:</p> <ol style="list-style-type: none"> 1. Baseline Survey - Potential Customers_ Cameroon_Analysis Sloan, 2. Baseline Survey - Kerosene Sellers _Cameroon_Analysis Sloan 3. Electricity access in rural area in Cameroon 4. Light for all Project Cameroon <p>Team further confirmed from the interview of the PP that Nuru lamps will not be distributed free of cost. Therefore, hoarding of lamps is not a likely scenario when user has to pay for every lamp they purchase.</p> <p>In order to ensure that there is no hoarding, the PP intends to implement a system to monitor the number of lamps being used through recharges. It was confirmed from the interview of the PP that a system of tracking the average number of lamps getting recharged will be developed.</p> <p>PP will monitor the number of recharges at each VLE. Further, based on the PP's sales database, number of lamps near each VLE is available. Based on above two, PP can calculate the average</p>	
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¹⁰ See attached spreadsheet "111107_S2_Baseline Survey - Potential Customers_ Cameroon_Analysis Sloan" that was used to analyse the result of the survey. Physical questionnaires were presented to the DOE during site visit

		<p>expected to be recharged 3 times per month. Since, we know exactly how many lights have been distributed by each VLE, we know how many recharges that entrepreneur will do per month. We also know on real time the number of recharges bought by each VLE. So, we can each month see if the number of recharges bought is 3 times the number of Nuru lights sold. If the number drops by say 10%¹¹, we will request the field staff to verify with the entrepreneur what the problem can be and take necessary measure to avoid households hoarding lights. A detailed investigation report will be prepared and made available for review.</p> <p>(c) We have an exclusive distribution contract with the Technology Provider NEEA (Nuru Energy East Africa) and each lamps and PowerCycle has a unique identification number. In Cameroon on an exclusivity basis, S2 is the only provider of the Nuru lamps in the country and project activity area. Only the Nuru POWERCycle can charge the lamps. And with our web and mobile based inventory management application, we have a full control of what is happening on the field, ensuring that there is no double counting possible. PLUS to the best of our knowledge, there is no other similar CDM project in the country. Each light will be marked with unique identification for tracking.</p> <p>(d) The battery used are Lithium Iron Phosphate, the best available in the market in term of environmental impact. These are set to be recycled at their end of lifetime. We will</p>	<p>number of recharges for lamp. PP, through its domain knowledge, estimates that lamp will be recharged thrice in a month. If the number of recharges is lower than 10% threshold of the initial estimate, then it will be investigated; this threshold will be refined based on practical knowledge gained during implementation. This system ensures that there is no hoarding of lamps.</p>	
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¹¹ 10% is only an initial guess; this threshold may vary depending upon actual implementation. If higher threshold is used, it will be justified to verifier.

		collect old lights and give new light free of charge to end users. Old lights will be sent to the manufacturer for recycling. In Cameroon however, there is no law or regulation making compulsory the collection and handling of batteries from end users after end of use. Our action to recycle batteries is totally voluntary.		
9	<p>The project design document shall include the minimum requirements for the design specifications of project lamps including the following specifications:</p> <p>(a) Lamp wattage (in Watts) and luminous flux output (in lumens);</p> <p>(b) Rated lamp life (in hours);</p> <p>(c) Where applicable, the type and rated capacity of the renewable energy equipment used for battery-charging (in Watts);</p> <p>(d) Type (e.g. NiMH, Lead-Acid, Li-ion, Lithium-iron-phosphate, etc.), nominal voltage, and rated capacity of the batteries (in Ampere hours);</p> <p>(e) Type of charge controller (e.g. active or passive);</p> <p>(f) Autonomous time and DBT;</p> <p>(g) Solar Run Times(s) (SRT) for products with solar energy charging systems. If regional solar data are available, the maximum, minimum and average estimated SRT values for each month of a typical year shall be provided. If regional solar data are not available the standard</p>	<p>(a) Wattage: 0.5W¹² Illumination: 33 lumens for high setting and 6 lumens for low setting¹³</p> <p>(b) Rated lamp lifetime: more than 2000 hours.¹⁴</p> <p>(c) not applicable .</p> <p>(d) The batteries used are: Lithium iron phosphate of 900mAh</p> <p>(e) The charge controller is active as the entrepreneur controls the charge by his pedaling speed, keeping the charging led signal on the POWERCycle green</p>	<p>Validation team confirms lamp wattage as 0.5W and luminous flux output as 50 lux from the review of product brochure. Team independently confirmed the illumination from the lighting global website¹⁵.</p> <p>The validation Team confirmed the appropriateness of the information provided in the PDD from the below mentioned documents:</p> <ol style="list-style-type: none"> 1. Report of National Statistical Institute 2004 2. Lighting Global Product Testing certificate 3. Technical Specification of Nuru Light and Power Cycle. 	OK

¹²Value given by the technology provider in the attached document "NL3-800"

¹³See document "LG-SSS_nuru-nl3800 v2"

¹⁴As indicated in the eligibility criteria above (paragraph 4 of the methodology), Lighting Global has certified that the light output after 2000 hours is 100%. See document "LG-SSS_nuru-nl3800 v2"

¹⁵ https://www.lightingglobal.org/wp-content/uploads/2015/05/LG-SSS_nuru-nl3800.pdf

	<p>solar day (5 kWh/m²) shall be used to estimate SRT;</p> <p>(h) Where applicable, the amount of time to fully charge the product using mechanical means or a centralized charging system (e.g. the national grid);</p> <p>(i) Physical protection against environmental factors (e.g. rain, heat, insect ingress).</p>	<p>(f) The Autonomous Time (or maximum possible burn time) of the Nuru Light from full recharge until low voltage battery cut-off is approximately 15.6 hours using the brightest setting.</p> <p>(g) Not applicable</p> <p>(h) Pedaling the NuruPOWERCycle , 1 to 5 Nuru Lamps can be charged simultaneously in 20 minutes.</p> <p>(i) The material used for the casing of the Nuru Light is ABS. The handle/base is made out of Nylon. This helps protect the Nuru Light from weather impacts like rain and heat. With regard to dust and water tightness a minimum protection of IP41 is achieved in accordance to IEC 60529.</p>		
10	Measures are limited to those that result in emissions reductions of less than or equal to 60 kt CO ₂ equivalent annually.	At no point of the crediting period the ER value will cross the small scale threshold of 60 KtCO ₂ e	Based on the distribution plan provided by the PP and emission reduction calculation of each lamp it is found the emission reduction of the project annually will be below 60 ktCO ₂ .	OK

	Validated situation	Conclusion
8. Confirm that any specific guidance provided by the CDM Executive Board in respect to an approved methodology has been correctly applied.	The approved methodology specifies clear criteria to check the applicability conditions and each condition were checked as detailed above.	OK

	Validated situation	Conclusion
<p>9. If a determination regarding the applicability of the selected methodology to the proposed CDM project activity/Programme/CPA cannot be made, request clarification of the methodology in line with the guidance provided by the CDM Executive Board.</p> <p>Describe the clarification request and response.</p>	NA	NA
<p>10. If the Validation Team determines that the proposed CDM project activity/Programme/CPA does not comply with the applicability conditions of the methodology, the Team may proceed by means of requesting revision to or deviation from the methodology in line with the guidance provided by the CDM Executive Board.</p> <p>Describe the request for revision or deviation and approval by the CDM Executive Board.</p>	NA	NA

	Validated situation	Conclusion
SECTION 7a. Project boundary		
<p>1. Does the project boundary include physical, geographical site of the industrial facility, processes, or equipment that is affected by the project activity/each CPA implemented under the Programme?</p> <p>In case of application of multiple technologies/measures and/or methodologies describe for each one as necessary.</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/></p> <p>Yes, the project boundary consists of the Nuru POWERcycles operated by the local entrepreneurs as well as the Nuru Lights that are distributed to households and recharged by the village level entrepreneurs when the battery is empty.</p> <p>CL 02 is raised as Project Boundary diagram presented in the section B.3 of the web hosted PDD is not representing the geographical boundary of the proposed project activity. In response to the finding, the PP has corrected the PDD to make the</p>	<p>CL-02 OK</p>

	Validated situation	Conclusion
2. If the proposed project activity has both Afforestation/Reforestation (A/R) and non-A/R components, to avoid double counting of emission sources, LRQA shall confirm that the emissions associated with the A/R activity will be accounted for and documented by the A/R project activity.	NA	NA
3. Determine whether in establishing the project boundary of the PoA, PPs have taken into consideration all applicable national and/or sectoral policies and regulations within that chosen boundary. Please describe it for each host country involved.	NA	NA
4. If there are any GHG emissions occurring within the proposed CDM project activity boundary, which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reductions as a result of the implementation of the project, LRQA shall request clarification of, revision to, or deviation from the methodology as appropriate.	The validation of the project activity did not reveal any other greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which is expected to contribute more than 1% of the overall expected average annual emission reduction. Project emission is calculated when mini grid or grid is used for recharging of the batteries, which is not the part of the project boundary of the project activity as confirmed during site visit.	OK
5. Confirm that all sources and GHGs required by the methodology have been included within the project boundary. Describe here if any emission source that will be affected by the project activity and is not addressed by the approved methodology, has been identified. In such case request clarification of, revision to or deviation from the methodology in accordance with EB guidance. Use the table below for this purpose:	NA	NA

Validated situation

Conclusion

SECTION 7b. Baseline scenario identification and description.

1. Determine whether the PDD/PoA-DD provides a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity/Programme. Please describe it for each technologies/measures and/or combination of methodologies and/or host country.	The applied methodology AMS III AR provides baseline scenario as fossil fuel based lamps (e.g. wick-based kerosene lanterns) in residential and/or non-residential applications (e.g. ambient lights, task lights, portable lights). No additional steps are required to be identified.	OK
2. Confirm that any procedure contained in the methodology to identify the most reasonable baseline scenario, has been correctly applied.	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/> No procedure has been provided in the applied methodology to identify the baseline scenario. The methodology provides one most reasonable and only plausible scenario that is fossil fuel based lighting system which the project activity will replace with efficient Nuru lights.	NA
3. Check each step in the procedure described in the PDD to identify the baseline scenario against the requirements of the methodology. (Note that if the methodology requires use of tools, that is, such as the tool for the demonstration and assessment of additionality and the combined tool to identify the baseline scenario and demonstrate additionality, the guidance in the methodology shall supersede it in the tool.)	As explained above	NA
4. Based on financial expertise and local and sectoral knowledge, determine whether all scenarios that are considered by the project participants including those required by the methodology, are reasonable in the context of the proposed CDM project activity and that no reasonable alternative scenario has been excluded. Use the table below for this purpose. Use the same reference as in the methodology, when available. Please describe the below table for each technologies/measures and/or combination of methodologies and/or host country as applicable.	Since this baseline scenario is prescribed by the approved methodology, this is acceptable in accordance with the requirements of clause 124 of CDM VVS version 09.	OK

Scenario Ref.	Description in the PDD: applicable non	Cross-checking	Validation Opinion
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	applicable.		

5. Determine whether the baseline scenario identified is reasonable by validating the assumptions, calculations and rationales used, as described in the PDD. It shall be ensured that documents and sources referred to in the PDD are correctly quoted and interpreted. Cross check the information provided in the PDD with other verifiable and credible sources, such as local expert opinion. The table above may be used for this purpose.	Since this baseline scenario is prescribed by the approved methodology, this is acceptable in accordance with the requirements of clause 124 of CDM VVS version 09.	OK
6. Is the identified baseline scenario in line with regulatory or legal requirements and does it take into account relevant national and/or sectoral policies?	Since this baseline scenario is prescribed by the approved methodology, this is acceptable in accordance with the requirements of clause 124 of CDM VVS version 09.	OK
7. If applicable, identify the type of national and/or sectoral policies: - E+: Those adopted after the adoption of the Kyoto Protocol (11 December 1997) shall not be taken into account in identifying the baseline scenario. Please describe how the baseline scenario refers to the hypothetical situation without these national and or sectoral policies. - E-: Those adopted after the adoption of the M&P for a CDM (11 November 2001) shall not be taken into account in identifying the baseline scenario. Please describe the hypothetical situation without these national and/or sectoral regulations being taken into account for the baseline identification.	No E+ and E- policies are identified	OK
8. Is this identification supported by official and/or verifiable documents (for example, studies, web pages, certificates, etc)?	NA	NA

	Validated situation	Conclusion																																									
SECTION 7c. Algorithms and/or formulae used to determine emission reductions																																											
<p>1. Compare the equations and parameters in the PDD to those in the selected approved methodology and determine if they have been correctly applied to calculate project emissions, baseline emissions, leakage, and emission reductions.</p> <p>Confirm that adequate justification has been provided for selection between different options.</p> <p>Please describe the equations for each of the technologies/measures or combination of methodologies selected.</p>	<p>Annual emission reductions are calculated as:</p> $ER_y = \sum N_{i,j} \times (BE_{y,i} - PE_{y,i,j}) \times (OF_{y,i,j})$ <p>Where:</p> <p>ER_y = Emission reductions in year y (t CO2e)</p> <p>N_{ij} = Number of project lamps distributed to end users of type i with charging method j</p> <p>OF_{yij} = Percentage of project lamps distributed to end users that are operating and in service in year y, for each lamp type i and charging method j.</p> <p>The PP has assumed OF to be equal to 100% for years 1, 2 and 3, and equal to the value determined in paragraph 28, for years 4, 5, 6 and 7. Lamp installation plan is as below:</p> <table> <tr> <th>Year</th> <th>Lamps sold/installed</th> </tr> <tr> <td>Year 1</td> <td>60,000</td> </tr> <tr> <td>Year 2</td> <td>100,000</td> </tr> <tr> <td>Year 3</td> <td>150,000</td> </tr> <tr> <td>Year 4</td> <td>150,000</td> </tr> <tr> <td>Year 5</td> <td>100,000</td> </tr> <tr> <td>Year 6</td> <td>100,000</td> </tr> </table> <p>Table A: Total number of lamps installed sold</p> <p>Based on the above operating fraction, the total number of operational lamps are calculated as below:</p> <table> <tr> <th rowspan="2">Monitoring year</th> <th colspan="6">Year of lamp installation</th> </tr> <tr> <th>Year 1</th> <th>Year 2</th> <th>Year 3</th> <th>Year 4</th> <th>Year 5</th> <th>Year 6</th> </tr> <tr> <td>Year 1</td> <td>100%</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Year 2</td> <td>100%</td> <td>100%</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Year	Lamps sold/installed	Year 1	60,000	Year 2	100,000	Year 3	150,000	Year 4	150,000	Year 5	100,000	Year 6	100,000	Monitoring year	Year of lamp installation						Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	100%						Year 2	100%	100%					<p>CAR-05</p> <p>OK</p>
Year	Lamps sold/installed																																										
Year 1	60,000																																										
Year 2	100,000																																										
Year 3	150,000																																										
Year 4	150,000																																										
Year 5	100,000																																										
Year 6	100,000																																										
Monitoring year	Year of lamp installation																																										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6																																					
Year 1	100%																																										
Year 2	100%	100%																																									

	Validated situation							Conclusion
	Year 3	100%	100%	100%				
	Year 4	95%	100%	100%	100%			
	Year 5	95%	95%	100%	100%	100%		
	Year 6	95%	95%	95%	100%	100%	100%	
	Year 7	95%	95%	95%	95%	100%	100%	
	Year 8	0%	95%	95%	95%	95%	100%	
	Year 9	0%	0%	95%	95%	95%	95%	
	Year 10	0%	0%	0%	95%	95%	95%	
Table B: Lamp operating fraction and year of installation.								
At any year the total number of operating lamps is calculated as product of number of lamps installed with its corresponding operating fraction. This is as per table below.								
Monitoring year	Year of lamp installation						Total	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
Year 1	60,000						60,000	
Year 2	60,000	100,000					160,000	
Year 3	60,000	100,000	150,000				310,000	
Year 4	57,000	100,000	150,000	150,000			457,000	
Year 5	57,000	95,000	150,000	150,000	100,000		552,000	
Year 6	57,000	95,000	142,500	150,000	100,000	100,000	644,500	
Year 7	57,000	95,000	142,500	142,500	100,000	100,000	637,000	

Validated situation									Conclusion
Year 8	0	95,000	142,500	142,500	95,000	100,000	575,000		
Year 9	0	0	142,500	142,500	95,000	95,000	475,000		
Year 10	0	0	0	142,500	95,000	95,000	332,500		
<p>Table C: Operating lamps and year of installation.</p> <p>This total number is correctly used in the ER spreadsheet.</p> <p>Project emissions are nil as it is a human powered mechanical system.</p> <p>This methodology provides for a default annual baseline emissions factor for the project lamps. The following assumptions are made about the equivalent baseline lighting system:</p> <p>$DV = FUR \times O \times U \times EF \div 1000 \times LF \times n \times NTG$</p> <p>Where:</p> <p>DV = Lamp Emission Factor (default is 0.092 t CO₂e per project lamp)</p> <p>FUR = Fuel use rate (0.03 liters/hour)</p> <p>O = Utilization rate (3.5 hours/day)</p> <p>U = Annual utilization (365 days/year)</p> <p>EF = Fuel emissions factor (2.4 kgCO₂/liter)</p> <p>LF = Leakage factor (1.0)</p> <p>n = Number of fuel-based lamps replaced per project lamp (1.0)</p> <p>NTG = Net-to-gross adjustment factor (1.0)</p> <p>Default value has been used for DV as 0.092tCO₂e/lamp.</p> <p>Baseline Emissions Calculation:</p> <p>$BE_y = DV \times GF_y \times DB_y$</p> <p>Where:</p>									

	Validated situation	Conclusion
	<p> BE_y = Baseline emissions per project lamp in year y (t CO₂e) GF_y = Grid Factor in year y, <ul style="list-style-type: none"> Equal to 1.0 when charging option defined in paragraph 3(a) is used; Equal to 1.0 if the project activity is for off-grid households/communities (defined as no grid access or less than 12 hours grid availability per day on an annual average basis); Otherwise it is equal to 1.0 minus (the fraction of time grid is available to the target households and communities/users in the region of project activity) DB_y = Dynamic Baseline Factor (change in baseline fuel, fuel use rate, and/or utilization during crediting period) in year y. Calculated as either: Option 1: default of 1.0 in the absence of relevant information; Option 2: value of $1.0 + FFg$ where FFg is the documented national growth rate of kerosene fuel use in lighting from the preceding years (use the most recent available data for a three or five years average (fraction)) Since the project uses human powered mechanical system, the $GF_y = 1$. Further, as a default value $DB_y = 1$ in absence of any information. </p> <p> $BE_y = 0.092 \text{ tCO}_2\text{e/lamp} \times 1.0 \text{ (option 3(a) is used)} \times 1.0 \text{ (option 1 in absence of relevant information)}$ </p> <p> $BE_y = 0.092 \text{ tCO}_2\text{e / Lamp}$ </p> <p>Project Emission calculation:</p> <p>As per methodology the project emission is required to be calculated when the batteries are charged using option 3 (b) and 3 (c) as provided in the methodology which are:</p> <ul style="list-style-type: none"> Charged by a standalone distributed generation system (e.g. a diesel generator set) or a mini-grid, i.e. that is not connected to a national or regional grid; Charged by a grid that is connected to regional/national grid. <p>The project activity's batteries are charged using mechanical system, therefore no project emission is required to be calculated.</p> <p> $PE_y = 0 \text{ tCO}_2\text{e / Lamp}$ </p>	

	Validated situation	Conclusion																																					
	<p>Emission reduction calculation:</p> <p>ER y = No. of project lamps distributed to end users × (BEy - PEy) × percentage of project lamps distributed are operating and in service in year y (100% (default set by methodology)for year 1,2 &3 and 95% assumed for year 4, 5, 6 & 7).</p> <p>Ex post monitoring surveys to determine percentage of project lamps distributed to end users that are operating and in service will be conducted during the third year of the crediting period. PP has assumed 95% operating rate after 3rd year based on manufacturer specification which is found to be appropriate as per the methodology requirement. Team confirms it based on its sectoral expertise that the above assumption of operating percentage is reasonable.</p> <p>Business plan for selling Nuru lights</p> <table><tr><th>Year</th><th>Lights sold (in numbers)</th></tr><tr><td>Year 1</td><td>60,000</td></tr><tr><td>Year 2</td><td>100,000</td></tr><tr><td>Year 3</td><td>150,000</td></tr><tr><td>Year 4</td><td>150,000</td></tr><tr><td>Year 5</td><td>100,000</td></tr><tr><td>Year 6</td><td>100,000</td></tr><tr><td>Year 7 – Year 10</td><td>0</td></tr></table> <table><tr><th>YEAR</th><th>Total Lights</th><th>Emission Reduction tCO2e = Total Operating Lamps × BEy)</th></tr><tr><td>Year 1</td><td>60,000</td><td>5,520</td></tr><tr><td>Year 2</td><td>160,000</td><td>14,720</td></tr><tr><td>Year 3</td><td>310,000</td><td>28,520</td></tr><tr><td>Year 4</td><td>460,000</td><td>42,044</td></tr><tr><td>Year 5</td><td>560,000</td><td>50,784</td></tr><tr><td>Year 6</td><td>660,000</td><td>59,294</td></tr></table>	Year	Lights sold (in numbers)	Year 1	60,000	Year 2	100,000	Year 3	150,000	Year 4	150,000	Year 5	100,000	Year 6	100,000	Year 7 – Year 10	0	YEAR	Total Lights	Emission Reduction tCO2e = Total Operating Lamps × BEy)	Year 1	60,000	5,520	Year 2	160,000	14,720	Year 3	310,000	28,520	Year 4	460,000	42,044	Year 5	560,000	50,784	Year 6	660,000	59,294	
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	Year 7 – Year 10	0																																					
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Year 6	660,000	59,294																																					

	Validated situation				Conclusion													
		Year 7	660,000	58,604	<div> <div></div> <div> CAR 05 is raised as following requirements of guideline for completing PDD, are not followed in the webhosted PDD; <ul style="list-style-type: none"> Section B.6.1: Methodological steps applied for calculating project emissions, baseline emissions, leakage and emission reductions are missing. Section B.6.3: The step wise calculations are not transparently presented. Further linkage with sampling plan is missing. Section B.7.3: Please justify why B.7.3 is not applicable to the monitoring plan of the project activity. Further as per the PDD template there is no provision for description directly under section B.7. PP has revised the PDD is response to the CAR raised. </div> </div>													
		Year 8	660,000	52,900														
		Year 9	660,000	43,700														
		Year 10	660,000	30,590														
		Total		386,676														
				38,668 tCO2e / year														
<div> <div>2.</div> <div> Verify the justification given in the PDD/PoA-DD for the choice of data and parameters that are fixed ex-ante and used in the equations to determine estimated emission reductions. </div> </div> <div> Assess that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity/programme and will result in a conservative estimate of the emission reductions. </div> <div> If data and parameters will be monitored on implementation and hence become available only after validation of the project activity, confirm that the estimates provided in the PDD for these data and parameters are reasonable. </div> <div> List all data and parameters provided in the PDD in the tables in next column. </div>	<table> <tr> <th>Data/Parameter title: DV</th> <th>Comments</th> </tr> <tr> <td>Value</td> <td>0.092</td> </tr> <tr> <td>Title in line with methodology?</td> <td>Yes,</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>Yes, tCO_{2e}</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>Yes, Default annual baseline emission factor for the project lamp</td> </tr> <tr> <td>Source clearly referenced?</td> <td>Yes, AMS III AR version 5</td> </tr> <tr> <td>Value provided is considered reasonable and provide conservative estimate of emission reduction?</td> <td>Yes</td> </tr> <tr> <td>Has this value been verified?</td> <td>Yes, the value is calculated and provided as a default value in the applied methodology</td> </tr> </table>	Data/Parameter title: DV	Comments	Value	0.092	Title in line with methodology?	Yes,	Data unit correctly expressed?	Yes, tCO _{2e}	Appropriate description of parameter?	Yes, Default annual baseline emission factor for the project lamp	Source clearly referenced?	Yes, AMS III AR version 5	Value provided is considered reasonable and provide conservative estimate of emission reduction?	Yes	Has this value been verified?	Yes, the value is calculated and provided as a default value in the applied methodology	<div>CL-04</div> <div>OK</div>
Data/Parameter title: DV	Comments																	
Value	0.092																	
Title in line with methodology?	Yes,																	
Data unit correctly expressed?	Yes, tCO _{2e}																	
Appropriate description of parameter?	Yes, Default annual baseline emission factor for the project lamp																	
Source clearly referenced?	Yes, AMS III AR version 5																	
Value provided is considered reasonable and provide conservative estimate of emission reduction?	Yes																	
Has this value been verified?	Yes, the value is calculated and provided as a default value in the applied methodology																	

Validated situation		Conclusion
Choice of data correctly justified?	Yes, default value as per methodology	
Measurement method correctly described?	Default Value	
Data/Parameter title: GF _y	Comments	
Value	1	
Title in line with methodology?	Yes,	
Data unit correctly expressed?	Yes, Unit	
Appropriate description of parameter?	Yes, Grid factor in year y	
Source clearly referenced?	Yes, AMS III AR version 5	
Value provided is considered reasonable and provide conservative estimate of emission reduction?	Yes	
Has this value been verified?	Default provided in methodology	
Choice of data correctly justified?	Yes, Equal to 1.0 when charging option defined in paragraph 3(a) is used; from methodology	
Measurement method correctly described?	Default value	
Data/Parameter title: DB _y	Comments	
Value	1	
Title in line with methodology?	Yes,	
Data unit correctly expressed?	Yes, Unit	
Appropriate description of parameter?	Yes, Dynamic baseline factor in year y	
Source clearly referenced?	Yes, AMS III AR version 5	
Value provided is considered reasonable and provide conservative estimate of emission reduction?	Yes	
Has this value been verified?	Default provided in methodology	
Choice of data correctly justified?	Yes, (Option 1: default of 1.0 in the absence of relevant information)	

	Validated situation	Conclusion																														
	<table border="1"> <tr> <td>Measurement method correctly described?</td><td>Default value</td></tr> </table> <p>CL 04 is raised as BEy and PEy are included in section B.6.2 as ex-ante parameters. Please clarify how these parameters can be fixed ex ante. In response to the finding, the PP has revised the PDD to remove BEy and PEy. Therefore, finding was closed.</p>	Measurement method correctly described?	Default value																													
Measurement method correctly described?	Default value																															
<p>3. Verify the justification given in the CPA-DD for the choice of data and parameters that are fixed ex-ante and used in the equations to determine estimated emission reductions.</p> <p>Assess that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CPA and will result in a conservative estimate of the emission reductions.</p> <p>Please add row for each specific CPA</p>	Not applicable	NA																														
<p>4. Verify the justification given in the PDD/PoA-DD/CPA-DD for the choice of data and parameters that are monitored and used in the equations to determine estimated emission reductions.</p> <p>For data and parameters will be monitored on implementation and hence become available only after validation of the project activity, confirm that the estimates provided in the PDD/CPA-DD for these data and parameters are reasonable.</p> <p>Please add row for each specific CPA</p>	<table border="1"> <thead> <tr> <th>Data/Parameter title: $N_{i,j}$</th><th colspan="2">Comments</th></tr> </thead> <tbody> <tr> <td>Value</td><td>Year</td><td>Total Lamps to be distributed Year wise</td></tr> <tr> <td></td><td>1</td><td>60,000</td></tr> <tr> <td></td><td>2</td><td>100,000</td></tr> <tr> <td></td><td>3</td><td>150,000</td></tr> <tr> <td></td><td>4</td><td>150,000</td></tr> <tr> <td></td><td>5</td><td>100,000</td></tr> <tr> <td></td><td>6</td><td>100,000</td></tr> <tr> <td></td><td>Total</td><td>660,000</td></tr> <tr> <td>Title in line with methodology?</td><td colspan="2">Yes,</td></tr> </tbody> </table>	Data/Parameter title: $N_{i,j}$	Comments		Value	Year	Total Lamps to be distributed Year wise		1	60,000		2	100,000		3	150,000		4	150,000		5	100,000		6	100,000		Total	660,000	Title in line with methodology?	Yes,		OK
Data/Parameter title: $N_{i,j}$	Comments																															
Value	Year	Total Lamps to be distributed Year wise																														
	1	60,000																														
	2	100,000																														
	3	150,000																														
	4	150,000																														
	5	100,000																														
	6	100,000																														
	Total	660,000																														
Title in line with methodology?	Yes,																															

	Validated situation		Conclusion
	Data unit correctly expressed?	Yes, Unit	
	Appropriate description of parameter?	Yes, Number of Nuru lights sold to household	
	Source clearly referenced?	Yes, S2 – Nuru Sales Database	
	Value provided is considered reasonable?	Yes	
	Has this value been verified?	Yes, this value was verified based on the business plan and confirmed through interview.	
	Choice of data correctly justified?	NA	
	Measurement method correctly described?	Yes	
	Information in line with the PoA-DD?	NA	
	Data/Parameter title: OF _y	Comments	
	Value	1	
	Title in line with methodology?	Yes,	
	Fixed throughout the crediting period?	This will be monitored ex-post	
	Data unit correctly expressed?	Yes, Unit	
	Appropriate description of parameter?	Yes, Percentage of project lamps distributed to end-users that are operating and in service in year y.	
	Source clearly referenced?	Yes, Ex post monitoring household surveys.	
	Value provided is considered reasonable?	Yes	
	Has this value been verified?	Default provided in methodology is 100% for year 1,2 and 3 thereafter the value will be depended on the household survey	
	Choice of data correctly justified?	NA	
	Measurement method correctly described?	Yes	
	Information in line with the PoA-DD?	NA	

	Validated situation	Conclusion
<p>5. Confirm that all assumptions and data used by PPs are listed in the PDD including their references and sources, and that the documentation used as the basis for these assumptions and source of data is correctly quoted and interpreted in the PDD.</p> <p>If the project activity has both A/R and non A/R components, ensure that no emissions associated with the A/R activity are accounted for.</p>	<p>All assumptions and data used by PPs and listed in the PDD are provided as a default value in the methodology AMS III AR version 5. The value of number of lamps distributed will be checked from S2 Sarl Nuru database and the number of operating lamps will be based on household surveys to be conducted after 3rd year.</p> <p>The team confirmed the Nuru data base during site visit and the household survey questionnaire and survey procedure and found it to be correct and in line with the steps identified in the methodology.</p>	OK
6. Please confirm that all the parameters listed in the specific CPA are correctly referred and quoted from the corresponding generic CPA.	Not applicable	NA
7. Confirm that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD/PoA-DD/CPA-DD.	The baseline emissions can be replicated using the data and parameter and could be confirmed from the emission reduction spreadsheet submitted by the PP.	OK
8. If any of the parameters used to calculate ERs have been obtained using sampling methods, please use the "Standard for sampling and surveys for CDM project activities and PoA" Version 3 paragraphs 21 to 27 to determine whether the sampling plan proposed by the PPs will provide parameter value estimates in an unbiased and reliable manner.	<p>While distributing the lamps, the PP will collect the unique identification of each lamp including the recipient contact details. This data is being recorded in the online inventory management system. Team confirmed the procedure from the interview of the PP during site visit.</p> <p>Since, option 2 has been used by the PP, operating fraction of projects lamps will be monitored ex-post through monitoring survey. The detailed plan of the survey in the PDD meets the requirement specified in the monitoring methodology.</p> <p>In accordance with the options provided in the monitoring methodology, the PP has selected that 100% of the lamps would be operating in year 1, 2 and 3. A survey would be taken up for lamps aged 4, 5, 6, and 7.</p> <p>The PDD clearly defines that every lamp has a unique serial number would be counted as operating. The lamps replaced as warranty or regular maintenance would be considered operating. Lamps would not be replaced as a part of survey. Lastly, PP confirms that the survey would cover the pictures of the lamp as well as interviewee and such records are auditable.</p> <p>PDD further confirms that survey conditions described in paragraph 31 will be</p>	<p>CL-05</p> <p>OK</p>

	Validated situation	Conclusion
	<p>adhered. Validation team confirms from the interview that sample size would be atleast 100; sampling would be statistically robust and relevant which would be confirmed through standard sampling tools; interviewee would be selected randomly; survey would be conducted onsite and interviewing persons aged above 12 which would be confirmed through photographs. Lastly basic design of the survey is included in the PDD.</p> <p>PP has further confirmed that simple random sampling technique would be used and survey would be conducted by independent surveyors such as institute or university.</p> <p>The Sample Method selected based on the “Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities” Version 4 is Simple random sampling method. The “Standard for sampling and surveys for CDM project activities and programme of activities” Version 5 recommends the use of simple random sampling if there is homogeneity in the population to be sampled, and it's the case for this project activity. A random sample of yearly group of users of Nuru Lights that have been in used for more than 3 years will be taken every year.</p> <p>Sample Size The sample size is calculated using formula (1) of the “Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities” (on paragraph 48)</p> $n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$ <p>The following sampling plan is only applicable for project activity using Option 2 as per paragraph 18 of AMS. III. AR, version 05. Ex-post monitoring surveys shall be conducted in the third crediting year of the project activity to determine OF y,i,j for operational years 4,5,6, and 7 of the project lamps included in that activity.</p> <p>For operational years 1, 2 and 3 OF y,i,j is 100%. In the following, project activity that have chosen Option 2 as per paragraph 17 of the methodology and are in the third year of their crediting period.</p>	

	Validated situation	Conclusion
	<p>Sampling Design:</p> <ol style="list-style-type: none"> I. Objective and Reliability Requirements: The objective of sampling is to check continued operation of sampled lamps (Yes/No). The above parameters shall be monitored using a 90/10 (confidence/precision) The size of the sample shall be no less than 100 as required by paragraph 31 of AMS III.AR version 05. II. Target Population: The sample survey shall be conducted by PP or appointed entity on the project activity lamps that are into third year of their crediting period. The target population are the users of lamps under the project activity using Option 2. III. Sampling Method: The sampling method chosen is random sampling method. The sample size shall be determined as mentioned above. IV. Sample Size: The sample size shall be calculated for 90/10 (confidence/precision). Sample size shall be determined using the latest version of "Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities". In any case, the size of the sample shall be no less than 100 as required by paragraph 31 of AMS III.AR version 05. V. Sampling Frame: The sampling frame in this case is constituted by the sales for which completed warranty cards /registration process are available. <p>The validation team confirms the sampling plan to be robust, covers the target population as it is random, and the sample size of 100 atleast to be checked in third year to be reliable, accurate and true representative of the population.</p> <p>CL 05 is raised as it was not clear how proposed sampling plan for multistage sampling described under section B.7.2 in the web hosted PDD, confirm to the requirements of the latest sampling standard and sampling guideline. In response to the finding, the PP has correctly revised the PDD. The PP has further presented the detailed monitoring plan as a part of monitoring manual which is also reported in the PDD.</p>	

	Validated situation	Conclusion
SECTION 6. Additionality of a project activity		
1. Does the PDD/PoA-DD clearly describe how the proposed CDM project activity is additional? Describe briefly the approach taken for the demonstration of additionality.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	OK
2. List the documents and tools provided by the CDM Executive Board used to demonstrate the additionality	Guidelines on the demonstration of additionality of small-scale project activities Version 09.0	OK
3. If there is any registered project or CPA which could interfere with the specific CPA, please describe the reference number, and how it has been considered for additionality assessment.	There is no such activity which could interfere with this PA.	OK
<u>Additionality for small-scale project activities or PoA that include one or more small-scale CPA</u> Determine whether the proposed project activity is additional in accordance with CDM requirements applicable for small-scale project activities: last version of the methodological tool “Demonstration of additionality of small-scale project activities” and “non binding best practice examples to demonstrate additionality for SSC project activities”		
4. Describe and assess the relevant criteria for the automatic additionality of the CPAs in accordance with the Positive List of technologies and project activity types in the last version of the Guidelines on the demonstration of additionality of small-scale project activities. Confirm that the CPA size is up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW) and applies only small scale methodology.	In accordance with the paragraph 11(c) of the methodological tool: Demonstration of additionality of small-scale project activities, Version 10.0, the project activity comprises of isolated lighting units for households/communities or small/medium enterprises. Each lighting unit contributes about 0.092tCO ₂ /annum which is about 0.000153% of the small scale threshold of 60,000 tCO ₂ /annum for type III activities.	OK

	Validated situation	Conclusion
5. Documentation of barriers is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds in accordance to the last version of the “Guidelines on the Demonstration of Additionality of Small-Scale Project Activities”. Describe and assess the relevant criteria for considering the proposed Project activity automatically additional.	<p>Project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size1 of each unit is no larger than 5% of the small-scale CDM thresholds;</p> <p>CL 03 is raised as Demonstration of additionality in section B.5 of the web hosted PDD, does not address footnote 1 of additionality tool for small-scale project activities. In response to the finding, the PP has presented the detailed calculation of emission reduction from each lighting unit which is less than 5% of the small scale threshold. Team reviewed the calculations and found it to be correctly done. Therefore, finding was closed.</p>	CL-03 OK
6. In case microscale project activities describe and assess the relevant criteria for the automatic additionality in accordance with the last version of the “Guidelines for demonstrating additionality of microscale project activities”, of the following cases: a) Type I project activities up to 5 MW that employ renewable energy as their primary technology, b) Type II energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year, c) Type III project activities that aim to achieve emissions reductions at a scale of no more than 20 ktCO ₂ e per year.	The project activity is covered under positive list of technologies.	OK
First-of-its-kind Project Activities Determine whether the proposed project activity is first-of-its-kind and therefore additional with no further analysis in accordance with the last version of the methodological tool: “Additionality of first-of-its-kind project activities”.		

	Validated situation	Conclusion
7. Describe and assess the relevant criteria to identify that the proposed project activity is the first of its kind in the applicable geographical area in accordance with the approach in methodological tool: "Additionality of first-of-its-kind project activities". Justify the geographical area chosen by the PP Justify how same output/capacity has been determined by the PP. Describe appropriateness of the data used to determine FOIK.	NA	NA

	Validated situation	Conclusion
SECTION 6a. Prior consideration of the clean development mechanism		
1. Does the PDD clearly indicate the start date of the project activity in format: dd/mm/yyyy, and is it in line with the Glossary of CDM Terms?	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>15/09/2016, the project activity is under UNFCCC CDM loan scheme and expected start date is the date when financing will be achieved and equipment will be ordered to be distributed.</p> <p>The validation team confirmed the same while interviewing the Project Proponent.</p> <p>CL 06 is raised as during on site assessment it was confirmed that, the contract with NURU Energy Design and Development light was signed on 29/02/2012. Thus please clarify how the start date considered in web hosted PDD comply with the definition of the start date as per the latest CDM glossary of terms. PP clarified that the initial contract was only for the pilot study and the actual start date /investment in the project activity has not yet taken place. PP has accordingly revised the start date. Team verified the information from the contract and site visit and confirms that no investment was taken place at the time of submission of this report. The start date was correctly revised to a future date. Therefore, finding was closed.</p>	<p>CL-06</p> <p>OK</p>
If the PDD was published for Global Stakeholder Consultation process after the start date, check that the CDM benefits were considered necessary in the decision to undertake the project activity as a CDM project, following the below queries.		

	Validated situation	Conclusion
<p>2. For a project activity with a start date on or after the 02 August 2008, confirm that the PPs have informed the host party DNA and the UNFCCC secretariat in writing of their intention to seek CDM Status.</p> <p>If such a notification has not been provided by the PPs within 180 days of the project activity start date, determine that the CDM was not seriously considered in the decision to implement the project activity.</p>	<p>The project activity start date is 15/09/2016 and will be after 02/08/2008 and therefore the PP has intimated the UNFCCC about the interest to go ahead with the project with CDM benefit on 27/09/2012 much before the project activity start date. The validation team confirms the same after checking the prior consideration date provided in the UNFCCC CDM website and prior consideration letter.</p>	OK
For a project activity with a start date before 02 August 2008		
<p>3. Check the following requirements through document reviews to assess the PPs prior consideration of the CDM:</p> <p>(a) Evidence that must indicate that awareness of the CDM before the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project.</p> <p>(b) Reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.</p>	NA	NA
<p>4. Describe the process for cross-checking the evidence.</p> <p>The assessment of real and continuing actions should focus on real documented evidence, including an assessment of the authenticity of the evidence, that is, letters, email exchanges and other documented communications. These shall be considered as evidence only after assessing the reliability and authenticity of them, inter alia through cross-checking (for example, interviews)</p>	<p>The validation cross checked the date of prior consideration from the UNFCCC website and letter of prior consideration forwarded to the UNFCCC. The team found it correct and appropriate.</p>	OK

	Validated situation	Conclusion
<p>5. The time gap between the documented evidence of prior CDM consideration and continuing and real actions shall be within the following period:</p> <p>a) Less than two years: continuing and real actions were taken to secure CDM status for the project activity;</p> <p>b) Greater than two years and less than three years: justify any positive or negative validation opinion based on the context of the evidence and information assessed;</p> <p>c) Greater than three years: continuing and real actions were not taken.</p>	NA	NA
<p>6. If authentic evidence to support the serious prior consideration of the CDM as indicated above is not available, determine that the CDM was not considered in the decision to implement the project activity</p>	NA	NA

	Validated situation	Conclusion												
SECTION 6b. Identification of alternatives														
<p>1. Does the PDD/PoA-DD identify credible alternatives to the project activity/CPA, to determine the most realistic baseline scenario?</p> <p>Assess this list of alternatives and ensure that:</p> <p>(a) The list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity.</p> <p>(b) The list contains all plausible alternatives considered to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity.</p> <p>(c) The alternatives comply with all applicable and enforced legislation.</p> <p>If the Baseline scenario is prescribed in the approved methodology, no further analysis is required and this section is</p>	<table border="1"> <thead> <tr> <th colspan="3">LIST OF ALTERNATIVES</th></tr> <tr> <th>No</th><th>Description in the PDD</th><th>Describe why it is credible and complete</th></tr> </thead> <tbody> <tr> <td></td><td>NA</td><td></td></tr> <tr> <td></td><td>NA</td><td></td></tr> </tbody> </table> <p>The project is categorised as small scale project activity and applies methodological tool "Demonstration of additionality of small-scale project activities" Version 10.0. This is acceptable since the project is a small-scale activity.</p> <p>The baseline scenario of the project activity is fossil fuel based lighting and is</p>	LIST OF ALTERNATIVES			No	Description in the PDD	Describe why it is credible and complete		NA			NA		OK
LIST OF ALTERNATIVES														
No	Description in the PDD	Describe why it is credible and complete												
	NA													
	NA													

	Validated situation	Conclusion
not applicable.	prescribed in the methodology and therefore no further analysis is required.	

	Validated situation	Conclusion
SECTION 6c. Investment analysis		
1. How PoA demonstrates additionality investment analysis?	<input type="checkbox"/> Defined technical and economic criteria only <input type="checkbox"/> Full investment analysis for each CPA Not applicable	NA
2. If the PoA has defined the economic and technical criteria for inclusion of the CPA, validation of range of values to be presented in the table below. Does the requirement to update the eligibility criteria for the economic and technical criteria was specified and following the methodology(ies). Justify this for each of the technologies/measures and/or combination of methodologies and/or host countries.	Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable	NA
3. If economic and technical criteria are defined for additionality of each CPA, justify how it meets these criteria based on actual values for that CPA. If there is any registered project or CPA which could interfere with the specific CPA, please describe the reference number, and how it has been considered for additionality assessment.	Not applicable	NA

	Validated situation	Conclusion
4. If full investment analysis to be conducted in each CPA, has the input values used in the analysis been defined and how it will be obtained in each CPA. Justify this for each of the technologies/measures and/or combination of methodologies and/or host countries.	Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable	NA
5. If full investment analysis to be conducted for each CPA, additionality of each CPA shall be assessed using the actual values, applicable to the CPA at the time of inclusion, in the investment analysis. Use the table below to justify how values are obtained If there is any registered project or CPA which could interfere with the specific CPA, please describe the reference number, and how it has been considered for additionality assessment.	Not applicable	NA
6. Verify the accuracy of financial calculations carried out for the investment analysis: (a) Conduct a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy and suitability of these parameters. (b) Cross-check the parameters against third-party or publicly available sources, such as invoices or price indices. (c) Review feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants.	Not applicable	NA
7. Assess the correctness of computations carried out and documented by the project participants	Not applicable	NA
8. Assess the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions.	Not applicable	NA

Use the table below to list all the inputs to the investment analysis and to describe how each parameter has been validated: NA

Parameter/input	Symbol/Unit	Value	Source	Means of validation	Conclusion
-----------------	-------------	-------	--------	---------------------	------------

					NA
					NA
					NA
					NA
					NA
					NA
					NA

	Validated situation	Conclusion
<p>9. Confirm the suitability of any benchmark applied in the investment analysis:</p> <p>(a) Determine whether the type of benchmark applied is suitable for the type of financial indicator presented.</p> <p>(b) Ensure that any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity.</p> <p>(c) Determine whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants involved and determining whether the same benchmark has been applied or if there are verifiable circumstances that have led to a change in the benchmark.</p> <p>(d) Confirm the suitability of the benchmark (WACC) by checking that its components are calculated using reasonable vintage years that are consistent with the investment horizon and the period for risk free rate. Guidance 15 of the Guidelines on the Assessment of Investment Analysis should be taken into account for estimating the market return rate.</p>	Not applicable	NA

	Validated situation	Conclusion
<p>10. If the project participants rely on values from a Feasibility Study Report (FSR) approved by any national authority, the team is required to ensure that:</p> <p>(a) The FSR has been the basis of the decision to proceed with the investment in the project, that is, that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed.</p> <p>(b) The values used in the PDD and associated annexes are fully consistent with the FSR and, where inconsistencies occur, the DOE should validate the appropriateness of the values.</p> <p>(c) On the basis of its specific local and sectoral expertise, confirmation is provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision.</p> <p>Use the table below to cross-check input values and describe here the results of the comparison.</p>	Not applicable	NA

Comparison to similar registered project/PoA/CPA in the region:

CDM Ref	Investment cost	Tariff	O&M cost	Capacity	Output	Investment cost per output	Load factor	O&M relative to investment	O&M per output
									NA
									NA
									NA
									NA

	Validated situation	Conclusion
SECTION 6d. Barrier analysis		

<p>1. Does the PDD/PoA-DD demonstrate that the proposed project activity/programme faces barriers that prevent its implementation and do not prevent at least the implementation of one of the alternatives? Provide here an overall determination of the credibility of the barrier analysis.</p> <p>Use the below table to list each barrier considered in the PDD/PoA-DD and to describe how the team undertake their validation.</p>	Not applicable	NA
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Barriers are issues in project implementation that could prevent a potential investor from pursuing the implementation of the proposed project activity/programme. The identified barriers are only sufficient grounds for demonstration of additionality if they would prevent potential project proponents from carrying out the proposed project activity/programme undertaken without being registered as a CDM project activity/Programme.

Type of Barrier	Description in the PDD/PoA-DD	Determination			Conclusion
		Barriers are real	Prevent implementation of PA/PoA	Do not prevent implementation of BL	
Access to finance					NA
Risks related barriers					NA
Technological					NA
Due to prevailing practice					NA
Other					NA
First of its kind					NA

	Validated situation	Conclusion
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SECTION 6e. Common practice analysis

In accordance with the last version of the methodological tool: "Common practice" (referred in this section as the tool).

<p>1. In case the applied approved baseline and monitoring methodology defines approaches for the conduction of the common practice test, then it takes precedence over tool and below steps is not required. Instead approach defined in the methodology should be followed.</p>	Not applicable for small scale projects.	NA
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	Validated situation	Conclusion
2. Identify if the proposed project activity/programme applies any of the measures listed in the definitions section of the Additionality tool or the combined tool.	NA	NA
3. In case the project activity applies any of these measures follow the stepwise approach described in the tool. Describe and assess the 5 steps process followed and the results.	NA	NA
Stepwise approach on common practice analysis		
4. Describe how the capacity or output range as +/- of total designed capacity/output has been calculated. Confirm how it has been validated.		
5. Describe how the geographical scope of the common practice analysis has been validated. Assess whether the geographical scope (for example, the defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type.	NA	NA
6. Determine to what extent similar and operational projects (for example, using similar technology or practice), other than CDM project activities ¹⁶ , have been undertaken in the defined region.	NA	NA
7. If similar and operational projects, other than CDM project activities, are already widely observed and commonly carried out in the defined region, assess whether there are essential distinctions between the proposed CDM project activity and the other similar activities.	NA	NA

¹⁶ Registered CDM project activities and CDM project activities that have been published on the UNFCCC website for global stakeholder consultation as part of the validation processes

		Validated situation	Conclusion																	
SECTION 7. Monitoring plan																				
1. If the monitoring plan has been included in the PDD/PoA-DD/CPA-DD If the PP/CME has chosen to delay the submission of monitoring plan in the PDD/PoA-DD/CPA-DD, below section in the monitoring plan is not applicable.		Included <input checked="" type="checkbox"/> Delayed <input type="checkbox"/> The PP has included the monitoring plan in the PDD.	OK																	
2. <i>Compliance of the monitoring plan with the approved methodology and the applicable tools.</i> Confirm that the MP contains all the necessary parameters and that they are monitored in accordance to the approve Methodology and the applicable tools using the following table:																				
Parameter	Monitoring Methodology / Tools description	PDD description	Validated situation	Conclusion																
N_{ij}	Number of project lamps distributed to end users of type i with charging method j.	Unit: Number of lamps Description: Number of Nuru lights distributed to end users, i, charging, j. Source of data: S2 – Nuru Sales Database Value(s) applied: <table border="1"> <thead> <tr> <th>Year</th> <th>Lights sold</th> </tr> </thead> <tbody> <tr><td>1</td><td>60,000</td></tr> <tr><td>2</td><td>100,000</td></tr> <tr><td>3</td><td>150,000</td></tr> <tr><td>4</td><td>150,000</td></tr> <tr><td>5</td><td>100,000</td></tr> <tr><td>6</td><td>100,000</td></tr> <tr><td>7-10</td><td>0</td></tr> </tbody> </table> Measurement methods and procedures:	Year	Lights sold	1	60,000	2	100,000	3	150,000	4	150,000	5	100,000	6	100,000	7-10	0	The parameter will check the number of Nuru lamps sold to the households which will be provided in the Nuru sales database. The validation team has confirmed the same during site visit and interview with the top management of S2 Sarl services. Number of project lamps distributed to end-users under the project activity, will be identified by the type of project lamps (lamp wattage, battery type, charging method, the date of distribution); Database will unambiguously identify each recipient of a project lamp, for all the project lamps distributed that will claim emission reductions for up to seven years, as per Option 2, paragraph 17. S2 Sarl Services will check the collected data for completeness and correctness of information on sampling basis. It will maintain a monitoring manual which governs its internal procedures for data collection and QA/QC. Invalid entries are rejected and only those that comply with requirement will be retained.	CAR-04 OK
Year	Lights sold																			
1	60,000																			
2	100,000																			
3	150,000																			
4	150,000																			
5	100,000																			
6	100,000																			
7-10	0																			

		<p>The data will be recorded in a web based sales and inventory tool used by S2 Services SARL. The data will consist of unique number, number of units sold, to whom and where. The data will be manually recorded at site and then uploaded in the web based tool at the head office of S2 Services SARL in Douala.</p> <p>Monitoring frequency: The data will be produced monthly and aggregated on yearly basis.</p> <p>QA/QC procedures: The management of the project will check on a regular basis if digital and manual data match each other and together match the ordered and received equipment. If there is a mismatch, then actions will be taken on time to correct. The data will be kept both manually and electronically throughout the crediting period plus two more years then after.</p> <p>Purpose of data : Calculation of baseline emission.</p> <p>Additional comment:</p>	<p>CAR 04 is raised as PP needed to clarify why QA/QC procedures are not applicable for the monitoring parameter N. In response to the finding, the PP has correctly included the QA/QC procedures. Therefore, finding was closed.</p>	
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OF _{y,i,j}	<p>Unit: fraction</p> <p>Description: The percentage of project lamps distributed to end users that are operating and in service.</p> <p>Measurement methods and procedures (if any): Follow the procedures in paragraph 30. For project lamps that will claim emission reductions for up to seven years, ex post monitoring surveys to determine percentage of project lamps. While the percentage of project lamps that are operating and in service can be assumed to equal 100 per cent in year 1, 2, and 3, the result of ex post monitoring survey undertaken during the third year shall be used in years 4, 5, 6 and 7. Only project lamps with a unique project marking (per paragraphs 18(f) or 33) can be counted as operating and in service. While project lamps replaced as part of a regular maintenance or warranty program can be counted as operating, project lamps cannot be replaced as part of the survey process and then counted as operating.</p>	<p>Unit: %</p> <p>Description: Percentage of project lamps distributed to end-users that are operating and in service in year y, for each lamp type i and charging method j. Assumed to be equal to 100% for years 1, 2 and 3, and equal to the value determined in paragraph 30, for the years 4, 5, 6 and 7</p> <p>Source of data: Ex post monitoring household surveys done on the 3rd year</p> <p>Value(s) applied: 100% operating for first three years, 95% for years 4th to 6th and 0% for 7th year</p> <p>Measurement methods and procedures: based on survey and sampling as provided below.</p> <p>Monitoring frequency: Yearly</p> <p>QA/QC procedures:</p> <p>Surveyors will be constantly trained to reduce potential mistakes during the sampling. Also the management of S2 will go regular field visit to verify</p>	<p>Ex post monitoring surveys to determine percentage of project lamps distributed to end users that are operating and in service will be conducted during the third year of the crediting period. While the percentage of project lamps that are operating and in service can be assumed to equal 100% in year 1, 2, and 3, the result of ex post monitoring survey undertaken during the third year shall be used in years 4, 5, 6 and 7, as per paragraph 24. Only project lamps with a unique project marking (per paragraphs 17(e) or 31) can be counted as operating and in service.</p> <p>100% of the project lamps distributed are assumed to be operational for the year 1, 2 and 3. 95% have been assumed based on the manufacturer, however the monitoring survey conducted in the 3rd year will determine the operational project lamp number. For sampling purpose a minimum of 100 samples will be picked or the number provided by the sampling method chosen by the PP, whichever is higher.</p> <p>CAR 04 is raised as for the parameter OF_y, it was not explained how the referring to the sampling plan is an appropriate QA/QC procedure. In response to the finding, the PP has correctly included the QA/QC procedures. Therefore, finding was closed.</p>	CAR-04 OK
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	Monitoring frequency: Follow the procedures in paragraph 30. Percentage of project lamps distributed to end users that are operating and in service in year y, for each lamp type i and charging method j. Assumed to be equal to 100% for years 1, 2 and 3, and equal to the value determined in paragraph 28, for years 4, 5, 6 and 78	the data taken by surveyors by physically checking surveyed lights if they are still in operation. Purpose of data: Calculation of baseline emissions Additional comment: None		
3. <i>Implementation of the plan:</i> confirm that the monitoring arrangements described in the monitoring plan are feasible within the project design. Described the steps undertaken to assess this.	The monitoring plan describes the organizational structure, roles and responsibility, the monitoring instruments, data monitoring procedures, emergency preparedness and the management system. During the site visit, validation team has confirmed that the monitoring is planned in a reasonable manner and considered feasible to be implemented by the PP. Site visit interviews confirmed the monitoring process.		OK	
4. <i>Implementation of the Plan:</i> confirm that the means of implementation of the MP, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by / resulting from the proposed CDM project activity can be reported ex post and verified	The monitoring plan includes the internal quality control and assurance process, data control system and regular calibration of the monitoring instruments as appropriate that will ensure reliable monitoring and reporting of the ERs.		OK	

	Validated situation	Conclusion
SECTION 9. Environmental Impacts		
1. Indicate whether the analysis of environmental impacts is performed at the PoA and/or the CPA level. Is justification provided for the choice of level at which the analysis is undertaken?	Not applicable for project activity	NA

	Validated situation	Conclusion
2. Is an EIA required by the environmental legislation of the host country? Describe the legislation applicable.	The national bylaw of 2005 No 0070/MINEP of Cameroon on 22 April 2005 indicate project activities that need to undergo environmental impact assessment. The project activity does not fall in any of the project type provided in the law. Therefore the validation confirms that there is no requirement to conduct an EIA for this type of project activity.	OK
3. Confirm whether the project participants have undertaken an analysis of environmental impacts and, if required by the host Party, an environmental impact assessment.	Same as above	OK
4. Confirm that environmental impacts considered significant by the PPs or the Host country are described in the PDD, including mitigation measures.	The rules of host country do not require EIA for the type of the project activity.	OK

	Validated situation	Conclusion
SECTION 8. Local stakeholder consultation		
1. For PoA, indicate if the local stakeholder consultation process was carried out for the whole PoA or at the CPA level.	Not applicable for project activity	NA
2. Confirm if the local stakeholders consultation has been conducted before the start date of the project activity? If not, approval from the Board is required.	The local stakeholders consultation has been conducted on 26/02/2013, prior to the start date of the project activity, i.e. 15/09/2016.	OK
3. Determine whether comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited. If local stakeholder consultation process is conducted at CPA level, confirm that the process is in accordance with the level of consultation specified by the coordinating/managing entity in the PoA.	No negative comment was received through the local stakeholders' consultation processes. In the stakeholders' meeting, discussion was made on the project's positive impact to the user, technological aspect, potential adverse effects and the expected benefits to the local community. Justification by the PP was presented during the meeting and it is described in the PDD.	OK
4. Confirm that the summary of the comments received as provided in the PDD/PoA-DD/CPA-DD is complete.	The validation team confirmed that the summary of the comments received as provided in the PDD is complete.	OK
5. Confirm that the project participants have taken due account of any comments received and have described this process in the PDD/PoA-DD/CPA-DD.	No comment was received that requires further action to the PP.	OK
6. Is local legislation in the host country requires stakeholder consultation? Describe the legislation applicable.	No such legislation is available.	OK
7. Has any complaints received by the DNA from the local stakeholders	No complaints has been received from the DNA	OK

Document information

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