

<b>PoA Title</b>	<b>Impact Carbon Global Safe Water Programme of Activities (PoA)</b>
<b>Real Case CPA Title(s)</b>	Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 1 Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 2
<b>ERM CVS Project Reference</b>	2531.V1
<b>Client Name</b>	Impact Carbon
<b>Client Address</b>	47 Kearny Street Suite 600 San Francisco California 94108 United States

## CDM Validation Report

**ERM Certification and Verification Services**  
2nd Floor, Exchequer Court  
33 St Mary Axe  
London EC3A 8AA

<b>Version Control</b>	<b>Date</b>
Version 1.0	14 October 2013 (Draft Validation Report)
Version 2.0	30 April 2014 (Final Validation Report)

## Table of Contents

<b>1</b>	<b>PoA Information.....</b>	<b>5</b>
1.1	Key PoA information .....	5
1.2	Summary and Validation Opinion .....	6
<b>2</b>	<b>Introduction.....</b>	<b>8</b>
2.1	Validation Objectives .....	8
2.2	Scope .....	8
2.3	Contract Review .....	8
2.4	Validation Personnel .....	8
2.5	Summary of CVs of the validation personnel .....	9
<b>3</b>	<b>Validation Approach.....</b>	<b>10</b>
3.1	Document Review.....	10
3.2	Site visit and Interviews .....	11
3.3	Preparation of Draft Validation Report .....	11
	Remediation requests .....	11
3.4	Final Validation Report and Validation Opinion.....	12
3.5	Internal Quality Control .....	12
<b>4</b>	<b>Validation findings – Approval &amp; Participation, Authorisation, Contribution to Sustainable Development, and Modalities of Communication.....</b>	<b>13</b>
4.1	Approval & Participation .....	13
4.2	Authorisation.....	14
4.3	Contribution to Sustainable Development.....	15
4.4	Modalities of Communication.....	16
<b>5</b>	<b>Validation findings – GSC, PoA-DD and PoA Description.....</b>	<b>18</b>
5.1	Main changes between the PoA-DD version published for GSC and the final version submitted for registration: .....	18
5.2	Global Stakeholder Consultation .....	18
5.3	Project Design Document (POA-DD).....	18
5.4	PoA Description .....	18
	Policy/measure or stated goal of the PoA: .....	19
	Description of the PoA:.....	19
	PoA Boundary, Location and Status.....	19
	Description of a generic CPA .....	20
	Description of baseline scenario in generic CPA-DD .....	22
<b>6</b>	<b>Validation Findings - Eligibility Criteria for Inclusion of a CPA in a PoA.....</b>	<b>24</b>
6.1	Description of Eligibility Criteria .....	24
<b>7</b>	<b>Validation findings – Baseline and Monitoring Methodology .....</b>	<b>31</b>
7.1	Validity of selected methodology and methodological tools.....	31
7.2	Applicability of the selected methodology to the generic CPA .....	32
7.3	Generic CPA Boundary .....	34
	Emission sources .....	34
	Emission sources not addressed by the methodology .....	35
7.4	Baseline identification .....	36
7.5	Algorithms and/or formulae used to determine emission reductions.....	37
	Ex Ante Data and Parameters.....	37
	Equations and calculations used to calculate emission reductions .....	43
<b>8</b>	<b>Validation findings – Additionality.....</b>	<b>48</b>
8.1	Starting date of the PoA.....	48
8.2	Identification of alternatives .....	48
8.3	Assessment of additionality of a CPA.....	48
<b>9</b>	<b>Validation Findings - Operational, management and monitoring plan for the programme of activities .....</b>	<b>50</b>
9.1	Operation and Management Plan .....	50
9.2	PoA Sampling Plan .....	52
<b>10</b>	<b>Validation Findings - Monitoring plan of a Generic CPA .....</b>	<b>55</b>
10.1	Compliance of the monitoring plan with the approved methodology.....	55
	Completeness of monitoring parameters.....	55
10.1.1	Compliance of monitoring.....	61
10.2	Implementation of the monitoring plan.....	64

**11 Validation Findings – Sustainable Development, Local Stakeholder Consultation and Environmental Impact ..... 67**

11.1 Sustainable Development ..... 67

11.2 Local Stakeholder Consultation ..... 67

11.3 Environmental Impacts ..... 68

11.4 Public funding ..... 68

**Appendix A: Documents and Interviewees ..... 70**

A.1 DOCUMENT LIST ..... 70

A.2 INTERVIEWS ..... 71

**Appendix B: Remediation Form ..... 73**

## Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH <sub>4</sub>	Methane
CL	Clarification request
CME	Coordinating/Managing Entity
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
COP	Conference of the Parties
CPA	Component Project Activities
CPA-DD	CPA Design Document
DNA	Designated National Authority
FAR	Forward Action Request
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GSC	Global Stakeholder Consultation
GWP	Global Warming Potential
GWh	Giga Watt hour
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LoA	Letter of approval
MOP	Meeting of the Parties
MP	Monitoring Plan
MW/MWh	Mega Watt/Mega Watt hour
NCV	Net Calorific Value
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PCP	Project Cycle Procedure
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added tax
VVS	CDM Validation and Verification Standard

## PoA/Party specific abbreviations

REMA	Rwanda Environment Management Authority
WPS	Water Purification Systems
WHO	World Health Organisation
NRB	Non Renewable Biomass
WBT	Water Boiling Test

## 1 PoA Information

### 1.1 Key PoA information

<b>PoA Title</b>	<b>Impact Carbon Global Safe Water Programme of Activities (PoA)</b>
<b>PoA Location(s)</b>	The Republic of Rwanda and The Republic of Uganda
<b>Host Parties</b>	The Republic of Rwanda The Republic of Uganda
<b>Other Party(ies)</b>	None
<b>CME</b>	Impact Carbon
<b>Other Project Participants</b>	Not applicable

<b>Methodology(ies) used</b>	AMS-III.A.V.: Low greenhouse gas emitting safe drinking water production systems - Version 4.0  Methodology is valid from 31 May 2013 onwards
<b>Methodological tool(s) used</b>	Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion, Version 02, EB 41, Annex 11  Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01, EB 39, Annex 07
<b>Sectoral Scope(s)</b> (as per <a href="http://cdm.unfccc.int/DOE/scopes.html">http://cdm.unfccc.int/DOE/scopes.html</a> )	Sectoral Scope 3: Energy demand


<b>PoA Design Document GSC Version</b>	Date: 19 August 2013	<b>PoA Design Document Final Version</b>	Date: 24 March 2014
	Version Number: 2.0		Version Number: 3.0

<b>Starting date of the PoA</b>	17 August 2013
<b>Lifetime of the PoA</b>	28 years

<b>Dates of GSC</b>	17 August 2013 - 15 September 2013
<b>Date(s) of validation site visit</b>	11-21 September 2013

## 1.2 Summary and Validation Opinion

<b>PoA Title</b>	Impact Carbon Global Safe Water Programme of Activities (PoA)
<b>Name of Client</b>	Impact Carbon
<b>Basis of validation</b>	<p>ERM CVS based its validation work on:</p> <ul style="list-style-type: none"> <li>• CDM approved monitoring methodology AMS-III.A.V.: Low greenhouse gas emitting safe drinking water production systems - Version 4.0</li> <li>• CDM Validation and Verification Standard (version 05.0)</li> <li>• ERM CVS's internal CDM validation methodologies and templates</li> <li>• CDM decisions and guidance issued by the CDM Executive Board</li> <li>• UNFCCC criteria for the Clean Development Mechanism</li> <li>• Host Country criteria for the Clean Development Mechanism</li> </ul>
<b>Responsibilities of ERM CVS</b>	ERM CVS is responsible to provide a thorough independent third party assessment of the proposed CDM programme of activities (PoA) to ensure that the proposed CDM PoA meets all the identified and applicable criteria for registration of PoA under the CDM.
<b>Responsibilities of Project participants</b>	The Project Participants (PPs) are responsible for preparing the PoA-DD (covered in this validation report), two real case CPA-DDs (covered in separate validation reports), supporting documentation and providing all necessary evidences to support the information included in the PoA-DD and real case CPA-DDs.
<b>Activities performed</b>	<p>ERM CVS conducted its activities in accordance with the CDM Validation and Verification Standard. The validation consisted of a review of project documentation, a site visit, interviews with relevant personnel, cross checking information through other reliable sources and reporting. Validation work was based on a validation report template that sets out relevant CDM requirements. Where necessary, Clarification Requests and Corrective Action Requests were raised and closed out with the Project participants. The validation work was subject to detailed Technical Review and assessment prior to submission.</p> <p>No component of the PoA was excluded from the validation.</p>
<b>ERM CVS Conclusion</b>	<p>ERM Certification and Verification Services (ERM CVS) has performed the validation of the programme of activities proposed to be registered as a single CDM PoA against the criteria for the Clean Development Mechanism as set out by the Conference of the Parties and the UNFCCC CDM Executive Board, and host country criteria. The validation employed standard auditing techniques, and addressed the requirements of the CDM Validation and Verification Standard.</p> <p>The Parties involved in the project fulfil the criteria for participation in the CDM, and have issued a letter of approval (LoA) for the PoA and authorised the CME and the Project Participants. The LoA of the host Party confirms the contribution of the PoA towards sustainable development.</p> <p>The validation has provided sufficient evidence to demonstrate that the PoA is not the baseline scenario, and that emission reductions would be additional to what would have taken place in the absence of the CDM PoA.</p> <p>The PoA meets the applicability criteria and correctly applies methodology AMS-III.A.V.: Low greenhouse gas emitting safe drinking water production systems - Version 4.0, and is therefore expected to result in real, measurable and long term reductions in greenhouse gas emissions.</p> <p>The monitoring plan provides for the collection and archiving of data sufficient to ensure that emission reductions can be verified. The DNA of the host Party has confirmed that the PoA assists in meeting sustainable development criteria.</p> <p>The description of the programme of activities includes verifiable eligibility criteria for inclusion of project activities as CDM programme activities (CPAs) under this PoA, and appropriate operational and</p>

	<p>management arrangements have been established for the implementation of the PoA.</p> <p>In summary, it is the opinion of ERM CVS that the PoA as described in the PoA-DD Version 3 of 24 March 2014, meets all stated criteria of the CDM, correctly applies the methodology, and is expected to result in real, measurable and long term emission reductions.</p> <p>ERM CVS therefore requests the CDM Executive Board approves registration of the programme of activities.</p>
<b>Signed on behalf of ERM CVS</b>	
<b>Name:</b>	Melanie Eddis
<b>Date:</b>	30 April 2014

## 2 Introduction

### 2.1 Validation Objectives

The purpose of validation is to ensure a thorough, independent assessment of activities submitted for registration as a proposed CDM Programme of Activities (PoA) against the applicable CDM requirements.

The DOE is responsible for reporting the results of its assessment in a validation report and submitting this validation report, along with the supporting documents to the CDM Executive Board as part of the request for registration of a proposed CDM programme of activities.

The DOE also presents its opinion on the compliance of the proposed CDM PoA complies with the applicable CDM requirements, and only requests registration if this is a positive opinion.

In the course of validation, ERM CVS assesses additionality of the PoA; eligibility criteria for inclusion of a proposed CPA in the registered PoA; operational and management arrangements established by the coordinating/managing entity (CME) for the implementation of the PoA; applicability of an approved CDM methodology; monitoring plan (MP); compliance with the relevant host country criteria.

#### 2.1.1.1 Validation Criteria

ERM CVS applies the following principles in performing its validation:

- Consistency
- Transparency
- Impartiality, independence and safeguarding against conflicts of interest
- Confidentiality

In all aspects of its work, ERM CVS ensures that the information and data reported are accurate, conservative, relevant, credible, reliable and complete.

### 2.2 Scope

The validation scope addresses the Programme of Activities as described in the Programme of Activities design document (PoA-DD), first real case CPA-DD(s) and associated documentation. The PoA-DD and associated documentation are reviewed against the criteria and requirements stated in the CDM Validation and Verification Standard (VVS) and Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, as well as relevant decisions made by the CDM Executive Board.

The validation scope also included an assessment of completeness and accuracy of documentation, evaluation of evidences, information and assumptions made in the PoA-DD and supporting documentation.

### 2.3 Contract Review

Prior to contracting with the client, a full review of the project and the validation requirements was made. This addressed both commercial risk and project risks associated with conducting the validation activities and confirmed the availability of an appropriately qualified team to conduct the validation.

### 2.4 Validation Personnel

Based on ERM CVS's review of the project, a validation team was established that takes into account the coverage of the technical area(s), sectoral scope(s) and relevant host country experience.

Personnel who were involved in the validation of this PoA were:



## Validation Team

Name	Role	CDM Requirements	Technical area	Participated in site visit?
Jonathan Avis	Team Leader	Yes	Yes	Yes
Sushmita Seelam	Support Validator	Yes		Yes

## DOE Head Office

Name	Role	CDM Requirements	Knowledge relevant to the technical area
Miguel Cortes	Technical Reviewer	Yes	Yes

## 2.5 Summary of CVs of the validation personnel

**Jonathan Avis** is CDM Business Manager for ERM CVS, and a GHG Assessor and Technical Reviewer with over 8 years' experience in the CDM. Since joining ERM CVS Jonathan has worked as a Technical Reviewer or GHG Assessor on more than 30 CDM validations in Renewable Energy (scope 1), more than 10 CDM validations in Manufacturing Industries (scope 04), 6 CDM validations in Mining (scope 8), and 5 CDM validations in Waste Handling and Disposal (scope 13). Jonathan's previous work experience involved screening and due diligence of carbon projects, Project Design Document (PDD) development, quality assurance and technical review of CDM project documentation, the development of carbon monitoring plans, and management of carbon projects through the validation, registration and verification stages. Jonathan has completed the ERM CVS CDM training as well as the GHGMI Renewable Energy training and Gold Standard training. Jonathan holds a BA in Geography and an MSc in Environmental Change and Management from the University of Oxford.

**Sushmita Seelam** is an Assessor and a Client Account Manager (CAM) based in London and has been with ERM CVS since July 2012. Prior to ERM CVS, Sushmita had been working in the sustainability consulting service industry for three years. As a CDM consultant, she has been involved in the development of over 25 CDM and VCS projects in various sectors. Her work also involves research and experience in supply chain evaluation, resource footprinting and life cycle assessment of commodities, with a focus on water and GHG footprinting for sectors such as global energy (especially oil & gas), agricultural commodities etc. Sushmita holds a B.E. in Environmental Engineering and an MSc in Environment and Sustainable Development. She has also completed the ERM CVS CDM validation and verification training and the CDM Gold Standard training.

**Miguel Cortes** has 8 years of CDM experience, 5 of which was spent working as a project developer and 3 as a Technical Reviewer and Lead Assessor for ERM CVS. Miguel has 9 years direct experience in the Cement industry, which included cement operations and mineral extraction/mining related activities. Miguel also has 5 years experience as a consultant for GHG emission reduction projects in the sectoral scopes of manufacturing, mining, and metal production, including WHR, Biofuels, Biomass Production and Hydro Power CDM projects. Miguel has completed the ERM CVS CDM training and Gold Standard training. Miguel holds a BSc and MSc in Civil Engineering.

## 3 Validation Approach

In carrying out its validation work, ERM CVS has:

(a) Determined whether the proposed PoA complies with the requirements of paragraph 37 of the CDM Modalities and Procedures (M&Ps), the applicability conditions of the selected methodology and guidance issued by the Board;

(b) Assessed the claims and assumptions made in the PoA design document (PoA-DD). The evidence used in this assessment has not been limited to that provided by the project participants.

The validation was carried out in accordance with the most recent version of the VVS. The validation process employed standard auditing techniques and undertook necessary cross-checks and follow-up actions to ascertain the correctness of the information. The validation team included staff with experience in the relevant technical areas within the sectoral scope, and financial expertise where relevant. The validation report and associated documents have undergone a thorough technical review by ERM CVS before being submitted to the CDM Executive Board for registration. The validation consisted of the following key stages:

- Upload of the PoA-DD and 1<sup>st</sup> real case CPA-DD for Global Stakeholder Consultation (GSC), receipt of any comments from stakeholders
- Review of documentation including PoA-DD, first real case CPA-DD, methodology and key supporting documents and references
- A visit to the site of the 1<sup>st</sup> real case CPA proposed to be included in the PoA, interviews with the CME and personnel responsible for developing the PoA
- Development of a draft validation report, identifying non-compliances including Corrective Action Requests (CARs) and Clarification Requests (CLs), taking into account findings of the GSC, desk review and site visit / interviews
- Resolution of outstanding issues (CARs and CLs) and development of a final validation report and validation opinion
- Independent technical review and report approval

### 3.1 Document Review

A detailed document review of the PoA-DD, methodology and all other associated documentation and references took place in advance of the site visit, and additional documents that were not available for the desk review were requested for review during the site visit. The document review includes:

- A review of data and information to verify the correctness, credibility and interpretation of presented information;
- Cross checks between information provided in the PoA-DD and information from other sources, not limited to those provided by the PPs, applying ERM CVS's sectoral or local expertise and, if necessary, with independent background investigations
- Reference to available information relating to PoAs, projects or technologies similar to the proposed PoA
- Review, based on the approved methodology being applied, of the appropriateness of formulae and accuracy of calculations

Where the review of the PoA-DD at the document review stage raised issues, these were further reviewed and validated through supporting documentation and cross-checking from other sources and interviewing the CME and relevant personnel involved in the PoA during the site visit. During the document review the project team also compared the proposed PoA with available information relating to PoAs, projects or technologies similar to the proposed CDM PoA under validation. Where appropriate, the validation team assessed the appropriateness of formulae and the correctness of calculations presented by the PPs. A list of all documents reviewed or referred to in the course of this validation is included in Appendix A.

## 3.2 Site visit and Interviews

The site visit took place in the period 11-21 September 2013, in parallel with the site visit for a different PoA being developed by the same CME under the Gold Standard in Uganda. The site visit included a visit to Uganda from 11-18 September, including interviews with the CME, project partners, stakeholders, officials, and other experts and individuals with a knowledge of the baseline situation in Uganda in Kampala from the 11<sup>th</sup>-15<sup>th</sup> September, and visits to households and institutions in rural areas of the country near Jinja which helped the validation team to validate the baseline. The site visit included a visit to Rwanda from the 18<sup>th</sup>-21<sup>st</sup> September, which included discussions with the CME, project partners, stakeholders, officials, and other experts and individuals with a knowledge of the baseline situation in Rwanda. The site visit also included review of supporting documentation in both countries.

Site visits and interviews provide additional background to the PoA as well as cross checks with PoA documentation. Interviews were undertaken with relevant stakeholders in the host country, as well as personnel with knowledge of the PoA design and implementation. A list of interviewees, and the main topics discussed with each person can be found in appendix A.

The site visit was designed to enable the validation team to

- undertake a detailed review of additional PoA documentation and verify the supporting documentation;
- inspect the site of the proposed first two real case CPAs and confirm the validity of the PoA description in the PoA-DD;
- assess the validity of the PoA boundary;
- cross-check the validity of the PoA information with other sources of information, including cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted; and
- interview relevant stakeholders in the host country, and personnel with knowledge of the PoA design and implementation.

## 3.3 Preparation of Draft Validation Report

Based on the findings of the desk review and site visit, ERM CVS prepared a draft validation report including a list of CARs and CLs, and provided this to the PPs. Where issues are identified that need to be further elaborated, researched or added to in order to confirm that the PoA meets the CDM requirements and can achieve credible emission reductions, ERM CVS identified these issues in the DVR so that they could be discussed with the PPs and concluded upon in the final validation report (FVR).

### Remediation requests

Where issues were identified, ERM CVS raised one of the following remediation requests:

Clarification Request (CL): where information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Corrective Action Request (CAR): where:

- Mistakes have been made that will influence the ability of the PoA to achieve real, measurable additional emission reductions;
- The CDM requirements have not been met; or
- There is a risk that emission reductions cannot be monitored or calculated.

Forward Action Requests (FAR): where it was necessary to highlight issues related to project implementation that require review during the first verification of the PoA. FARs shall not relate to the CDM requirements for registration.

CARs and CLs must be 'closed out' before the validation can be concluded. Close out is only possible where the PPs modify the PoA design, rectify the PoA-DD or provide adequate additional explanation or evidence that satisfies ERM CVS's concerns. The validation process may be halted until the CARs and CLs are addressed to the validation team's satisfaction.

---

## **3.4 Final Validation Report and Validation Opinion**

The final validation report (FVR) is completed when the CARs and CLs have been closed out to the satisfaction of ERM CVS. The FVR includes the validation opinion that sets out the validation conclusion regarding the compliance of the PoA with CDM requirements.

## **3.5 Internal Quality Control**

The process of validation and decision of the validation team has been subject to an independent Technical Review. The scope of the Technical Review process is to independently assess that all procedures have been followed, necessary requirements have been met, and all conclusions are justified. The final validation decision is based on the findings and conclusions of the validation team, assessing the compliance of the PoA with the CDM requirements, and the technical evaluation of the independent technical reviewer. The final report is then reviewed and approved by the qualified signatory / final decision maker within ERM CVS.

## 4 Validation findings – Approval & Participation, Authorisation, Contribution to Sustainable Development, and Modalities of Communication

### 4.1 Approval & Participation

As per VVS section 7.6, ERM CVS assessed whether the DNA of each Party indicated as being involved in the PoA has provided an appropriate letter of approval (LoA).

ERM CVS has confirmed that the LoA has been issued and provides confirmation of:				
Party	Ratified Kyoto Protocol?	Voluntary Participation	Contribution to Sustainable Development	Exact PoA title
Rwanda (Host Party)	Yes	Yes	Yes	Yes
Uganda (Host Party)	Yes	Yes	CAR 01  OK	CAR 01  OK

ERM CVS received the LoAs from the PP. The authenticity is not doubted.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/CL	Final OK/ NOT OK
4.1.1	Are LoAs in place for every PP that confirm <ul style="list-style-type: none"> <li>▪ Ratification of the Kyoto Protocol</li> <li>▪ Voluntary Participation</li> <li>▪ Reference to the precise project title in the PoA-DD</li> <li>▪ Contribution to sustainable development (host party only)</li> </ul>	<p>The host party LoA for Rwanda/02/ was reviewed and confirms that Rwanda ratified the Kyoto protocol on 22 July 2004, confirms voluntary participation in the proposed PoA, references the precise PoA title as written in the POA-DD, and confirms the contribution of the project to the sustainable development of the host party.</p> <p>CAR 01 is raised because the LoA for Uganda is not provided to the validation team.</p> <p>The LoA for Uganda has been obtained, and reviewed by ERM CVS /02/. The LoA confirms that Uganda ratified the Kyoto protocol on 25 March 2002, confirms voluntary participation in the proposed PoA, references the precise PoA title as written in the POA-DD, and confirms the contribution of the project to the sustainable development of the host party. CAR 01 was closed.</p>	CAR 01	OK
4.1.2	Is the information in the LoAs consistent with the other PoA documentation, including PP names, etc	<p>The information in the Rwandan LoA is consistent with the PoA documentation, including PP name etc.</p> <p>The LoA for Uganda is not provided to the validation team. Please refer to CAR 01.</p> <p>The LoA for Uganda was reviewed /02/. The information in the LoA for Uganda is consistent with the PoA documentation, including the PP name etc. CAR 01 was closed.</p>	CAR 01	OK

ERM CVS also reviewed whether the LoAs contain any additional specifications:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/ CL	Final OK/ NOT OK
4.1.3	Does any LoA contain additional specification or conditions of the PoA? If so, are these conditions fully complied with?	ERM CVS can confirm that the Rwandan LoA does not contain any additional specification or conditions relevant to the validation requirements.  CAR 01 is raised because the Ugandan LoA is not provided to the validation team.  ERM CVS can confirm that the Ugandan LoA does not contain any additional specification or conditions relevant to the validation requirements. CAR 01 was closed.	CAR 01	OK
4.1.4	If the LoA references a specific version of the Validation Report and this version cannot be submitted, then has either of the following been submitted? <ul style="list-style-type: none"> <li>a statement indicating final LoA has not been received or</li> <li>an updated Validation Report</li> </ul>	The Rwandan LoA does not reference a specific version of the validation report.  The LoA for Uganda is not provided to the validation team. Please refer to CAR 01.  The Ugandan LoA does not reference a specific version of the validation report. CAR 01 was closed.	CAR 01	OK

## Conclusion

ERM CVS confirmed that LoAs have been received from all parties involved in the PoA.

ERM CVS's validation of the approval status of the PoA confirmed that:

- Each Party is a Party to the Kyoto Protocol
- Participation is voluntary
- In the case of the Host Party, the PoA contributes to the sustainable development of the country
- The title of the PoA is identical in the LoAs and the POA-DD.

ERM CVS therefore confirms that the LoAs are in accordance with paragraphs 38-44 of the VVS.

## 4.2 Authorisation

As per VVS section 7.7, ERM CVS evaluated whether all PPs are listed in a consistent manner in sections A.3 and A.4 of the POA-DD and have been appropriately authorised by a Party to the Kyoto Protocol. ERM CVS also checked the consistency of information between the POA-DD, Letters of Approval (LoAs) and the Modalities of Communication (MoC).

PPs (list all)	Is the CME or PP listed in Section A.4 of POA-DD?	Are contact details given in Appendix 1 of POA-DD?	Do the LoAs name the authorised PP and the CME?	Is information in the MoC consistent with POA-DD and LoA?
Impact Carbon	Yes	Yes	The Rwandan LoA authorises the CME and the PP, 'Impact Carbon'.  CAR 01 is raised	The MoC was not provided for validation. Please refer to CAR 01.  The MoC/03/ was provided by the PP.

			<p>because the Ugandan LoA is not provided.</p> <p>The Ugandan LoA authorises the CME and the PP, 'Impact Carbon'. CAR 01 was closed.</p>	ERM CVS checked to find that the MoC is consistent with the PoA-DD and the LoAs.
--	--	--	---	--

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/ CL	Final OK/ NOT OK
4.2.1	Is the correct information provided on PPs, and consistently applied in A.3, A.4 and Appendix 1 of the POA-DD and other PoA documentation (Letters of Approval and Modalities of Communication)?	<p>The PoA only has one PP, which is also the CME, 'Impact Carbon'. This is consistently applied in A.3, A.4 and Appendix 1 of the PoA-DD and in the Rwandan LoA.</p> <p>CAR 01 is raised because the Ugandan LoA and the MoC are not provided.</p> <p>The information in the Ugandan LoA is consistent with the other documents. CAR 01 was closed.</p> <p>The MoC/03/ was provided to the DOE. The information has been found to be consistently applied across the documents (PoA-DD, MoC, Rwandan LoA and Ugandan LoA).</p>	CAR 01	OK
	Can it be confirmed that there are no entities other than those approved as PPs or CME included in sections A.3, A.4 or Appendix 1 of the POA-DD.	Yes	OK	OK
	Does the host party wish to be considered a Project Participant? If so, is this correctly presented in the POA-DD?	<p>No. Neither Party (Rwanda or Uganda) wish to be considered as project participants.</p> <p>This is correctly presented in the PoA-DD.</p>	OK	OK

## Conclusion

All PPs to the PoA have been authorised by a party to the Kyoto Protocol and the CME has been authorised by the Host Party, and ERM CVS has reviewed the letters of approval to confirm this. The PPs and CME are listed in a consistent manner in the POA-DD and all related PoA documentation, including the LoAs and Modalities of Communication. No entities other than the CME and those approved as PPs are included in sections A.3, A.4 or Appendix 1 of the PoA-DD.

### 4.3 Contribution to Sustainable Development

As per VVS section 7.8, ERM CVS evaluated whether the letter of approval by the DNA of the host Party confirms the contribution of the proposed CDM PoA to the sustainable development of the host Party.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
4.3.1	Does the LoA from the Host Party confirm that the PoA contributes to the sustainable development of that country?	<p>The LoA by the DNA of Rwanda (REMA) confirms the contribution of the proposed CDM PoA to the sustainable development of Rwanda.</p> <p>The LoA for Uganda is not provided to the validation team. Please refer to CAR 01.</p>	CAR 01	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		The LoA by the DNA of Uganda (Ministry of Water and Environment) confirms the contribution of the proposed CDM PoA to the sustainable development of Uganda.		

## 4.4 Modalities of Communication

As per VVS section 7.9, ERM CVS validated that the MoC statement has been correctly completed and duly authorised. ERM CVS also, validated the corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/ CL	Final OK/ NOT OK
4.4.1	Are all corporate and personal details in the MoC, including specimen signatures, correct?	<p>CAR 01 is raised because the MoC is not provided by the CME/PP.</p> <p>The MoC has been provided to the validation team.</p> <p>In accordance with the VVS paragraph 54, corporate and personal details in the MoC have been confirmed through checking the:</p> <p>c) Written confirmation from the project participant or the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate: ERM CVS has checked the signed statement/07/ from Mr. Evan Haigler (Executive Director of Impact Carbon) confirming the corporate, personal identity, employment status and specimen signatures of the signatories of the MoC. ERM CVS confirms that this statement was received from Impact Carbon, the CME of this PoA (with whom the DOE has a contractual relationship with). Furthermore, as per VVS paragraph 56, to validate that Mr. Evan Haigler is duly authorised submit this statement on behalf of Impact Carbon, ERM CVS has checked the supporting Document/07/.</p> <p>CAR 01 is therefore closed.</p>	<del>CAR 01</del>	OK
	<p>Has the MoC statement been correctly completed, including:</p> <ul style="list-style-type: none"> <li>Using the latest form?</li> <li>All information, including Appendix 1, has been correctly provided?</li> <li>Listing all PPs?</li> </ul>	<p>CAR 01 is raised because the MoC is not provided by the CME/PP.</p> <p>The MoC has been provided to the validation team.</p> <p>ERM CVS confirms that the MoC provided to the DOE has been correctly filled in using the latest form available on the UNFCCC website, listing the sole PP/CME correctly as 'Impact Carbon' and provides all correct information in Appendix 1.</p> <p>CAR 01 is closed.</p>	<del>CAR 01</del>	OK
	<p>Has the MoC been signed by the authorised signatories of the PP?</p> <p>Are the signatories consistent with the names given in Appendix 1 of the MoC?</p>	<p>CAR 01 is raised because the MoC is not provided by the CME/PP.</p> <p>The MoC has been provided to the validation team.</p> <p>Yes, the MoC has been signed by the authorised signatories of the PP, and the signatories are consistent with the names given in Appendix 1 of the MoC.</p> <p>CAR 01 is closed.</p>	<del>CAR 01</del>	OK



---

## **Conclusion**

ERM CVS has performed due diligence on the MoC statement in accordance with the requirements established in the VVS. ERM CVS can confirm that the MoC statement complies with all relevant forms and requirements.

## 5 Validation findings – GSC, PoA-DD and PoA Description

### 5.1 Main changes between the PoA-DD version published for GSC and the final version submitted for registration:

- Changes related to the CARs and CLs, as identified in Appendix B of this report

### 5.2 Global Stakeholder Consultation

At the start of the validation, in accordance with the latest version of the Project Cycle Procedure, the unvalidated POA-DD and first real case CPA-DD of a CPA to be included in the PoA, supplied by the client was uploaded on the UNFCCC website for global stakeholder review for a period of 30 days. The global stakeholder consultation (GSC) period was from 17 August 2013 - 15 September 2013 .

<http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/Z57MTLC6J08HCLDJVZE09ITMTD3XWZ/view.html>

No comments were received.

### 5.3 Project Design Document (POA-DD)

As per VVS section 7.10, ERM CVS reviewed the PoA-DD to determine whether it has been prepared in accordance with the latest POA-DD form (template) and guidance from the CDM Executive Board available on the UNFCCC website.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/ CL	Final OK/ NOT OK
5.3.1	Is the PoA-DD prepared in accordance with the latest forms and guidance required by the CDM EB?	<p>ERM CVS can confirm that the PoA-DD has been checked against the latest “Guidelines for completing the programme design document form for small-scale CDM programmes of activities” (Ver03.0, EB74 Annex08), and the latest template for the simplified PoA Design Document (version 02.0) available on the CDM website and that certain sections in the PoA-DD and the Generic CPA-DD were not completed in accordance with the template and guidelines.</p> <p>Please refer to CL 08.</p> <p>The PoA-DD has been updated. Please refer to close out of CL 08. ERM CVS can now confirm that the POA-DD has been checked against the latest “Guidelines for completing the programme design document form for small-scale CDM programmes of activities” (Ver03.0, EB74 Annex08), and the latest template for the simplified PoA Design Document (version 02.0) available on the CDM website. The final POA-DD is in compliance with the template and guidelines.</p> <p>CL 08 is therefore closed.</p>	CL-08	OK

**Conclusion** ERM CVS has confirmed that the POA-DD has been prepared in accordance with the latest relevant forms and guidance.

### 5.4 PoA Description

As per VVS sections 7.11, 8.4.3 and 8.4.5, ERM CVS reviewed the description of the PoA in the PoA-DD in order to confirm the framework developed for the implementation of the PoA, and for defining a CPA under the PoA, and to evaluate whether it provides a clear and accurate description of the proposed CDM PoA and generic CPA. Validation of the PoA description was based on review of documentation, a physical inspection of the site of the first real case CPA, and interviews.

## Policy/measure or stated goal of the PoA:

The proposed PoA will disseminate low-carbon water purification technologies. Low greenhouse gas emitting water purification systems (WPS) reduce non-renewable biomass and/or fossil fuel use required for water boiling, relative to the baseline scenario in Rwanda and Uganda, and thereby achieve emission reductions.

## Description of the PoA:

The proposed PoA aims to abate GHG emissions by reducing non-renewable biomass and/or fossil fuel consumption used for boiling and treating water. The PoA covers two countries, Rwanda and Uganda. CPAs will be categorised by the types of the water purification technologies best suited for use within the context of local water consumption practices along with the types of target groups they will be distributed to (households, institutions and communities). The stated goal of the PoA is the widespread dissemination and use of low-carbon water purification technologies to households, communities, and institutions throughout Rwanda and Uganda. Institutional applications may include schools or prisons. Community applications may include restaurants, community centres, villages, offices, or health centres, i.e. applications with daily variable users. The PoA will use carbon finance to support local partners engaged in the production, distribution, sale, and support of various water purification technologies.

The PoA will include five types of CPA:

1. Small-scale technologies for household water consumption, with no project emissions, including Water Filters, Solar Disinfection and Chemical Disinfection.
2. Technologies for institutional water consumption, with no project emissions, including Water Filters, Solar Disinfection, Chemical Disinfection, Ultrafiltration devices and Ultraviolet disinfection devices with renewable power such as solar systems. Devices which require renewable power supply will be installed in institutions which lack access to electricity from the grid. Because this type of CPA does not allow project emissions, systems connected to an electricity supply, such as the grid, that is not zero-emissions shall not be eligible.
3. Technologies for institutional water consumption, with project emissions, including Ultraviolet disinfection devices and Reverse Osmosis systems, installed in institution which require electricity and are connected to the grid or other non-renewable electricity source.
4. Technologies for community water consumption, with no project emissions, including Water Filters, Solar Disinfection, Chemical Disinfection and Ultraviolet disinfection devices with renewable power. This type of CPA includes community centres that have variable users, such as restaurants, villages, offices, or health centres. Community refers to a group of people in close geographic proximity, accessing same resources and facilities.
5. Technologies for community water consumption, with project emissions, including Ultraviolet disinfection devices and Reverse osmosis systems that utilise electricity and therefore result in project emissions. This type of CPA includes community centres that have variable users, such as restaurants, villages, offices, or health centres. Community refers to a group of people in close geographic proximity, accessing same resources and facilities.

While CPA types are not defined regionally, individual CPAs included will be implemented in one country, and may have a regional focus. The distribution methods used in the PoA involve the use of local partners such as NGOs, local entrepreneurs, government organisations and academic institutes to promote, distribute and sell the systems to end users.

The findings of our validation of the project description in the PoA-DD are set out below.

## PoA Boundary, Location and Status

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
5.4.1	<b>Boundary:</b> Is the definition of the boundary for the PoA correctly stated in terms of a geographical area (e.g., municipality, region within a country, country or	The boundary of the PoA is the two host countries of Rwanda and Uganda. This is correctly stated in the PoA-DD.  National/sectoral regulations will be assessed as part of the assessment of the baseline situation, at the CPA level.	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	several countries) within which all CPAs included in the PoA will be implemented, taking into consideration all applicable national and/or sectoral policies and regulations? How was this validated?			
5.4.2	<b>Policy/measure or stated goal of the PoA:</b> Does the PoA-DD describe the policy/measure or stated goal that the PoA seeks to promote? How was this validated?	<p>The goal of the PoA is stated as the 'widespread dissemination and use of low-carbon water purification technologies'. However, it does not state specifically where the PoA will be implemented and what populations/groups will be targeted. Please refer to CL 01.</p> <p>The PP has revised the policy measure/stated goal to include that the PoA plans to target households, communities and institutions in Uganda and Rwanda. Examples of institutions include schools and prisons (where people are enrolled), and example of communities include restaurants, community centres, village local communities, offices, health centres etc. PP has further clarified that specific CPAs will detail specific target user groups and their characteristics.</p> <p>CL 01 is therefore closed.</p>	CL-01	OK
5.4.3	<b>Confirmation of voluntary action:</b> Does the PoA-DD provide confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity? How was this validated?	The PoA-DD affirms that the proposed PoA is a voluntary action. ERM CVS has confirmed, by means of the site visits to Rwanda and Uganda and interviews with relevant stakeholders including government officials and other local organisations that there are no laws or policies making water purification systems mandatory or any government initiatives requiring the proposed programme to take place.	OK	OK

## Conclusion

The process undertaken to validate the accuracy and completeness of the PoA description is set out in detail above. ERM CVS has confirmed that the description in the PoA-DD provides a clear, accurate and complete understanding of the nature of the proposed CDM PoA.

## Description of a generic CPA

A generic CPA will distribute water purification systems (WPS) to households, communities (restaurants, community centres, villages, offices, or health centres, i.e. applications with daily variable users) or institutions (schools or prisons) within the defined project boundary for the purpose of abating GHG emissions and reducing wood fuel consumption. Five types of CPA are included in the PoA – please see above for details. CPAs implemented under this PoA shall displace the practice of boiling to treat the water to make it fit for consumption. Each SSC CPA will distribute a number of WPSs which is within the limit of 3000 MWh of energy savings per year in fuel input or under 3000 tonnes of emission reductions per year. The description of a generic CPA in the PoA-DD has been validated as follows:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
5.4.4	<b>(i) Description: Generic CPA design</b>  Does the description of the generic CPA in the PoA-DD section A.1 of part II provide a clear, accurate and sufficiently detailed description of all relevant	<ul style="list-style-type: none"> <li>It is noted that the description of the generic CPA lacks detail and does not give sufficient understanding of how a CPA might look like, e.g. the description does not address whether CPAs will be implemented across the country or in a specific region, whether each CPA will specify which technology and model will be distributed, whether it will specify the target group, or whether distribution mechanisms will differ between CPAs and CPA implementers.</li> </ul> <p>Moreover, the generic CPA-DD also does not specifically address the</p>	CL-02  CAR-02	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	<p>elements of a generic CPA? Specifically, does the CPA description provide clear indication of:</p> <ul style="list-style-type: none"> <li>a) List of main technologies involved</li> <li>b) List of main equipment and installations</li> <li>c) The lifetime of the project equipment</li> <li>d) Capacities and efficiencies</li> <li>e) Emissions sources and GHGs involved in the PoA</li> <li>f) Existing and forecast energy and mass flows and balances</li> <li>g) Description of technology transfer from Annex I countries (if applicable)</li> </ul>	<p>main technologies and equipment to be involved, lifetime, capacities and efficiencies, emissions sources, and energy flows and balances. It also does not address technology transfer. Please see CL 02.</p> <ul style="list-style-type: none"> <li>• Furthermore, it is noted that the Generic CPA-DD does not address different CPA types and their eligibility criteria, inclusion criteria etc. For example, different types of technologies with different emission reduction calculations (with project emissions and without project emissions) are currently being grouped into one single CPA type. This is not in accordance with Paragraph 143 of the CDM Project Standard and the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'. Please refer to CAR 02.</li> </ul> <p>In response, the PP revised the PoA-DD and submitted it to the DOE. ERM CVS confirms that the revised PoA-DD addresses five categories of generic CPA types that the PP plans to implement in Rwanda and Uganda. These CPA types are clearly identified and split based on the different types of technologies being implemented and on the different emission reduction calculations (with and without project emissions), in accordance with Paragraph 143 of the CDM Project Standard and the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'.</p> <p>Furthermore, the revised PoA-DD presents a clearer description of what a CPA will look like. The five different types of CPAs based on the different types of technologies being implemented and based on the different emission reduction calculations (with and without project emissions) are presented below:</p> <ol style="list-style-type: none"> <li>1. CPA type 1: Small scale technologies for household water consumption (without project emissions). This includes Water Filters, Solar Disinfection systems, Chemical Disinfection, and Ultraviolet disinfection devices with renewable power.</li> <li>2. CPA type 2: Technologies for institutional water consumption with no project emissions. This includes Water Filters, Solar Disinfection systems, Chemical Disinfection, and Ultraviolet disinfection devices with renewable power for large scale consumption in institutions.</li> <li>3. CPA type 3: Technologies for institutional water consumption with project emissions. This includes UV purification systems which require electricity and are not installed with solar systems.</li> <li>4. CPA type 4: Technologies for community water consumption with no project emissions. This includes chlorine purification, water kiosks which may use chlorine treatment or water filters, Ultraviolet purification with renewable power and solar disinfection.</li> <li>5. CPA type 5: Technologies for community water consumption with project emissions. This includes water kiosks that employ technologies using electricity and therefore result in project emissions, i.e. ultraviolet disinfection devices which require electricity and are not installed with solar systems.</li> </ol> <p>ERM CVS confirms that the broad categorisation of the technology types under each CPA type are appropriate and valid, based on the target populations they cater to. Details of each technology type, and the specific brand or technological specifications of each technology etc. under each CPA type will be provided and validated at the specific CPA level.</p> <p>In addition, the PP has further added technology requirements for each CPA type under the eligibility criterion 'Technology' (section B.2 of the PoA-DD). These include conditions for minimum flow rate, minimum capacity/lifespan of technology, for removal of e-coli, for whether the device is portable or fixed and</p>		

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>for the wattage/voltage associated with the technology.</p> <p>Furthermore, the PP has clarified that the CPA types have not been defined regionally, and that individual CPAs included will be implemented in one country (of the two – Uganda and Rwanda). Flow diagrams have also been added in the revised generic CPA-DDs.</p> <p>CL 02 and CAR 02 are therefore closed.</p>		
5.4.5	Is the description in the generic CPA-DD consistent with the validated description in the PoA DD as discussed above?	<p>To be confirmed.</p> <p>After validating the revisions highlighted above, ERM CVS can confirm that the description is consistent between the generic CPA-DDs and the PoA-DD.</p>	TBC	OK

## Conclusion

ERM CVS has confirmed that the description in the PoA-DD and the generic CPA-DDs provides a clear, accurate and complete understanding of the precise nature of the PoA and the technical aspects of its implementation. The description sufficiently covers all relevant elements, is accurate, and clearly states the differences resulting from the PoA compared to the pre-project situation.

## Description of baseline scenario in generic CPA-DD

The PoA-DD and the generic CPA-DDs description was evaluated to confirm whether or not it provides a clear and accurate summary of the baseline scenario for a generic CPA.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
5.4.6	Is there a clear description of the baseline scenario for a generic CPA?	<p>The description of baseline scenario in the GSP-PoA-DD is not presented in accordance to the Guidelines for 'Completing the programme design document form for small-scale CDM programme of activities' – Version 03.0.</p> <ul style="list-style-type: none"> <li>a) Section A of the PoA-DD and Section B.4 of the generic CPA-DD contains a brief but insufficient description of the baseline scenario. e.g. the DD does not contain a sufficient description or present data relevant to the current practices used by households, communities and institutions in Rwanda and Uganda to treat water (information regarding the current trend in boiling and other types of water treatment techniques), type and efficiency of stoves used for boiling etc. Please refer to CAR 03. Please refer to CAR 03.</li> <li>b) Furthermore, it is not clear how the evidence presented supports the argument presented in favour of the baseline scenario. (e.g. one reference provided in the GSP-PoA-DD states that 'Access to improved sources of drinking water has increased from 67 percent in 2006 to 70 percent of households in 2011' in Uganda. The same reference also states that '44 percent of households boil their drinking water' – which is not a significant majority).</li> <li>c) Some statements and references also provide evidence on a global level, and not specifically for the countries where the PoA is proposed. More specific data on the baseline scenario needs to be provided for Rwanda and Uganda. Please refer to CAR 03.</li> </ul> <p>In response, the PP has revised the PoA-DD to address the above points. ERM CVS has validated the changes and confirms that:</p>	CAR-03	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>a) Section A of the PoA-DD and Section B.4 of the generic CPA-DD now contain a more detailed description of the baseline scenario. Each CPA is required to provide a description and present data relevant to the current practices used by households, communities and institutions in the CPA boundary to treat water, type and efficiency of stoves used for boiling, fuel used for boiling etc.</p> <p>b) The PoA-DD has been revised to consistently describe the current situation regarding access to clean water. ERM CVS verified during the site visit and interviews with experts and government officials that access to 'improved water sources' (as defined by the WHO/UNICEF Joint Working Group /20/) does not mean that a user necessarily has access to 'safe and clean' drinking water, and that quality test results and user experience demonstrate that most users lack access to safe drinking water. This is validated in more detail for each specific location/country at the CPA level.</p> <p>c) More specific data for the baseline scenario in Uganda and Rwanda has been provided. The PP has revised the background to explicitly state the baseline scenario for Uganda and Rwanda. In both countries, a large percentage of households boil the water as treatment before consumption (the Ugandan Demographic and Health Survey 2011 /08/ states this percentage as 43.9% of all households; the Rwandan Demographic and Health Survey 2010 /09/ states this percentage as 41.2% of all households). Again, in both cases, a large majority of households use biomass/wood for cooking (including boiling water). The Ugandan Demographic and Health Survey 2011 shows that a total of 95.5% of all households use wood (72.5%), charcoal (22.8%) and straw/shrubs/grass (0.2%) for cooking. In Rwanda, 77% of the households use wood, and 12% use straw/shrubs/grass as cooking fuel (Demographic and Health Survey 2010).</p> <p>The interviews during site visits demonstrated that unhealthy water storage practices, partial or non-treatment of water both caused and contributed to health issues (such as water borne diseases). Indoor air pollution from using unimproved cookstoves was also raised as one of the health concerns by people on the ground. The PP details that traditional stoves and diseases due to unsafe drinking water account for 12,500 and 16,700 deaths respectively in Rwanda (WHO Country Profile of Environmental Burden of Disease 2009: Rwanda/10/) and 19,700 and 27,200 deaths respectively in Uganda (WHO Country Profile of Environmental Burden of Disease 2009: Uganda/11/).</p> <p>There are no national or sectoral policies or regulations mandating the use of specific technologies for water treatment in the host countries. Hence the baseline is in line with current national/sectoral regulations. This was confirmed based on interviews with government officials during the site visit /IV 14/IV 15/, and review of relevant national studies /21-25/.</p> <p>All comments raised in the background section of the PoA-DD were addressed by the PP. Therefore, CAR 03 is closed.</p>		

**Conclusion** The description of a generic CPA provides the reader with a clear understanding of the nature of a generic CPA and its baseline.



## 6 Validation Findings - Eligibility Criteria for Inclusion of a CPA in a PoA

### 6.1 Description of Eligibility Criteria

As per VVS section 8.4.9 and following guidance from the Standard on 'Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities' (CDM-EB65-A03-STAN), ERM CVS evaluated the eligibility criteria contained in section B.2 of the PoA-DD to evaluate whether they are verifiable, sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.1.1	Do the eligibility criteria include the geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA (for example, an emission factor for electricity generation is dependent on the boundaries of regional or state or sub-regional grids)? Are the relevant criteria verifiable and sufficiently objective?	<p>The eligibility criterion in the GSP-PoA-DD clearly describes the conditions related to the geographical boundary, i.e. it clearly states that water purification systems in each CPA must be confined within the geographical boundaries of Rwanda or Uganda.</p> <p>If the CPA includes technologies connected to the grid then the relevant grid emission factor will have to be chosen (and this will be validated at CPA level).</p> <p>ERM CVS has validated that this is sufficiently verifiable and objective, since the borders of both countries are well defined and known.</p>	OK	OK
6.1.2	Do the criteria include conditions that avoid double counting of emission reductions, like unique identifications of product and end-user locations (e.g. programme logo)? Are the relevant criteria verifiable and sufficiently objective?	<p>To prevent double counting, the criterion in the GSP-PoA-DD clearly states that each water purification system will have a unique serial number and programme logo engraved or permanently attached as a nameplate or sticker. The serial numbers, as well as the names of each end-user, are to be listed in the CPA Project database and recorded in the Sales Receipts.</p> <p>The name of each end-user (or individual who purchased product for institution or community center) will be recorded as part of the Sales Receipt and CPA Project Database. The address will be recorded if possible, alternatively other means of locating the device such as GPS can be used.</p> <p>The verifiable evidence is presented as the CPA Project Database and Sales Receipts. However, it is noted that both of these will be available only after the start of implementation and therefore, are not likely to be available at the time of CPA inclusion. CL 03 is raised in this regard and the PP is asked to clarify.</p> <p>Furthermore, the eligibility criterion also mentions that to prevent double counting, the CME has an agreement in place with the owner of each individual WPS in the CPA (in which the owner transfers the rights to the emission reductions exclusively to the CME as part of the Carbon Rights Waiver within the Sales Receipt). However, the PP does not mention if the CME has a similar agreement with the technology suppliers. These documents also need to be provided to the validation team for validation purposes. CL 03 is raised in this regard.</p> <p>The PoA-DD has been revised to address the above comments. Please refer to the close out of CL 03.</p> <p>ERM CVS has ensured that the verifiable evidence for 'Double counting' has updated to reflect that the Operations Manual or documented procedures will be used instead of the CPA Project Database or Sales Receipts, which is considered appropriate as these documents will be available at the time of CPA inclusion.</p> <p>Furthermore, it was also checked that the PP has updated the PoA-DD eligibility criterion - to include that the CME will have an agreement with each technology supplier in which it is stated that the supplier transfers the rights to the emissions reductions of each water purification system exclusively to the CME. During the site visit, ERM CVS checked the sample sales receipts/warranty cards</p>	CL-03	OK



	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		which will be given to the end user, and also reviewed the agreement that Impact Carbon has with Nandadeep (technology supplier) and a draft agreement to be made with Partner 'Basic Water Needs'/12/ that were provided by the CME during the validation to verify these claims. All documents were found to have the emission rights waivers – therefore, ERM CVS was able to close out CL 03.		
6.1.3	Do the criteria include the specifications of technology/measure including the level and type of service, and performance specifications, including compliance with testing/certifications? Are the relevant criteria verifiable and sufficiently objective?	<p>The eligibility criteria do not clearly state the required technical specifications for water purification systems to be suitable for the PoA. The information presented does not align with the requirements in the standard 'Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities' – which requires that PP's clarify the 'technology/measure including the level and type of service, performance specifications' etc. of each WPS to be included in the CPA. Please see CL 03.</p> <p>Furthermore, as identified during the site visit, technologies using fossil fuels will not be included in the PoA. This information is not clearly stated in the PoA-DD. PP is requested to clarify the management of water purification technologies using fossil fuels in the PoA-DD. Please see CAR 04</p> <p>In response, the PP has revised the PoA-DD to address the above comments.</p> <p>The DOE has checked that the PP has added technology requirements for each CPA type under the eligibility criterion 'Technology'. These include conditions for minimum flow rate, minimum capacity/lifespan of technology, for removal of e-coli, for whether the device is portable or fixed and for the wattage/voltage associated with the technology. Photographic evidence has also been included to demonstrate the types of filters that will be distributed under each CPA type. The revisions align with the standard 'Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities' as the PP have clarified the specifics for technologies to be included at the CPA level. Further information regarding the technologies is to be provided in the specific CPA-DDs.</p> <p>Therefore, CL 03 is closed.</p> <p>In response to CAR 4, the PoA-DD has been revised to clearly exclude technologies that use fossil fuels. ERM CVS has checked the revised PoA-DD to confirm that technologies using fossil fuels have not been included in the PoA. The PP has also added a statement in section A.6 of the PoA-DD that technologies using fossil fuels will not be used in the PoA.</p> <p>The PP has however included technologies involving project emissions (in CPA types 3 and 5) as they use electricity from the grid or other sources. Although electricity from the grid or other sources may include fossil fuels, such technologies are eligible under the methodology as the project emissions are calculated as follows:</p> <ul style="list-style-type: none"> <li>The emissions factor <math>EF_{EL,j,y}</math> parameter is fixed ex-ante by the PP at 1.3 tCO<sub>2</sub>/MWh as per the 'Tool to calculate baseline, project, and/or leakage CO<sub>2</sub> emissions from electricity consumption' version 01.</li> <li>The electricity consumption parameter <math>EC_{PJ,j,y}</math> is monitored by the PP annually or at least biennially.</li> <li>Transmission losses are fixed ex-ante at 20% through parameter <math>TDL_{j,y}</math> as per the 'Tool to calculate baseline, project, and/or leakage CO<sub>2</sub> emissions from electricity consumption' version 01.</li> </ul> <p>Therefore, CAR 04 is also closed.</p> <p>The eligibility criterion was also revised to require that each unit must achieve water quality defined in relevant national standards or international guidelines for</p>	<p><del>CL-03</del></p> <p><del>CAR-04</del></p>	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>drinking water quality, in line with the technology description of the PoA.</p> <p>The technical specifications have been defined per CPA type, given that different CPA types involve different combinations of technology. CPA type 2 (technologies for institutional water consumption, no project emissions) and CPA type 4 (technologies for community water consumption, no project emissions) require that the institutions or users involved must lack access to reliable electricity supply (because CPA types 2 and 4 include technologies that are powered by solar photovoltaic (PV)-based renewable (zero-emissions) electricity supply.</p>		
6.1.4	Do the criteria include conditions to check the start date of the CPA through documentary evidence? Are the relevant criteria verifiable and sufficiently objective?	<p>The criterion in the GSP-PoA-DD addresses the CDM requirement that the start date of the CPA shall not be before the starting date of the PoA. The criterion also mentions that 'the start date of the CPA is the date on which the first water purification system to be included in the CPA is sold'. However, this may or may not be the earliest date at which either the implementation or construction or real action of a CPA begins. Therefore, this criterion is not in line with the CDM glossary of terms. Please see CL 03.</p> <p>The verifiable evidence as proof of the start date is presented as the CPA Project Database and Sales Receipts. However, it is noted that both of these will be available only after the start of implementation and therefore, are not likely to be available at the time of CPA inclusion. CL 03 is raised in this regard and PP is asked to clarify.</p> <p>ERM CVS has checked that the PP has updated the PoA-DD so that the evidence required for the start date is a purchase order to technology supplier or a contract with the technology supplier. The DOE confirms that the start date – taken as the date of the purchase order to the technology supplier or the date of the contract with the technology supplier, is a realistic representation of the earliest date of implementation or real action of the CPA. Therefore, the revisions to this criterion are now in line with the CDM glossary of terms. Furthermore, the verifiable evidence for 'Start Date' has been updated to Purchase order to technology supplier or Contract with technology supplier, which is considered appropriate.</p> <p>Therefore, CL 03 is closed.</p>	CL-03	OK
6.1.5	Do the eligibility criteria include conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs? Are the relevant criteria verifiable and sufficiently objective?	<p>The eligibility criteria address the methodology applicability conditions as follows:</p> <ul style="list-style-type: none"> <li>The PP has addressed that each CPA will apply the baseline and monitoring methodology AMS-III.A.V. (Version 4) and that the CPA will introduce water purification systems to provide safe drinking water to households, communities and institutions. ERM CVS confirms that this is verifiable via the technological specification document(s).</li> <li>AMS-III.A.V. (Version 4) methodology requires that 'Prior to the implementation of the project, a public distribution network of safe drinking water did not exist within the project boundary'. The PP has sufficiently addressed this criterion. ERM CVS confirms that this would be verifiable via feasibility studies, national reports, official publications (e.g. from WHO), water quality tests, or Interviews with public officials, NGOs, end users etc.</li> <li>AMS-III.A.V (Version 4) methodology requires that the water purification technology/equipment must achieve compliance with either: <ul style="list-style-type: none"> <li>a) The World Health Organisation's (WHO) guideline 'Evaluating household water treatment options: Health based targets and microbiological performance specifications' /19/; or</li> <li>b) A relevant National Standard</li> </ul> </li> </ul> <p>The PP has sufficiently addressed this criterion. ERM CVS confirms</p>	CL-03	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>that this is verifiable via. Laboratory test reports or official notifications or from Technical specification document(s).</p> <ul style="list-style-type: none"> <li>AMS-III.A.V. (Version 4) methodology requires that in cases where the life span of the water treatment technologies is shorter than the crediting period, there shall be documented measures in place to ensure that end users have access to replacement purification systems of comparable quality. To meet this eligibility criterion, the PP proposes that all users (or individual who purchased product for institution or community centre) will be provided with the contact details (phone number, email address and name) of the CME/CPA Implementer from whom replacement systems can be obtained via the Sales Receipt.</li> </ul> <p>The PP is requested to justify how providing contact details will ensure that households, communities and institutions will have access to replacement systems considering that the personnel (CME/CPA Implementer personnel) contact details could change over time. CL 03 is raised in this regard.</p> <p>In response, the PP has clarified that the mobile number provided to the users is not likely to change, as it is registered to the company (not individual or a location). In case that the number does change, they have made clear in the PoA-DD that they will notify the users via. SMS, and/or (b) upon calling the original mobile number, all users shall be redirected to the updated contact. The users are also explained the process to obtain replacement parts through contacting the CME or the CPA implementer (at the time of sale). Additionally, during the household visits, it was noted that the users mentioned that they were likely to contact the local distributor if they had any issues with the devices, as the distributors were known directly to the users in most cases. All these factors indicate that the users will have means of accessing replacements (or replacement parts) of comparable quality, should a need arise.</p> <p>CL03 is therefore closed.</p>		
6.1.6	Do the eligibility criteria include conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality (please refer to the latest approved version of the <i>Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for Programme of Activities</i> ); Are the relevant criteria verifiable and sufficiently objective?	<p>The eligibility criteria do not clearly state what the additionality requirements are for this PoA. Specific conditions detailed in the 'Guidelines on the Demonstration of Additionality of Small-Scale Project Activities' are not clearly listed as criteria for inclusion of CPAs to the PoA. Based on discussions on site, PP also needs to clarify if micro-scale additionality will be applied.</p> <p>Furthermore, the description for proving that the communities covered under the PoA will not be larger than 5% of the SSC threshold is also missing.</p> <p>Please refer to CL 03.</p> <p>The DOE confirms that the PP has removed the option for applying micro-scale additionality. The PP has also updated the PDD so that the specific criteria for the requirements of 'Guidelines on the Demonstration of Additionality of Small-Scale Project Activities' (Attachment A to Appendix B) (version 09.0), are included in the eligibility criteria.</p> <p>Furthermore, the PoA-DD has been revised such that the description for proving that the size of each unit is no larger than 5% of the small scale CDM threshold will be met by the eligibility criteria that states 'the size of each unit is no larger than 5% of the small-scale CDM threshold or 3,000 tCO<sub>2</sub>e reduced per year', which will be demonstrated by means of the emission reduction calculation spreadsheet. The PP's QA/QC measures state that N<sub>y</sub> multiplied by R<sub>y</sub> will not exceed the maximum output of the unit (i.e. number of persons served by an individual water purification unit multiplied by the average volume of drinking water per person per day shall not exceed the maximum output of the individual water purification unit) – and this maximum output of the technology will be measured against the threshold of 3,000 tCO<sub>2</sub>e emission reductions per year as a cross check.</p>	CL-03	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		CL 03 is therefore closed.		
6.1.7	Do the eligibility criteria include, if applicable, any PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local stakeholder consultations and environmental impact analysis (See also paragraph 6 (m) of Procedures for registration of a programme of activities as a single CDM project activity and issuance of CERs for a PoA). Are the relevant criteria verifiable and sufficiently objective?	<p><u>Local stakeholder consultation:</u> The GSP-PoA-DD states that this will be conducted at CPA level. ERM CVS confirms that this is verifiable via the local stakeholder consultation reports (LSC reports).</p> <p><u>Environmental impact analysis:</u> The GSP-PoA-DD states that this will be conducted at CPA level. However, from discussions on site, it is not clear if the PP will chose to conduct the environmental analysis at the PoA level or the CPA level. PP is requested to clarify and also provide justification of the choice in accordance with the Guidelines for 'completing the programme design document form for small-scale CDM programme of activities'. Please refer to CL 07.</p> <p>CL 07 was addressed. The EIA will indeed be conducted at the CPA level, if an EIA is required by the host country. Please refer to the remediation form for further details.</p>	CL-07	OK
6.1.8	Do the criteria include, where applicable, the target group (e.g. domestic/ commercial/ industrial, rural/ urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation)? Are the relevant criteria verifiable and sufficiently objective?	<p>The eligibility criteria do not significantly discuss the target group and do not address the distribution mechanisms. Please see CL 03.</p> <p>Furthermore, the verifiable evidence to demonstrate target group is presented as Sales Receipts. It is noted that Sales Receipts will be available only after the start of the implementation and therefore, are not likely to be available at the time of CPA inclusion. CL 03 is raised in this regard and PP is requested to clarify.</p> <p>PP has revised the PoA-DD to further describe the target groups as well as including possible distribution mechanisms such as indirect sales and sales through distribution partners as outlined.</p> <ul style="list-style-type: none"> <li>Section A.2 of the PoA-DD describes the distribution mechanisms for different target groups. All water purification systems are to be distributed to end-users or community leader (in case of communities target group) directly through Sales Representatives, who collect user or community level information via Sales Receipts. These sales representatives are also tasked with explaining the correct usage of the systems.</li> <li>The CPA implementer and CME (in cases where the CME is also the implementer) will be directly responsible for sales and dissemination. The CME will also work with local partners to enhance and improve dissemination and distribution capacity of the project as a whole. These local partners are identified as NGOs, local entrepreneurs, government organizations and academic institutes.</li> <li>The CME will oversee the distribution efforts to end users and will oversee the process through the Operations Manuals. Distribution will include the capture of end user for record keeping.</li> <li>The end-user (or community leader in case of community target groups) will be provided with the contact details of the CME/CPA Implementer, whom they can contact should any maintenance of the system be required.</li> </ul> <p>Furthermore, the verifiable evidence for 'Target Group' has been updated to Operations Manual, Contracts with CPA implementers/partners or Technology type – which will all be available at the time of CPA inclusion. Therefore, the changes are deemed appropriate, and CL 03 was subsequently closed.</p>	CL-03	OK
6.1.9	Do the criteria include, where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/	The eligibility criteria in the PoA-DD requires that the sampling be conducted using a minimum of 90% confidence interval and a 10% margin of error requirement be achieved for sampled parameters. When a single sampling plan covers a group of CPAs , confidence/precision of 95/10 for the sample size calculation is applicable.	CL-03	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	standard from the Board pertaining to sampling and surveys? Are the relevant criteria verifiable and sufficiently objective?	<p>Furthermore, the verifiable evidence to demonstrate sampling requirements is presented as Monitoring report. At the time of CPA inclusions, the monitoring plan includes these provisions, not the monitoring report. Please refer to CL 03.</p> <p>The PP has revised the eligibility criterion for 'sampling requirements'. The evidence for sampling requirements has been changed from monitoring report to the sampling plan. ERM CVS has checked the revision and confirms that the sampling plan can be considered appropriate verifiable evidence for the eligibility criteria under 'sampling requirements'.</p> <p>Therefore, CL 03 is closed.</p>		
6.1.10	Do the criteria include, where applicable, conditions that ensure that the CPA in aggregate meets the small-scale or micro-scale threshold criteria (please refer to the latest approved version of the Guidelines for demonstrating additionality of microscale project activities and the latest approved version of the General Guidelines to SSC CDM methodologies) and remain within those thresholds throughout the crediting period of the CPA? Are the relevant criteria verifiable and sufficiently objective?	<p>The PoA follows AMS-III.AV low greenhouse gas emitting safe drinking water production systems Version 4. As this is a 'type 3' small-scale methodology, each CPA under the PoA will achieve emission reductions below 60,000 tCO<sub>2</sub>e per annum. The eligibility criteria include a criterion on the size limit which states that 'the CPA's annual emissions reduction in aggregate remains below the small-scale limit of 60,000 tCO<sub>2</sub>e reduced per annum throughout the crediting period'. The verifiable evidence of this will be the emissions reduction calculation spreadsheet.</p>	OK	OK
6.1.11	Do the criteria include, where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories (please refer to the latest approved version of the Guidelines on assessment of debundling for SSC project activities)? Are the relevant criteria verifiable and sufficiently objective?	<p>All CPAs included in this PoA will be exempt from the debundling test where they can successfully demonstrate that the emission reductions achieved by each of the independent subsystems/measures included in the CPA (i.e. Water Purification Systems (units) distributed in the CPA) is not greater than 1% of the SSC thresholds as defined by AMS-III.A.V. (Version 4), i.e. not exceeding 600 tCO<sub>2</sub>e for SSC type III methodologies.</p> <p>The same shall be evidenced within the emissions calculations spread sheets - and therefore each CPA will be able to demonstrate its exemption from the debundling test, as per the Guidelines on assessment of debundling for SSC project activities. The criterion is sufficiently objective and verifiable.</p>	OK	OK
6.1.12	Do the criteria include conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance? Are the relevant criteria verifiable and sufficiently objective?	<p>The eligibility criteria requires that a written confirmation is provided by all CPA implementers to demonstrate that no funding from Annex I parties has been used for the CPA. If in case funding from an Annex I party is used, a written confirmation is to be provided from the donor confirming that the funding does not result in a diversion of official development assistance (ODA). ERM CVS confirms that this is verifiable via. ODA declarations.</p> <p>Therefore, the criterion is sufficiently objective and verifiable.</p>	OK	OK
6.1.13	Does the CME have the competencies to check the features of potential CPAs and ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA?	<p>ERM CVS conducted interviews with the CME during the site visit, and also reviewed the operation and management plan of the CME /18/, which includes procedures for technical review of inclusion of CPAs. The CME has also implemented other registered CDM projects in the past. Therefore ERM CVS considers that the CME has the competencies to ensure each CPA meets the eligibility criteria.</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.1.14	Is the set of eligibility criteria sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA?	Upon resolution of the CARs and CLs, ERM CVS confirmed that the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.	<del>TBC</del>	OK

## Conclusion

ERM CVS can confirm that the CME has developed eligibility criteria for inclusion of a CPA under the PoA and has included these criteria in the PoA design document and demonstrated their usability to assess the inclusion of CPAs. The PoA-DD provides a detailed description of the eligibility criteria for inclusion of a project activity as a CPA under the PoA, which includes criteria for demonstration of additionality of the CPA, and the type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements) that shall be provided by each CPA in order to ensure its eligibility. The eligibility criteria are verifiable, and are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA. ERM CVS has assessed the specified eligibility criteria and can conclude that the criteria are sufficient to ensure that all CPAs would comply with the CDM requirements applicable to the PoA.



## 7 Validation findings – Baseline and Monitoring Methodology

ERM CVS has evaluated the baseline and monitoring methodology selected by the PPs to confirm its applicability and whether or not it has been appropriately applied in the PoA-DD.

### 7.1 Validity of selected methodology and methodological tools

As per VVS section 7.12, ERM CVS validated that an approved and currently valid baseline and monitoring methodology (and associated methodological tools) have been applied for this proposed CDM PoA.

Baseline methodology applied	AMS-III.A.V.: Low greenhouse gas emitting safe drinking water production systems - Version 4.0
------------------------------	--

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
7.1.1	Is the number, title and version of the approved methodology clearly and correctly stated in the PoA-DD?	ERM CVS has determined that the methodology is correctly quoted and applied by comparing with the actual text of the applicable version of the methodology available on the UNFCCC CDM website.	OK	OK
	Is the methodology within their period of validity?	The methodology is within its period of validity.		
	Are all the required tools applied and fully referenced in the PoA-DD and generic CPA-DD?	ERM CVS has determined that all the required and applicable tools have been applied and fully referenced in the generic CPA-DD:	CL-08	OK
	Are the version numbers applicable at the time of validation?	<ul style="list-style-type: none"> <li>Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion, Version 02, EB 41, Annex 11</li> <li>Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01, EB 39, Annex 07</li> </ul> <p>ERM CVS confirmed that the tools are applicable at the time of validation.</p> <p>However, these tools are not referenced in the PoA-DD and in section B.1 of the generic CPA-DD as per the 'Guidelines for completing the programme design document form for small-scale CDM programmes of activities'. CL 08 is raised with reference to this issue and the PP is requested to clarify.</p> <p>PP has updated the section B.1 of the generic CPA-DD to include the applicable tools. Furthermore, since CPA types 3 and 5 include project emissions (from technologies involving project emissions), the "Tool to calculate baseline, project, and/or leakage CO<sub>2</sub> emissions from electricity consumption" version 01, as well as guidance from AMS-I.E version 05 have been included. This is now in accordance for 'Guidelines for completing the programme design document form for small-scale CDM programmes of activities'.</p> <p>CL 08 is closed.</p>		
	If applicable, has any specific guidance provided by the CDM EB relating to the applied methodology been considered?	<p>General guidelines for SSC CDM methodologies Version 19.0, EB69 Annex 27</p> <p>Guidelines for sampling and surveys for CDM project activities and programme of activities Version 02.0, EB69 Annex05</p> <p>Guidelines on assessment of de-bundling for SSC project activities Version 03.0, EB54 Annex 13</p> <p>Guidelines on the demonstration of additionality of small-scale project activities</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		Version 09.0, EB68 Annex27  (Standard for) Sampling and surveys for CDM project activities and programme of activities Version 04.0, EB74 Annex 6  (Standard for ) Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities Version 03.0, EB74 Annex 5		

## Conclusion

The applied methodology has been correctly described and is approved by the CDM Executive Board. The version is currently valid.

### 7.2 Applicability of the selected methodology to the generic CPA

As per VVS section 7.12.2, ERM CVS evaluated whether the selected baseline and monitoring methodology applied in the proposed PoA is applicable to the generic CPA described in the PoA-DD. This is also one of the eligibility criteria for inclusion of new CPAs to the PoA. This evaluation was based on a review of the PoA-DD and associated documentation and a visit to the first two real case CPAs proposed to be included in the PoA. ERM CVS has validated whether the applicability conditions of the methodology and relevant tools are met and whether the PoA is not expected to result in emissions other than those allowed by the methodology.

ERM CVS has assured the compliance of the generic CPA with each of the applicability conditions of the selected methodology and tools, set out in section B.2 of the generic CPA-DD (Applicability Criteria):

	Applicability Conditions in methodology and/or tools	Discussed in PoA-DD (yes/no)	Applicable (Yes/No, or state that this condition is not relevant for the project)	Validation findings (including justification and substantiation of information, data and evidence).	Draft OK/ CAR/CL	Final OK/ Not OK
7.2.1	Prior to the implementation of the project activity, a public distribution network supplying SDW to the project boundary does not exist. If during the crediting period SDW is made available through a public distribution network, the emission reductions pertaining to the households/buildings supplied by the public system cannot be claimed from that point onwards. This condition should be checked annually during the crediting period.	Yes	Yes	ERM CVS confirms that the condition is included as part of the eligibility criteria for inclusion of CPAs. Compliance of specific CPAs will be validated at the CPA level.	OK	OK
	It shall be demonstrated based on laboratory testing or official notifications (for example notifications from the national authority on health) that the application of the project technology/equipment achieves compliance either with:	Yes	Yes	ERM CVS confirms that the condition is included as part of the eligibility criteria for inclusion of CPAs. Compliance of specific CPAs will be validated at the CPA level.	OK	OK



	Applicability Conditions in methodology and/or tools	Discussed in PoA-DD (yes/no)	Applicable (Yes/No, or state that this condition is not relevant for the project)	Validation findings (including justification and substantiation of information, data and evidence).	Draft OK/ CAR/CL	Final OK/ Not OK
	<p>(i) at a minimum the performance target as per "Evaluating household water treatment options: Health based targets and microbiological performance specifications" (WHO, 2011); or</p> <p>(ii) an applicable national standard or guideline</p>					
	In cases where the life span of the water treatment technologies is shorter than the crediting period of the project activity, there shall be documented measures in place to ensure that end users have access to replacement purification systems of comparable quality.	Yes	Yes	ERM CVS confirms that the condition is included as part of the eligibility criteria for inclusion of CPAs. Compliance of specific CPAs will be validated at the CPA level.	OK	OK
	<p>Applicability of this methodology is foreseen in the following types of situations that shall be reassessed at the beginning of each crediting period:</p> <p>(a) Case 1: Project activities implemented in rural or urban areas of countries with proportion of rural or urban population using an improved drinking-water source equal to or less than 60 per cent confirmed by one of the three options below:</p> <p>(i) Proportion of populations using an improved drinking-water source for the most recent year for which data is available from WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation shall be used (&lt;<a href="http://www.wssinfo.org/data-estimates/table/">http://www.wssinfo.org/data-estimates/table/</a>&gt;) for this purpose. Definition of improved and unimproved drinking water source shall be as per the information provided by JMP;</p> <p>(ii) Using official data such as publicly available statistical data from a government agency or an independently commissioned study by an international organization or</p>	<p>No</p> <p>Yes</p>	Yes	<p>The PoA-DD and generic CPA-DD do not specifically address this methodology condition. Please see CL 04.</p> <p>PP has revised the PoA-DD. ERM CVS confirms that the revised Section B.2 of the Generic CPAs now include the applicability condition 3 from the methodology AMS-III.AV.</p> <p>CL 04 is closed.</p>	CL-04	OK

	Applicability Conditions in methodology and/or tools	Discussed in PoA-DD (yes/no)	Applicable (Yes/No, or state that this condition is not relevant for the project)	Validation findings (including justification and substantiation of information, data and evidence).	Draft OK/ CAR/CL	Final OK/ Not OK
	an university;  (iii) Using survey methods (use 90/10 confidence/precision for sampling);  (b) Case 2: Project activities implemented in areas not included in Case 1.					
	The use of this methodology in a project of activity under a programme of activities is legitimate if the leakage is estimated and accounted for as per the relevant provisions of AMS-I.E under the section for programme of activities	<del>No.</del>  Yes	<del>CL 04</del>  Yes	Section B.2 of the generic VPA-DD does not address the applicability condition of AMS-II.AV related to PoAs (paragraph 22 of the methodology). CL 04.  ERM CVS confirms that the revised Section B.2 of the Generic CPAs now include the applicability condition of AMS-III.AV related to PoAs (paragraph 22 of the methodology). Leakage has been accounted for as per AMS-I.E, and an adjustment factor of 0.95 is applied to account for leakages.  CL 04 is therefore closed.	<del>CL 04</del>	OK

## Conclusion

The applied methodology and associated tools are fully applicable to the generic CPA and is correctly applied in the PoA-DD. There no greenhouse gas emissions sources identified within the proposed generic CPA boundary as a result of the implementation of the proposed CPA, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and which are not addressed by the applied methodology.

### 7.3 Generic CPA Boundary

As per VVS section 7.12.5, ERM CVS reviewed the description of the project boundary in the PoA-DD, including the sources and gases included in the boundary of the proposed generic CPA for the purpose of calculating project and baseline emissions for the generic CPA.

### Emission sources

The emissions sources included in or excluded from the generic CPA boundary, as set out in the applied methodology are as follows:

	Source	Gas	Included in generic CPA-DD?	Is inclusion / exclusion justified in the CPA-DD?	How has this been validated?
Baseline	Combustion of non-	CO <sub>2</sub>	Yes	Yes	Emission reductions are calculated on the basis of fuel savings. This was validated by review of the PoA-DD

	Source	Gas	Included in generic CPA-DD?	Is inclusion / exclusion justified in the CPA-DD?	How has this been validated?
emissions	renewable biomass				and generic CPA-DD
		CH <sub>4</sub>	No	Yes	Excluded as per the methodology
		N <sub>2</sub> O	No	Yes	Excluded as per the methodology
Project emissions	Consumption of electricity (for CPA types 3 and 5) [N.B. there are no project emissions for CPA types 1, 2 and 4]	CO <sub>2</sub>	Yes	Yes	Emissions from project activity are included. This was validated by review of the PoA-DD and generic CPA-DD
		CH <sub>4</sub>	No	Yes	Excluded as per the methodology
		N <sub>2</sub> O	No	Yes	Excluded as per the methodology

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
7.3.1	Has the PoA-DD justified the inclusion/exclusion of all potential sources of GHG emissions as set out in the applied baseline methodology  Is this information also stated consistently in the generic CPA-DD?	ERM CVS evaluated whether the sources of GHG emission set out in the applied methodology were included in the CPA boundary and, where the methodology allows CME to choose whether a source or gas is to be included within the CPA boundary, this has been clearly justified in the CPA-DD. The validation was based on review of the PoA-DD and generic CPA-DD and comparison with the applied methodology.	OK	OK

## Conclusion

The identified boundary and the selected sources and gases included in the final PoA-DD and generic CPA-DD are appropriately described and justified in accordance with the applied methodology. The information is correctly described in section B.3 of the PoA-DD and section B.4 of the generic CPA-DD.

## Emission sources not addressed by the methodology

ERM CVS evaluated whether there are any emission sources that will be affected by the generic CPA and are not addressed by the applied methodology.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
7.3.2	Were any emission sources identified that will be affected by the generic CPA and are not addressed by the selected approved methodology? If so, was clarification of, revision to or deviation from the methodology approved in accordance with required	No emissions sources other than those addressed by the methodology were identified.	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	procedures.			

## 7.4 Baseline identification

As per VVS section 7.12.6, ERM CVS reviewed the PoA-DD to assess whether it correctly identifies the baseline for proposed CPAs, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CPAs.

As per VVS, no alternative analysis is required if the approved methodology that is selected by the proposed CDM PoA prescribes the baseline scenario.

The baseline identification has been validated as follows:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
7.4.1	Does the PoA-DD identify the baseline for a generic CPA, a scenario that represents the anthropogenic emissions by sources of GHG that would occur in the absence of the generic CPA?	<p>Section A of the PoA-DD and Section B.4 of the generic CPA-DD contain a brief but insufficient description of the baseline scenario. e.g. the DD does not contain a sufficient description or present data relevant to the current practices used by households, communities and institutions in Rwanda and Uganda to treat water (information regarding the current trend in boiling and other types of water treatment techniques), type and efficiency of stoves used for boiling etc. Please refer to CAR 03.</p> <p>Section A of the PoA-DD and Section B.4 of the generic CPA-DD now contain a more detailed description of the baseline scenario. The methodology defines the baseline scenario as follows:</p> <p>“For a simplified and standardised approach it is assumed that fossil fuel or nonrenewable biomass (NRB) is used to boil water as means of water purification in the absence of the project activity. The emissions are calculated based on the energy demand for boiling water, and in case of displacement of NRB the baseline emissions are corrected for the fraction of the biomass that can be demonstrated to be nonrenewable. Only purified water consumed for drinking purposes can be used in the baseline calculation”.</p> <p>Each CPA is required to provide a description and present data relevant to the current practices used by households, communities and institutions in the CPA boundary to treat water, type and efficiency of stoves used for boiling, fuel used for boiling etc. Please refer to the close out for CAR 03 for further details.</p> <p>Furthermore, section B.4 of the generic CPA-DD makes a statement that ‘the programme only credits non-renewable biomass (NRB)’– this is not in line with the methodology as the methodology includes baseline users that may be using fossil fuel. Please refer to CL 04.</p> <p>ERM CVS confirms that the statement ‘the programme only credits non-renewable biomass (NRB)’ has been deleted from section B.4 of the generic CPA-DD. CL 04 is closed.</p>	CAR-03  CL-04	OK
	Have the procedures/ steps to identify the most reasonable baseline scenario, as required by the methodology(ies) and applicable tools, been documented clearly in the PoA-DD for a generic CPA?	Since the baseline is specified by the methodology, no further procedures / steps to identify the most reasonable baseline scenario are required.	N/A	N/A

## Conclusion

Based on the site visit and documentary evidence to cross check the information contained in the PoA-DD as referenced above, ERM CVS confirms that the baseline scenario has been correctly identified in line with the methodology, that all assumptions and data are correct, and that the identified baseline complies with all relevant national and/or sectoral policies and circumstances.

### 7.5 Algorithms and/or formulae used to determine emission reductions

As per VVS section 7.12.7, ERM CVS has evaluated whether the steps taken and equations applied to calculate project emissions, baseline emissions, leakage, and emission reductions comply with the requirements of the selected baseline and monitoring methodology.

ERM CVS conducted validation activities to determine whether the equations and parameters in the PoA-DD have been correctly applied by comparing them to those in the selected approved methodology. Where the methodology provides for selection between different options for equations or parameters, ERM CVS confirmed that adequate justification has been provided (based on the choice of the baseline scenario, context of the proposed generic CPA and other evidence provided) and that the correct equations and parameters have been used, in accordance with the methodology selected.

### Ex Ante Data and Parameters

The parameters required by the methodology and tools for this project type, and additional parameters as used for this project, are listed and validated in detail as follows:

Parameter required as per methodology / tools	Description of the parameter (as per methodology)	Is the parameter included in the PoA-DD?	Title & description in line with Meth?	Data unit correctly expressed?	Value in PoA-DD correct and provides for conservative estimate of Emission Reductions?  How was this validated?	Measurement method correctly described in the PoA-DD (if applicable)
Case 1 or Case 2	Case 1 or Case 2: Project activities implemented in rural or urban areas of countries with proportion of rural or urban population using an improved drinking-water source equal to or less than 60 % (Case1) or above 60% (Case2)	Yes	Yes	N/A	The CME has chosen to set this parameter ex-ante at the CPA level for all CPA types (1-5).  This will be validated in the CPA validation report.	The PP is requested to clarify the choice of data or measurement methods and procedures to determine if the CPA is determined as Case 1 or Case 2. The current description is unclear. Please refer to CL 05.  The PP has updated the choice of data or measurement methods and procedures using the three options provided in the methodology.  ERM CVS confirms that the changes are in line with the methodological requirements for

Parameter required as per methodology / tools	Description of the parameter (as per methodology)	Is the parameter included in the PoA-DD?	Title & description in line with Meth?	Data unit correctly expressed?	Value in PoA-DD correct and provides for conservative estimate of Emission Reductions?  How was this validated?	Measurement method correctly described in the PoA-DD (if applicable)
						Case 1 and Case 2 parameter determination. CL 05 is closed.
X <sub>boil</sub>	The proportion of total population for which the common practice of water treatment is or would have been water boiling	Yes	N/A. This is a project specific parameter. The methodology requires that for Case 2 projects, total project population needs to be adjusted for the fraction of the population serviced by the project equipment at households / buildings for which it can be demonstrated through documentation or survey that the practice of water purification would have been water boiling. Hence this parameter needs to be included.	Yes. It is represented by a fraction	The CME has chosen to set this parameter ex-ante at the CPA level for all CPA types (1-5).  This will be validated in the CPA validation report.	Yes. The PoA-DD describes that ex-ante surveys or literature will be used to measure this parameter.
WH	Specific heat of water	Yes	Yes	Yes	Yes. The CME has chosen to set this parameter ex-ante at the PoA level for all CPA types (1-5).  Default value of 4.186 kJ/L°C has been applied as per the methodological requirements of AMS-III.A.V. (version 4).  ERM CVS has checked to confirm that this default value is correct and appropriate for the PoA.	Not applicable
T <sub>f</sub>	Final temperature	Yes	Yes	Yes	Yes. The CME has chosen to set this parameter ex-ante at the PoA level for all CPA types (1-5).  Default value of 100°C has been applied as per the methodological requirements of AMS-III.A.V. (version 4).  ERM CVS has checked	Not applicable

Parameter required as per methodology / tools	Description of the parameter (as per methodology)	Is the parameter included in the PoA-DD?	Title & description in line with Meth?	Data unit correctly expressed?	Value in PoA-DD correct and provides for conservative estimate of Emission Reductions?  How was this validated?	Measurement method correctly described in the PoA-DD (if applicable)
					to confirm that this default value is correct and appropriate for the PoA.	
T <sub>i</sub>	Initial temperature	Yes	Yes	Yes	Yes. The CME has chosen to set this parameter ex-ante at the PoA level for all CPA types (1-5).  Default value of 20°C has been applied as per the methodological requirements of AMS-III.A.V. (version 4).  ERM CVS has checked to confirm that this default value is correct and appropriate for the PoA.	Not applicable
WHE	Latent heat of water evaporation	Yes	Yes	Yes	Yes. The CME has chosen to set this parameter ex-ante at the PoA level for all CPA types (1-5).  Default value of 2260 kJ/L has been applied as per the methodological requirements of AMS-III.A.V. (version 4).  ERM CVS has checked to confirm that this default value is correct and appropriate for the PoA.	Not applicable
L	Leakage	Yes	Yes	Yes. It is represented by a fraction.	Yes. The CME has chosen to set this parameter ex-ante at the PoA level for all CPA types (1-5).  Default value of 0.95 has been applied as per the methodological requirements of AMS-I.E. (version 5). ERM CVS has checked that the methodology provides two options for estimating the leakage – via surveys or via a default value of 0.95.	Not applicable

Parameter required as per methodology / tools	Description of the parameter (as per methodology)	Is the parameter included in the PoA-DD?	Title & description in line with Meth?	Data unit correctly expressed?	Value in PoA-DD correct and provides for conservative estimate of Emission Reductions?  How was this validated?	Measurement method correctly described in the PoA-DD (if applicable)
					<p>The CME has chosen the default value of 0.95 and this is confirmed to be correct, and in line with the methodology.</p> <p>However, although the value has been chosen from the relevant methodology correctly, the parameter table in section B.6.2 of the generic CPA-DD references the methodology 'AMS-III. A.V. (version 4)' rather than AMS-I.E. (version 5). Please refer to CL 05.</p>	
Ex-ante determined parameters for the project emissions from fossil fuel combustion	Parameters to be determined ex-ante for the calculation of project emissions from fossil fuel combustion as per the tool	Yes	Yes	<del>Yes. It is represented by a fraction.</del>	<p>The CME had chosen to set this parameter ex-ante at the CPA level.</p> <p>However, as per discussions on site, water purification technologies using fossil fuels will not be included in the PoA. Therefore, this parameter does not apply. PP is requested to clarify. Please refer to CAR 04.</p> <p>In response, the PP clarified that technologies using fossil fuels will not be included in the PoA. The PP has also added a statement in section A.6 of the PoA-DD to explicitly state that technologies using fossil fuels will not be used in the PoA.</p> <p>Therefore, the ex-ante parameter 'Ex-ante determined parameters for the project emissions from fossil fuel combustion' was removed by the PP. This change is considered appropriate by ERM CVS.</p> <p>CAR 04 is closed.</p>	Not applicable



Parameter required as per methodology / tools	Description of the parameter (as per methodology)	Is the parameter included in the PoA-DD?	Title & description in line with Meth?	Data unit correctly expressed?	Value in PoA-DD correct and provides for conservative estimate of Emission Reductions?  How was this validated?	Measurement method correctly described in the PoA-DD (if applicable)
R <sub>y,i</sub>	Average volume of drinking water per person per day (the letter I denotes that this parameter shall be determined per technology type i)	Yes	Yes. The description is in line with the methodology. The title 'Ry' used in the PoA to denote this parameter. The parameter is used to calculate QPW <sub>y</sub> .	Yes	<p>This parameter was initially set as monitored parameter for all CPA types. Please refer to CAR 06 with reference to the issues raised.</p> <p>In response, PP has <u>fixed this parameter ex-ante for CPA types 1, 2, 3</u>, i.e. CPA types involving households and communities (with and without project emissions).</p> <p>According to the methodology, a value of 5.5 litres shall not be exceeded for the average volume of drinking water per person per day. The methodology also states (paragraph 10) that only purified water consumed for drinking purposes can be used in the baseline calculation. For CPA types 1, 2, 3, the average volume of drinking water per person per day (parameter R<sub>y,i</sub>) is set ex-ante based on international official data from the WHO /13/ on the minimum amount of water needed for drinking. This approach is considered conservative, since in situations where people are doing physical labour, especially in hot climates, the amount of water needed would be higher. The value has been fixed at 3.5 litres/person/day for households, and communities that include full enrolment of serviced populations (e.g. boarding schools and prisons). For day schools, this value has been fixed at 2 litres/person/day (also based on WHO data /13/) since pupils spend</p>	Yes. Please refer to the close out of CAR 06 for detailed validation of the figures.

Parameter required as per methodology / tools	Description of the parameter (as per methodology)	Is the parameter included in the PoA-DD?	Title & description in line with Meth?	Data unit correctly expressed?	Value in PoA-DD correct and provides for conservative estimate of Emission Reductions?  How was this validated?	Measurement method correctly described in the PoA-DD (if applicable)
					<p>only part of their time at school. Please note that <u>for CPA types 4 and 5, this parameter is monitored.</u></p> <p>Detailed validation of these figures has been performed by ERM CVS. Please refer to the close out of CAR 06 for further details.</p>	
EF <sub>EL,j,y</sub>	Emission factor for electricity generation for source j in year y	Yes	It is in line with the 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption'.	Yes	<p>Yes. The CME has chosen to set this parameter ex-ante at the PoA level <u>for the applicable CPA types 3 and 5 which involve project emissions.</u></p> <p>Default value of 1.3 tCO<sub>2</sub>/MWh has been applied as per the 'Tool to calculate baseline, project and/or leakage CO<sub>2</sub> emissions from electricity consumption' version 1.</p> <p>ERM CVS has checked that this value is correct and conservative, and in line with the Tool.</p>	Not applicable
TDL <sub>j,y</sub>	Average technical transmission and distribution losses for providing electricity to source j in year y	Yes	It is in line with the 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption'.	Yes	<p>Yes. The CME has chosen to set this parameter ex-ante at the PoA level <u>for the applicable CPA types 3 and 5 which involve project emissions.</u></p> <p>Default value of 20% has been applied as per the 'Tool to calculate baseline, project and/or leakage CO<sub>2</sub> emissions from electricity consumption' version 1.</p> <p>ERM CVS has checked that this value is correct and conservative, and in line with the Tool.</p>	Not applicable

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
7.5.1	Have the parameters required by the methodology / tools been correctly described in the PoA-DD?  Where the methodology provides for selection between different options for data and parameters; is the choice of data and parameters justified?	ERM CVS confirmed that all the parameters required by the methodology / tools have been correctly described in the PoA-DD.  The revised PoA-DD now justifies selection between different options for data and parameters, wherever applicable.	TBC	OK
	Have the parameters required by the methodology / tools been correctly described in the generic CPA-DD?	ERM CVS confirmed that all the parameters required by the methodology / tools have been correctly described in the generic CPA-DDs.	TBC	OK

## Equations and calculations used to calculate emission reductions

The following steps are applied in the generic CPA-DD to determine emission reductions of proposed CPAs, in accordance with the methodology and tools applied. For further explanation and validation of the methodological choices under the PoA please see section 7.5.2 below.

### Baseline emissions

$$BE_y = QPW_y \times SEC \times f_{NRB,y} \times EF_{projected\_fossilfuel} \times 10^{-9}$$

Where:

$BE_y$	=	Baseline emissions during the year y in (tCO <sub>2</sub> e)
$QPW_y$	=	Quantity of purified water in year y (litres)
$SEC$	=	Specific energy consumption required to boil one litre of water (kJ/L)
$f_{NRB,y}$	=	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass as per the relevant provisions of "AMS-I.E: Switch from Non-Renewable Biomass for Thermal Applications by the User".
$EF_{projected\_fossilfuel}$	=	Emission factor as per AMS-I.E procedures when NRB is displaced or the emission factor of the fossil fuel substituted (tCO <sub>2</sub> /TJ)

Parameter SEC is estimated using equation:

$$SEC = [WH \times (T_f - T_i) + 0.01 \times WHE] / \eta_{wb}$$

Where:

$WH$	=	Specific heat of water (kJ/L°C)
$T_f$	=	Final temperature (°C)
$T_i$	=	Initial temperature of water (°C)
$WHE$	=	Latent heat of water evaporation (kJ/L)
$\eta_{wb}$	=	Efficiency of the water boiling systems being replaced

Parameter  $QPW_y$  is estimated depending on whether the CPA is of Case 1 or Case 2:

For CPAs that are Case 1,  $QPW_y$  is based on the population serviced by the project equipment, estimated using surveys, and an average volume of drinking water per person per day, in line with methodology provisions. In order to determine the population serviced by the project equipment, the number of water systems distributed, and the proportion of the time when these systems are operational and being used must be determined. In addition, it must be ensured that the quality of the water purified by these systems meets the required standards. Hence the equation to determine  $QPW_y$  for case 1 CPAs shall be as follows:

$$QPW_y = \sum_0^i (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times WaterQuality_i \times OperationalUnits_i)$$

Where:

$T_{y,i}$	=	Total distributed water purification systems (number of units)
$N_{y,i}$	=	The average population serviced by water purification systems (person/equipment)

$R_{y,i}$  = Average volume of drinking water per person per day (Liters/person/day)  
 Water Quality<sub>i</sub> = Percent of the units that meet Water Quality requirements  
 Operational Units<sub>i</sub> = Percentage of the monitoring period during which the technologies are in use  
 N.B. The notation "*i*" refers to technology type '*i*', since the parameters will be monitored for each technology type included in the CPA.

QPWy shall therefore be calculated based on the sum of the above for each type of technology included in the PoA.

For CPAs that are Case 2, the same calculation applies, however the total project population needs to be adjusted for the fraction of the population serviced by the project equipment at households/buildings for which it can be demonstrated through documentation or survey that the practice of water purification would have been water boiling (denominated as X<sub>boil</sub> in the PoA), hence the equation to determine QPW<sub>y</sub> for case 2 CPAs shall be as follows, for each type of technology:

$$QPW_y = \sum_0^i (X_{boil} \times T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times WaterQuality_i \times OperationalUnits_i)$$

Where:

$X_{boil}$  = The proportion of total population for which the common practice of water purification is or would have been water boiling (percentage)  
 $T_{y,i}$  = Total distributed water purification systems (number of units)  
 $N_{y,i}$  = The average population serviced by water purification systems (person/equipment)  
 $R_{y,i}$  = Average volume of drinking water per person per day (Liters/person/day)  
 Water Quality<sub>i</sub> = Percent of the units that meet Water Quality requirements  
 Operational Units<sub>i</sub> = Percentage of the monitoring period during which the technologies are in use  
 N.B. The notation "*i*" refers to technology type '*i*', since the parameters will be monitored for each technology type included in the CPA.

QPWy shall therefore be calculated based on the sum of the above for each type of technology included in the PoA.

## Project emissions

For type 3 CPAs (technologies for institutional water consumption, with project emissions, including Ultraviolet disinfection devices and Reverse Osmosis systems, installed in institutions which require electricity and are connected to the grid or other non-renewable electricity source) and type 5 CPAs (technologies for community water consumption, with project emissions, including Ultraviolet disinfection devices and Reverse osmosis systems that which require electricity and are connected to the grid or other non-renewable electricity source), project emissions must be determined. Project emissions from electricity usage by certain types of water purification systems in these CPAs will be calculated using the following equation:

$$PE_y = T_y \times EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y})$$

Where:

$PE_y$  = Project emissions during the year y in (tCO<sub>2</sub>)  
 $T_y$  = Total number of distributed water purification systems  
 $EC_{PJ,j,y}$  = Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr)  
 $EF_{EL,j,y}$  = Emission factor for electricity generation for source j in year y (tCO<sub>2</sub>/MWh)  
 $TDL_{j,y}$  = Average technical transmission and distribution losses for providing electricity to source j in year y

## Leakage

The methodology states that relevant leakage relating to the non-renewable woody biomass shall be assessed as per the relevant procedures of AMS-I.E. The CME has chosen a default value of 0.95 has been applied as per the methodological requirements of AMS-I.E. (version 5). Therefore:

$$L = 0.95$$

## Emission Reductions

The overall emission reductions will be estimated as:

$$ER_y = (BE_y \times L - PE_y)$$

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
7.5.2	<p>Has the PP correctly applied all relevant calculations as required by the methodology and associated tools?</p> <p>Is it fully explained how the procedures provided in the Methodology and applicable Tools are applied by the proposed PoA? (i.e. Are the required steps clearly followed?)</p>	<p>The CME has correctly described the framework for emission reductions calculations including the relevant formulae in section B.6.3 of the generic CPA-DD. The calculations will then be applied at the level of each specific CPA.</p> <p>However, section B.6.1 of the generic CPA-DD does not present parameters required by the methodology/tools. Furthermore, the section does not state which equations will be used in calculating emission reductions, which is not in line with the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'. Please refer to CL 08.</p> <p>The PP submitted a revised PoA-DD to address this issue. ERM CVS has checked that the section B.6.1 references section B.6.3 of the generic CPA-DD, which is considered appropriate.</p> <p>CL 08 was therefore closed.</p> <p>The revised generic CPA-DDs also include further explanation of methodological choices, explaining the approach followed under the PoA to calculate emission reductions.</p>	CL-08	OK
	Where the methodology or tool(s) provides for selection between different options for equations; is every choice of options for calculating project emissions, baseline emissions and leakage offered by the methodology correctly justified in the context of the PoA and baseline scenario?	<p>ERM CVS confirms that the DD was revised to sufficiently explain and justify the methodological choices, where necessary.</p> <p>The principal parameter to be determined under the methodology is QPW<sub>y</sub> (Quantity of purified water in year y (litres)). As per the methodology AMS-III.AV, paragraph 11, the quantity of purified water is the total amount of water treated by the project activity in year y, however paragraph 10 of the methodology also states that 'only purified water consumed for drinking purposes can be used in the baseline calculation'. Therefore QPW<sub>y</sub> is not the total volume of water treated, but only that amount of water that can reasonably be considered to be used for drinking purposes. This accounted for under this PoA by parameter Ry,i, the average volume of drinking water per person per day. Please see below for further details of parameter Ry,i.</p> <p>The methodology gives two options for determining QPW<sub>y</sub>: either it should be directly monitored, or alternatively it should be based on: "(a) the population serviced by the project equipment, estimated using surveys; and (b) an average volume of drinking water per person per day estimated using surveys or official data or peer reviewed literature or local expert opinion (a value of 5.5 litres per person per day shall not be exceeded)". The CME has chosen to use the latter approach.</p> <p>QPW<sub>y</sub> is therefore determined based on the population serviced by the project equipment (parameter Ny), estimated using surveys, and an average volume of drinking water per person per day (parameter Ry,i), in line with methodology provisions. In order to ensure that the CPA only credits for the population actually serviced by the project equipment, the number of water systems distributed (Ty,i) is monitored under the PoA. The product of Ty,i and Ny,i represents "the population serviced by the project equipment", and furthermore the proportion of the time when these systems are operational and being used (parameter 'Operational Units') must be determined under the PoA. In addition, it must be ensured that the quality of the water purified by these systems meets the required standards (therefore the PoA includes the parameter 'Water Quality<sub>i</sub>'). Water Quality<sub>i</sub> parameter is used to modify parameter Ty,i such that only the proportion of units that meet required water quality standards out of the total sampled units</p>	TBC	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>shall be applied in calculation of QPW<sub>y</sub>.</p> <p>For case 2 CPAs, the total project population needs to be adjusted for the fraction of the population serviced by the project equipment at households/buildings for which it can be demonstrated through documentation or survey that the practice of water purification would have been water boiling. Therefore the PoA includes parameter Xboil to determine this.</p> <p>For CPA types 3 and 5, which include technologies that can generate project emissions by using electricity supplied by electricity systems that include non-renewable sources, project emissions will be calculated in accordance with the methodology, paragraph 14, i.e. calculation of CO<sub>2</sub> emissions from electricity consumption using the "Tool to calculate baseline, project, and/or leakage CO<sub>2</sub> emissions from electricity consumption" (Version 1). The Emission factor for electricity generation for source j in year y (tCO<sub>2</sub>/MWh) is set ex-ante at the PoA level as per option A.2 of the tool, at a conservative value of 1.3 tCO<sub>2</sub>/MWh.</p>		
	<p>Are the formulae required for the determination of project emissions, baseline emissions and leakage correctly presented in a complete and transparent manner, enabling a complete identification of parameters to be used and / or monitored?</p>	<p>It is noted that the formula for project emissions (PE<sub>y</sub>) does not apply to all technologies being proposed in the PoA, as some technologies do not use electricity and therefore do not have project emissions. Different types of technologies with different emission reduction calculations are currently being grouped into one single CPA type. This is not in accordance with Paragraph 143 of the CDM Project Standard and the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'. Please refer to CAR 02.</p> <p>Furthermore, a review of the project emissions calculation formula (PE<sub>y</sub>) revealed that project emissions appear to be calculated per unit rather than all units (i.e. formula does not include parameter (T<sub>y</sub>)). Please refer to CAR 05.</p> <p>The PP revised the PoA-DD. ERM CVS has checked the revisions and confirms that the revised PoA-DD addresses five categories of generic CPA types that the PP plans to implement in Rwanda and Uganda. These CPA types are clearly identified and split based on the different types of technologies being implemented and on the different emission reduction calculations (with and without project emissions), in accordance with Paragraph 143 of the CDM Project Standard and the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'. Therefore, CAR 02 is closed.</p> <p>Furthermore, ERM CVS has checked that the PP has revised the equation of PE<sub>y</sub> for CPA type 3 (institutions with project emissions) and for CPA type 5 (communities with project emissions). These are the CPA types for which project emissions are applicable and therefore, this revision is considered appropriate and correct. The other CPA types (1, 2, 4) do not involve technologies with project emissions and therefore PE<sub>y</sub> is assumed as zero, which is considered appropriate. Therefore, CAR 05 is also closed.</p> <p>ERM CVS confirms that leakage is correctly accounted for in line with the methodology. Leakage relating to the non-renewable woody biomass is assessed as per the relevant procedures of AMS-I.E, as allowed by AMS-III.AV. The default value of 0.95 is applied to the Emissions Reductions.</p>	<p><del>CAR-02</del></p> <p><del>CAR-05</del></p>	<p>OK</p>
	<p>If applicable, are detailed calculations provided in a traceable spreadsheet showing relevant information?</p>	<p>The emission reduction calculations will be carried out at CPA level.</p> <p>However, a review of the calculations that will be performed at CPA level (calculation spread sheet) revealed that the parameter for the number of appliances (T<sub>y</sub>) is being counted twice during baseline (BE<sub>y</sub>) and leakage (L) emissions calculations. Please refer to CAR 05.</p> <p>Furthermore, the emission reduction calculation spreadsheets do not have a date and version number. Please refer to CL 09.</p> <p>In response, the PP has submitted a sample CER spreadsheet detailing the</p>	<p><del>CAR-05</del></p> <p><del>CL-09</del></p>	<p>OK</p>

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>calculations at each CPA level. Leakage emissions are now being calculated as per the PoA-DD. Double counting of parameter <math>T_y</math> has also been fixed. Furthermore, the document has now been referenced correctly, with a date and version number.</p> <p>Please refer to the close out of CAR 05 and CL 09 for further details.</p>		

## Conclusion

The PoA-DD correctly applies the methodology and appropriate tools to provide a framework for calculating the emission reductions of a generic CPA. All assumptions and data used are properly listed, including references and sources where applicable. Calculation of actual baseline, project and leakage emissions will be made only at CPA level.

## 8 Validation findings – Additionality

As per the VVS sections 7.12.8 to 7.12.13 and 8.4.8, as well as the ‘Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities’ (CDM-EB65-A03-STAN), ERM CVS assessed the PoA-DD to determine whether it clearly describes how the proposed CDM PoA is additional, as supported by sufficient and appropriate evidence. In accordance with the standard, additionality must be demonstrated for the PoA as a whole, and it must be demonstrated that each of the individual CPAs are additional. As per the CDM Project Standard, the CME must demonstrate that the proposed CDM PoA is additional in accordance with the “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities”. A full additionality assessment is not required in the context of CPA. Instead, the confirmation of additionality for CPAs should be conducted by means of the eligibility criteria.

As per the ‘Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities’, additionality of a PoA must be demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur. PoAs that will include one or more microscale projects as CPA shall include eligibility criteria derived from all the relevant requirements of the ‘Guidelines for demonstrating additionality of microscale project activities’. PoAs that will include one or more small-scale projects as CPAs shall include eligibility criteria derived from all the relevant requirements of Attachment A of Appendix B of the Simplified modalities and procedures for small-scale CDM project activities. PoAs that will include one or more large-scale projects as CPA shall include eligibility criteria derived from all the relevant requirements contained in the additionality section of the large-scale methodology(ies).

ERM CVS has validated the additionality of the PoA as a whole and that the PoA-DD includes adequate eligibility criteria to ensure the additionality of individual CPAs, as per the CDM Project standard. ERM CVS has ensured that all additionality guidelines set out in the approved methodology and tools have been included within the CPA eligibility criteria. ERM CVS assessed and verified the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by the PPs to support the demonstration of additionality in order to critically assess the presented evidence, using local knowledge and sectoral and financial expertise.

In undertaking this aspect of the validation, ERM CVS considered tools and documents provided by the CDM Executive Board to demonstrate the additionality of proposed CDM PoA, as well as specific complementary or alternative requirements included in the approved CDM methodology.

In the sections below, ERM CVS describes all steps taken, and sources of information used, to cross-check the information contained in the PoA-DD on additionality. Where appropriate, we describe how the validation team determined that the documentation assessed is authentic.

### 8.1 Starting date of the PoA

As per the project standard, paragraph 29, the requirements for prior consideration of the CDM do not apply to PoAs. As per the project standard, paragraph 57, project participants are required to determine the start date of the proposed CDM project activity and provide a description of how this start date has been determined. As per the Glossary of CDM Terms, in the context of a CDM PoA the start date is the date on which the coordinating/managing entity officially notifies the secretariat and the DNA of their intention to seek the CDM status, or the date of publication of the PoA-DD for global stakeholder consultation. In the case of this PoA, the start date is defined as the date of publication of the PoA-DD for global stakeholder consultation, i.e. 17 August 2013. Based on the site visit ERM CVS can confirm that to its knowledge there is no component of the programme that commenced prior to the start of validation.

### 8.2 Identification of alternatives

The approved methodology that is selected by the proposed CPA prescribes the baseline scenario and no further analysis is required. The methodology defines the baseline as follows: baseline scenario of “water boiling using non-renewable biomass or fossil fuels”. Therefore no further assessment of baseline alternatives is required.

### 8.3 Assessment of additionality of a CPA

As confirmed in section 6.1 of the validation report, eligibility criteria include a condition that each CPA needs to demonstrate additionality. ERM CVS has validated whether compliance with the additionality-related eligibility criteria set in the PoA design document will ensure that all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met.



Validation of how the framework was used in the first real case CPA is described in a separate CPA validation report.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
8.4.1	Does the description of assessment of CPA additionality correctly follow the methodology and relevant tool(s) and guidance?	<p>The eligibility criteria do not clearly state what the additionality requirements are for this PoA. Specific conditions detailed in the 'Guidelines on the Demonstration of Additionality of Small-Scale Project Activities' are not clearly listed as criteria for inclusion of CPAs to the PoA. Based on discussions on site, PP also needs to clarify if micro-scale additionality will be applied.</p> <p>Furthermore, the description for proving that the communities covered under the PoA will not be larger than 5% of the SSC threshold is also missing.</p> <p>Please refer to CL 03.</p> <p>The PP has also included specific criteria for the requirements of 'Guidelines on the Demonstration of Additionality of Small-Scale Project Activities' (Attachment A to Appendix B) (Version 09.0) to be met by the CPA. This include that the CPA demonstrate:</p> <ul style="list-style-type: none"> <li>• The WPS is operating as an isolated unit</li> <li>• The users of the WPS is either a household, an institution, or a community</li> <li>• the size of each unit is no larger than 5% of the small-scale CDM threshold or 3,000 tCO<sub>2</sub>e reduced per year</li> </ul> <p>Furthermore, the PP have clarified the additionality eligibility criteria, as well as procedures to stay within the &lt;5% of the SSC threshold to comply with additionality. To check that the technologies meet the final criterion, the PP has included a check for the parameters <math>N_y</math> and <math>R_y</math> to ensure that emission reductions are not claimed for more water than which is treatable by the technologies (i.e. maximum possible output of the device is not crossed). i.e. <math>N_y</math> multiplied by <math>R_y</math> will not exceed the maximum output of the technology.</p> <p>Microscale additionality has also been removed by the PP.</p> <p>CL 03 is therefore closed.</p>	<del>CL-03</del>	OK

## Conclusion

The PoA-DD contains sufficient framework to assure that in the absence of CDM, none of the implemented CPAs would occur. Additionality will be further validated at the level of each CPA by validating whether the CPA complies with the eligibility criteria.

## 9 Validation Findings - Operational, management and monitoring plan for the programme of activities

As per VVS section 8.4.1 ERM CVS has validated the management system described in the PoA-DD in accordance with the 'Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities' (CDM-EB65-A03-STAN). According to the requirements, the CMEs shall have the competencies to check the features of potential CPAs and ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA. ERM CVS has validated the management system as developed and implemented by the CME as follows.

### 9.1 Operation and Management Plan

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
9.1.1	Has the CME demonstrated that there is an operational and management system for the implementation and management of the PoA?	<p>Yes, the CME has developed an operation and management plan for the PoA ('CME Manual') /18/. However the details of the operation and management plan are not summarised in the PoA-DD. Please see CL 11</p> <p>The details of the operation and management plan have been summarised in the PoA-DD. CL 11 was closed.</p>	CL 11	OK
9.1.2	Does the operational and management system include clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies?	<p>The operation and management plan /18/ includes clear definition of roles and responsibilities of CME personnel, including Executive Director, Managing Director, Program Manager, Director of Product Development, East Africa Regional Manager, and program associate. The operation and management plan states that the managing director oversees PoA and CPA implementation activities. The plan also requires that Impact Carbon management will approve each CPA included in the PoA. The PO managing the CPA will submit all documentation to Impact Carbon at the inclusion stage, including CPA documentation on eligibility requirements; and their product information list, which will be incorporated into the overall electronic data management system; and any other documentation required. Impact Carbon will review all documentation to ensure that it is aligned with the POA before submission to the DOE. The program manager will be responsible for reviewing CPAs before inclusion.</p> <p>However, the competency requirements of the Program Manager are not specifically stated in the CME manual. Please see CL 11</p> <p>The competency requirements of the programme manager have been stated in the PoA-DD section c 'management system'. The programme manager shall have knowledge and relationship with all CPAs and Implementing Partners, understanding of the PDD and all eligibility criteria, and understanding of the monitoring plan. These requirements are broad, but are considered appropriate to the scale of the PoA. The CME will have to demonstrate to the verifying DOE that the programme manager is competent to fill their role. CL 11 was closed.</p>	CL 11	OK
9.1.3	Does the system include records of arrangements for training and capacity development for personnel?	<p>Yes, at the PoA level the operation and management plan /18/ states that Impact Carbon management will be responsible for ensuring that PoA personnel have the knowledge and skills to effectively carry out project activities and achieve set goals for the PoA. The CME manual /18/ requires that the Program Manager analyses the competence requirements for each critical role and task and identifies the knowledge and skills required for these competences and how personnel will be evaluated with respect to these standards. The CME manual states that it is the responsibility of the Program Manager to ensure that these knowledge and skills are maintained through reviews, evaluations, and training.</p> <p>The CME manual /18/ describes induction training that will be held for all new personnel involved in the PoA, covering organisational structure, information management systems, CDM requirements, and the nature of the PoA itself.</p> <p>The CME manual /18/ states that records will be kept of all staff attending training via the Training Tracking Sheet.</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>At the CPA level:</p> <p>Management system training will be provided to all CPA Implementers, including detailed monitoring requirements, document control requirements etc, details of which are specified in the CME manual /18/.</p> <p>The CME will keep a training tracking sheet to keep records of training and capacity development.</p> <p>The CME manual /18/ also states that the CPA implementer will be responsible for managing the training of CPA staff (its own staff), training Field Measurement Personnel, and providing training to Sales Representatives regarding the operation of the CPA and document management process, including the information to be collected at sale of the water purification system.</p> <p>Regarding monitoring, the CME manual /18/ states that trained staff will be dedicated to carry out the monitoring process including data recording, reporting, archiving and management. The training will take place just before each CPA becomes operational.</p>		
9.1.4	Does the system include procedures for technical review of inclusion of CPAs?	The plan states that the CPA Implementers conduct a review on new CPAs before they are sent to Impact Carbon for approval. All new CPAs proposed for inclusion in the PoA will then be reviewed by the Program Manager at Impact Carbon to ensure that the new CPA fully complies with the registered design requirements and the CDM standards. The review will be completed by either a fully competent individual reviewer or by a team of reviewers formed to include all necessary competencies.	OK	OK
9.1.5	Does the system include a procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA)?	<p>Yes. The CME manual /18/ includes procedures for avoiding double counting, including:</p> <ul style="list-style-type: none"> <li>Each water purification system shall have a unique identification code.</li> <li>The serial number of each system will be recorded in the Project Database alongside the name and address (where possible) of the users,</li> <li>The database will not allow double entries of the serial number to be made.</li> <li>The serial numbers will also be recorded in hard-copy via the Sales Receipt.</li> <li>A programme logo will also be physically attached to each water purification system to avoid double-counting of other PoAs/CPAs.</li> <li>All users will also sign a Carbon Rights Waiver as part of the Sales Receipt acknowledging that they are not operating in any other carbon project and that emissions rights can be transferred to the CME.</li> <li>Where the new user does not wish to sign a Carbon Rights Waiver, the system will be listed as no longer operational in the database (i.e. no further emissions reductions will be claimed).</li> </ul>	OK	OK
9.1.6	Does the system include records and documentation control process for each CPA under the PoA?	The CME manual /18/ states that the Program Manager is responsible for informing PoA personnel of document control policies and managing the maintenance of and access to critical documentation. The CME manual states that the CME will operate a data management system that records information for each end-user via a Project Database.	OK	OK
9.1.7	Does the system include measures for continual improvements of the PoA management system?	<p>The CME manual /18/ requires that internal audits are carried out biennially. Audits will produce timely and comprehensive Internal Audit Reports and System Improvement Requests that will be stored and managed by the CME. The Program Manager will be responsible for ensuring that any corrective actions or preventive actions that result from an audit are effectively implemented.</p> <p>The Program Manager will also monitor any updates to PoA requirements issued by the CDM EB, and implement necessary revisions.</p> <p>In addition, the CME manual /18/ includes procedures for gaining feedback from</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>customers and hence ensuring continual improvements in customersatisfaction, including:</p> <ul style="list-style-type: none"> <li>annual or biennial surveys of end users</li> <li>participants in the local stakeholder consultation have all been provided with contact details of the CME so they may submit comments on an ongoing basis</li> <li>government stakeholders will be kept informed of the progress of the PoA</li> </ul>		

## Conclusion

ERM CVS has assessed the operational and management arrangements which have been established by the CME in order to determine that these arrangements are suitable for the PoA being validated. The arrangements are considered to be sufficient to ensure that the CME will have control of all records and information related to the implementation of individual CPAs and will be in a position to ensure each CPA is being operated in accordance with the specific requirements of the programme.

## 9.2 PoA Sampling Plan

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
9.2.1	<p>If the coordinating/managing entity utilizes sampling for the determination of parameter values for calculating GHG emission reductions, has the CME developed and described the sampling plan in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities"?</p> <p>Is the proposed sample size and sampling method adequate to achieve the minimum confidence/precision requirements? Is the DOE able to reproduce the sample size calculation in order to validate the proposed sample size?</p> <p>Will the proposed sampling plan ensure that samples are randomly selected and are representative of the population?</p>	<p>The sampling plan is described in section B.7.2 of the GSP PoA-DD. It refers to The Standard "Sampling and surveys for CDM project activities ad programme of activities" EB 74 Annex 6, which is version 04.0 of the Standard and is the latest applicable version (herein referred to as Sampling standard in this report).</p> <p>For the guidelines, the PoA-DD inconsistently refers to the EB 69 Annex 5 and EB 67 Annex 6 Best Practices Examples Focusing on Sample Size and Reliability Calculations. The latter one was no longer valid at the time of the PoA-DD. The former one was which was the latest version of Guidelines "Sampling and surveys for CDM project activities and programmes of activities" applicable at the time the GSP PoA-DD was prepared. In the meantime, the Guidelines were revised to version 03.0 (EB 75 Annex 8). The PP is requested to correct inconsistency.</p> <p>CAR 10 was raised as the DOE was not able to validate that the proposed sample size and sampling method adequate to achieve the minimum confidence/precision requirements, as the following aspects of the sampling plan were not in line with the Sampling standard or guidelines:</p> <ul style="list-style-type: none"> <li>a) The parameters to be obtained by means of sampling and their respective confidence/precision levels as well as expected values are not listed in the sampling plan</li> <li>b) The sampling plan in the PoA-DD refers to sampling across CPAs wherever possible but justification is not provided for the suitability of this approach as well as what types of water purification systems will be considered as similar types for the purpose of grouping for the sampling effort. According to the sampling standard, the sampling can be done across CPAs when either homogeneity of CPAs relative to the parameter to be obtained by sampling can be demonstrated or the differences among the CPAs is taken into account in the sample size calculation</li> <li>c) The target population is not clearly defined. It is specified as "households/SMEs/communities" and it is not clear whether these will</li> </ul>	<del>CAR 10</del>	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>be considered as separate target groups. If they are proposed to be grouped for the purpose of sampling, justification is missing on how the group can be regarded as homogeneous in relation to parameters to be sampled</p> <p>d) The sampling plan states that either multi-stage sampling or simple random sampling will be used but no explanation is provided on the suitability of the sampling approaches and in the case of multi-stage sampling – it is not sufficiently clear what are the primary sampling units and secondary primary units. Further, the sampling plan inconsistently states that sampling will be different for each user type, households, communities, and SMEs, and that sampling will be grouped for similar technologies and user groups.</p> <p>e) Sample size calculations could not be reproduced by the DOE as estimated parameter values as well as their assumed variability were not provided in the GSP PoA-DD. Further, the Sampling guidelines recommend conducting sample size calculations for a range of possible estimates.</p> <p>f) The sampling frame is not clear and in the case of primary sampling units for multi-stage sampling – not mentioned. If end-user data is not collected for all users, description is missing how the collection of the data will ensure that the sampling frame is representative of the project population</p> <p>g) Description of field measurements is not sufficient: timing and frequency of surveys are not clear, and it is not clear how data on water quality will be obtained for the selected sample</p> <p>h) Quality assurance/quality control measures are not sufficiently described: no procedure is described for defining outliers and under what circumstances outlier data/measurements may be excluded and/or replaced</p> <p>i) Some inconsistencies were found in the plan that do not correspond with other parts of the PoA-DD, e.g. (i) reference to the list of parameters to be dependent on the choice of methodology, (ii) total number of distributed water purification systems being one of the parameters to be obtained by sampling; and (iii) which parameter(s) are determined using ex-ante surveys for Case 2 activities</p> <p>CAR 10 was appropriately addressed and closed. Out. Please refer to the remediation form for further details.</p> <p>The CME has developed and described the sampling plan in accordance with the “Standard for sampling and surveys for CDM project activities and programme of activities”. Cross-CPA sampling may be conducted if CPAs are of the same type and are homogeneous. Criteria for ensuring homogeneity are set out in the sampling plan: project technology/equipment have comparable input/output characteristics; end users of the project technology/equipment have comparable socioeconomic conditions; the geographic locations of project equipment do not have a significant influence on the parameter of interest; installation dates of the technologies are not significantly different. These criteria are in line with the sampling standard and guidelines.</p> <p>The PoA allows for different options to carry out sampling, and the appropriate sampling methods will be selected at the specific CPA level. Simple random, stratified random or multi-stage sampling may be applied. Cross sampling of CPAs may be carried out where the sampling approach is the same across a group of CPAs (and the CPAs meet the criteria for homogeneity set out above). It is noted that the sampling plan allows for the sampling approach to vary over time during the CPA's crediting period, for example to allow the same approach to be</p>		

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>used in other CPAs to enable cross CPA sampling to take place.</p> <p>Simple random sampling will be used where there is only one technology and target group type that exists during the CPA and monitoring period in question, and where the devices are not widely dispersed geographically. Stratified sampling is used where there are differences in technologies and/or target groups within one CPA. In the case that one CPA has a single technology type, but multiple distinct target group, i.e. restaurants and villages, the strata would be the target group. Therefore the strata shall be the technology type and/or the target group. Multi stage sampling will be used where devices widely dispersed geographically. Multi-stage sampling consists of selecting primary clusters units and sampling from the secondary sampling units. The primary sampling units shall be administrative clusters, i.e. district, region, county, or village [to be determined at specific CPA]. The secondary sampling unit shall be the devices.</p> <p>Confidence/precision intervals are defined in line with the sampling standard and the methodology. 95/10 reliability is to be applied whenever sampling across a group of CPAs. In the case of conducting CPA-specific sampling, 90/10 confidence/precision will be applied if annual sampling is applied, or 95/10 confidence/precision if biennial (every two years) sampling is applied, in line with the methodology.</p> <p>The PoA presents the required formulae to determine sample size in line with the sampling standard and guidelines. The sample size will be determined at the CPA level.</p> <p>The sampling frame is defined as all water purification units that have been distributed under the CPA.</p> <p>The proposed sample size and sampling method are adequate to achieve the minimum confidence/precision requirements. ERM CVS was able to reproduce the sample size calculation in order to validate the proposed sample size.</p> <p>The proposed sampling plan will ensure that samples are randomly selected and are representative of the population.</p>		

## Conclusion

The proposed sampling plan for this PoA is in line with the Standard for sampling and surveys for CDM project activities and programme of activities. It is expected to provide parameter value estimates in an unbiased and reliable manner. The proposed sample size and sampling method is adequate to achieve the minimum confidence/precision requirements, and these requirements are correctly set in line with the standard. The proposed sampling plan is sufficient to demonstrate that samples are randomly selected and are representative of the population

## 10 Validation Findings - Monitoring plan of a Generic CPA

As per VVS section 8.4.11 ERM CVS evaluated the monitoring plan for the generic CPA to ensure that it is based on the approved monitoring methodology that has been applied. As per the VVS section 7.12.14, ERM CVS applied a two-step process, based on review of the documented procedures, interviews with relevant personnel, project plans and any physical inspection, to assess:

a) *Compliance of the monitoring plan with the approved methodology::*

- (i) By means of document review, identify the list of parameters required by the selected approved methodology;
- (ii) Confirm that the monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the methodology.

b) *The Implementation of the monitoring plan, taking into account:*

- (i) Whether the monitoring arrangements described in the monitoring plan are feasible within the generic CPA design;
- (ii) Whether the means of implementation of the monitoring plan, 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 CPAs and PoA can be reported ex post and verified.

### 10.1 Compliance of the monitoring plan with the approved methodology

ERM CVS validated whether the monitoring plan for a generic CPA in the PoA-DD includes all parameters necessary for monitoring of this type of project in accordance with the approved methodology that has been applied for the generic CPA. ERM CVS checked whether the parameters are clearly described and the means of monitoring described in the plan complies with the requirements of the methodology.

#### Completeness of monitoring parameters

The monitoring parameters required by the methodology and applicable tools are:

Parameter Name	Parameter Description	Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence)
QPW <sub>y</sub>	Quantity of purified water in year y (litres)	<p>The parameter QPW<sub>y</sub> has been described as 'Total volume of drinking water produced by technologies under the CPA' in section B.7.1 of the GSP-PoA-DD. This description does not align with the description of the parameter in the methodology. Please refer to CL 06.</p> <p>Furthermore, it is noted that the monitoring plan with reference to QPW<sub>y</sub> parameter is not consistent with what was discussed on site, for example the fact that monitoring of QPW<sub>y</sub> may be different for households, institutions and communities. The description of the monitoring of QPW<sub>y</sub> needs to be clarified and revised. Please refer to CAR 06.</p> <p>The PP has updated section B.6.1 of the generic CPA-DD to give a description of how QPW<sub>y</sub> will be monitored for each CPA type. QPW<sub>y</sub> is based on the population serviced by the project equipment (parameter N<sub>y</sub>), estimated using surveys, and an average volume of drinking water per person per day (parameter R<sub>y</sub>), in line with methodology provisions. In order to ensure that the CPA only credits for the population actually serviced by the project equipment, the number of water systems distributed (T<sub>y</sub>), and the proportion of the time when these systems are operational and being used (parameter 'Operational Units') must be determined. In addition, it must be ensured that the quality of the water purified by these systems meets the required standards (parameter 'water quality'). For case 2 CPAs, the total project population needs to be adjusted for the fraction of the population serviced by the project equipment at households/buildings for which it can be demonstrated through documentation or survey that the practice of water purification would have been water boiling (denominated as X<sub>boil</sub> in the PoA). The description and equations in the generic CPA-DDs for QPW<sub>y</sub> have been</p>



Parameter Name	Parameter Description	Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence)
		<p>modified to correctly illustrate the way QPW<sub>y</sub> is determined under this PoA, specifically 'Water Quality' and 'Operational Units' parameters were included in the equations in order to ensure that these parameters are taken into account and hence the determination of emission reductions is accurate and conservative. CAR 06 is therefore closed.</p> <p>Regarding CL 06, PP revised the PoA-DD to address the comment. ERM CVS confirms that the parameter description now aligns with the description in the methodology 'Quantity of purified water in year y (litres)'. Therefore, CL 06 is also closed.</p> <p>In summary, the parameter QPW<sub>y</sub> has now been appropriately included in the monitoring plans for generic CPAs.</p>
N <sub>y,i</sub> *	The average population serviced by water purification systems	<p>The average population serviced by water purification systems will depend on the number of systems distributed (which is monitored by tracking of all sales), and the number of people using each system. It is noted that the monitoring of N<sub>y,i</sub> parameter in the GSP version of the generic CPA-DDs was not clear, e.g. it was not clear how sales receipts will show how many people are using water from each unit. The monitoring plan also mentioned different methods of measurement, such as ex-ante and ex-post surveys, literature etc., but the description and frequency for each was not presented clearly. Please refer to CL 06.</p> <p>Furthermore, based on discussions during the site visit, the cap for institutional or community systems based on the number of people served by a water purification system was to be revised to a cap based on the quality of treated water provided. Please refer to CL 06.</p> <p>CL 06 was addressed by the CME. Parameter N<sub>y,i</sub> is now a monitored parameter, and the PP has updated the description of the monitoring of parameter N<sub>y,i</sub>.</p> <p>For type 1 and type 4 CPAs, the number of people per household will be monitored via surveys, at least biennially. This approach is considered conservative and appropriate by ERM CVS.</p> <p>For type 5 CPAs the number of people using the unit will be monitored at least biennially. This approach is considered conservative and appropriate by ERM CVS.</p> <p>For type 2 and type 3 CPAs, this parameter is monitored at the time of sale: the number of people using the technology will be recorded in the sales receipt (each time a sale is made, hence: continuously, since sales are made on an ongoing (continuous) basis). This approach is considered appropriate by ERM CVS.</p> <p>The PoA includes provisions to ensure that emission reductions are not overestimated by crediting for more water purified than the maximum capacity of the units is capable of producing. The monitoring plans for the generic CPAs ensure that the product of N<sub>y,i</sub> and R<sub>y,i</sub> does not exceed the maximum capacity of the technology, for each water purification unit. For CPA types 1, 2, 3, this is accounted for by the QA/QC procedures in the N<sub>y,i</sub> parameter table and the additional comments section in the R<sub>y,i</sub> parameter table, and for CPA types 4 and 5 this is accounted for in the QA/QC section of the R<sub>y,i</sub> parameter table.</p> <p>Furthermore, the PP have clarified the procedures to stay within the &lt;5% of the SSC threshold to comply with additionality. This has also been clearly presented in the parameter tables for N<sub>y,i</sub> and R<sub>y,i</sub> parameters. ERM CVS confirms that these measures are appropriate.</p> <p>CL 06 is therefore closed.</p>



Parameter Name	Parameter Description	Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence)
$T_{y,i}^*$	Total distributed water purification systems	<p>The parameter table for parameter <math>T_{y,i}</math> does not list measurement methods and procedures. Please refer to CL 06.</p> <p>Moreover, the QA/QC procedures for the parameter <math>T_{y,i}</math> do not cover procedures in case of replacement of units (for e.g. due to damage or end of lifetime of units).</p> <p>Furthermore, the monitoring frequency for this parameter is specified as annual or at least biennial in the GSP-PoA-DD. PP needs to clarify how annual or biennial monitoring can be considered suitable given that sales are likely to be monitored continuously as they are made, and then <i>recorded</i> periodically e.g. annually.</p> <p>Please refer to CL 06.</p> <p>The PP has clarified the monitoring methodology for estimating Parameter <math>T_{y,i}</math> (total number of distributed water purification systems). The total number of appliances of each technology type <math>i</math> distributed are recorded in the Project Database (entries are logged using Sales Receipts by the Sales Representative and the CPA Project Database is then maintained by the CME, Impact Carbon). The type of appliance and date of sale is recorded via. Sales Receipts as well. PP has also included that should any appliance not be recorded in the Project Database, it will not be credited for emission reductions, which seems appropriate and conservative to ERM CVS.</p> <p>The PP has also revised the monitoring frequency for parameter <math>T_{y,i}</math> to continuous, which is more appropriate and is reflective of the actual situation on ground (as sales are made continuously and recorded periodically).</p> <p>The updated parameter table for <math>T_{y,i}</math> now clarifies (in the QA/QC section) that replacements will be addressed by 'Operational units' parameter. The 'Operational units' parameter and the monitoring of replacements within the surveys for this parameter have been validated in detail. Please refer to the close out of CAR 07 and CAR 08 for further details.</p> <p>CL 06 is closed.</p>
$R_{y,i}^*$ (monitored for CPA types 4 and 5 i.e. CPAs involving institutions)	Average volume of drinking water per person per day	<p>Parameter description states 'Weighted average volume of drinking water per person per day' which is not in line with the description of monitoring requirements in the methodology. Please refer to CL 06.</p> <p>Furthermore, it is noted that the measurement methods and procedures presented for this parameter are not consistent with what was discussed on site, for example, it is not clear how the manufacturer's specifications for a water purification unit can be used as a value (capped at a value of 5.5 litres per person per day) for this parameter when the PoA can only credit drinking water as per paragraph 10 of the methodology. Please refer to CAR 06.</p> <p><u>Please note that the PP has fixed this parameter ex-ante for CPA types 1, 2, 3. i.e. CPA types involving households and communities (with and without project emissions). The value has been fixed 3.5 litres/person/day for households, and communities that include full enrolment of serviced populations (e.g. boarding schools and prisons). For day schools, this value has been fixed at 2 litres/person/day. These values have been validated based on World Health Organisation (WHO) guidelines /19/. For CPA types 4 and 5, this parameter is directly monitored annually or at least biennially using quantitative surveys or measurements of a representative sample. Surveys shall ensure that only drinking water is measured, water purified and used for other purposes shall be excluded.</u></p> <p>The figures mentioned, and measurement methods and procedures detailed by the PP have been validated in detail by ERM CVS. Please refer to the close out of CAR 06 for further details.</p>

Parameter Name	Parameter Description	Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence)
		ERM CVS further confirms that the parameter description now aligns with the description in the methodology 'Quantity of purified water in year y (litres)'. CL 06 is closed.
Existence of public distribution network of safe drinking water	Existence of public distribution network of safe drinking water in year y	ERM CVS has checked that this parameter has been appropriately included in the monitoring plan. Surveys and or updated credible national/local reports/letters/announcements in relation to the existence of water networks in the region will be used to monitor this parameter on an annual or at least biennial basis.
Water Quality, <sup>i</sup> *	Water quality measurement	<p>This parameter has been included in the monitoring plan. However it is not clear what will happen if a proportion of appliances do not meet the water quality standards. Please see CL 06.</p> <p>In response, the PP has revised the monitoring plan so that the proportion of devices of technology type i failing the water quality tests will not be included in estimating the emission reductions.</p> <p>Water quality is defined in a relevant national standard or guidelines for drinking water quality. In case a national standard / guideline for drinking water quality is not available, the interim performance targets as per "Evaluating household water treatment options: Health based targets and microbiological performance specifications" (WHO, 2011) will be used.</p> <p>Please refer to the close out of CL 06 and CAR 07 for further details.</p>
Operational Units, <sup>i</sup> *	The parameter is defined as 'Monitoring to check the percentage of the year which appliances are still operating' – the wording of this description is not clear. Please refer to CL 06.	<p>It is noted that the table in section B.7.1 for 'Operational Units,<sup>i</sup>' parameter does not clearly define how this parameter will be monitored for different target groups (households, institutions, communities) and how it will be treated across different CPA types. Please refer to CAR 07.</p> <p>Furthermore, the 'Purpose of data' column of the table mentions that the parameter is used for eligibility criteria evaluation, but does not mention that it is also used for emission reduction calculations. Please refer to CL 06.</p> <p>The operational units parameter has been updated by the PP. The parameter is defined and monitored separately for all CPA types (for each target group under each CPA type, the operational units parameter sets out the monitoring procedure and frequency clearly). The change is considered appropriate. The operational units parameter will be monitored per each technology type in the CPA. Furthermore, the PP has clarified that the 'Operational units,<sup>i</sup>' parameter will involve monitoring to check the percentage of the <i>monitoring period</i> during which the units are considered in use. The monitoring frequency has been updated to state that this parameter will be monitored at least once per verification or biennially – which is in line with the monitoring requirements of the methodology.</p> <p>The PP has also modified the equations for calculating QPW<sub>y</sub> parameter to include operational units parameter, and the water quality parameter. Please see section 7.5 above.</p> <p>This is considered appropriate as the ER calculations will now take into account the deductions due to the fact that not all devices are used throughout the year, and that devices failing the water quality tests should not be included in estimating the baseline emissions. The purpose of data row in the Operational units,<sup>i</sup> parameter table now aptly reflects that it is also used for emission reduction calculations.</p> <p>CAR 07 and CL 06 are closed.</p>
Monitoring parameters for the project emissions from	Parameters to be determined ex ante for the calculation of project emissions from fossil fuel combustion as per the tool	As per discussions on site, water purification technologies using fossil fuels will not be included in the PoA. Therefore, this parameter does not apply.

Parameter Name	Parameter Description	Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence)
<del>fossil fuel combustion*</del>		<p>Please refer to CAR 04.</p> <p>In response, the PP clarified that technologies using fossil fuels will not be included in the PoA. The PP has also added a statement in section A.6 of the PoA-DD to explicitly state that technologies using fossil fuels will not be used in the PoA.</p> <p>Therefore, the monitored parameter 'Monitoring parameters for the project emissions from fossil fuel combustion' was removed by the PP. This change is considered appropriate by ERM CVS.</p> <p>CAR 04 is closed.</p>
EC <sub>PJ,j,y</sub> (monitored for CPA types 3 and 5, i.e. CPA types that involve project emissions)	Quantity of electricity consumed by the project electricity consumption source j in year y	<p>It is noted that the monitoring plan with reference to EC<sub>PJ,j,y</sub> parameter is not consistent with what was discussed on site. Specifically, the source of data and measurement methods sections need to be clarified. Please refer to CL 06.</p> <p>Furthermore, the parameter table does not align with the latest template for the simplified PoA Design Document (version 02.0). The column 'Purpose of data' is missing. Please refer to CL 08.</p> <p>The monitoring of parameter EC<sub>PJ,j,y</sub> has been clarified by the PP. The PP proposes three approaches for calculating the electricity consumption</p> <ul style="list-style-type: none"> <li>• Directly monitoring the electricity consumption</li> <li>• Using manufacturers' specifications to calculate electricity consumed (assuming that the technology is operating 24 hours a day all year)</li> <li>• Applying manufacturers' specification to user reported operation hours (obtained via. surveys)</li> </ul> <p>These options are considered appropriate and in line with the tool. Therefore, CL 06 was closed.</p> <p>Furthermore, The PP has appropriately revised this in the updated PoA-DD to include that this parameter's purpose is 'Calculation of project emissions'. This change has been made for CPA types 3 and 5 where the parameter is applicable. Therefore, CL 08 is closed.</p>
$\eta_{wb}$	Efficiency of water boiling system being replaced	<p>The PP initially set this as an ex-ante parameter for all CPA types. A CL was raised to address issues with the ex-ante parameter.</p> <p>Please see CL 05.</p> <p>In response, the PP updated the generic CPA-DDs for all CPA types to align this parameter as a monitored parameter.</p> <p>The methodology provides the option of using default values, which is the option chosen by the PoA. A value of 0.10 is used if the replaced system or the system that would have been used is a three stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system that is without a grate as well as a chimney; for the rest of the systems using woody biomass a value of 0.2 is used. A value of 0.5 is used if the replaced system or the system that would have been used is a fossil fuel combusting system.</p> <p>Since it is likely that a mix of different systems are used by the population in the baseline, the PoA specifies that survey, national, or regional data will be used to determine the percent of users using different types of water boiling systems in the baseline scenario, and a weighted average will be calculated if more than one type of system is used in the baseline.</p> <p>CL 05 was therefore closed and ERM CVS concluded that the parameter is appropriately included in the monitoring plan.</p>

Parameter Name	Parameter Description	Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence)
$f_{NRB,y}$	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable	<p>The PP initially set this as an ex-ante parameter for all CPA types. A CL was raised to address issues with the ex-ante parameter.</p> <p>The applied methodology refers to the methodology AMS-I.E for establishing the value of this parameter when displaced fuel is woody biomass, and states that the value of 1 should be used if displaced fuel is fossil fuel. As the PoA targets both biomass and fossil fuel users, the PoA-DD suggests using weighted average EF. However:</p> <ul style="list-style-type: none"> <li>It is not clear in the GSP PoA-DD if this parameter is to be set at PoA level or CPA level.</li> <li>From the discussions on site in Rwanda, it is not clear what source will be used to determine the value for <math>f_{NRB,y}</math> parameter in the country.</li> <li>PP is requested to clarify the source of data that is applicable for the PoA.</li> </ul> <p>Please refer to CL 05.</p> <p>PP has revised the PoA-DD and clarified that <math>f_{NRB,y}</math> will be monitored for all CPA types, and individual CPAs will be able to select between national data, regional data or surveys to estimate the percentage of people using non-renewable biomass (monitored via parameter <math>\eta_{wb}</math>) and using that data in combination with default values for fraction of non-renewable biomass from EB 67 Annex 22. If a mixture of biomass and fossil fuel is used, then a weighted average is proposed by the PP, which is considered appropriate and relevant for the project.</p> <p>Furthermore, the source of data tab has been updated correspondingly for all CPA types. The source of data tabs for all CPA types now also reflects that the parameters are ascertained by default values as well as surveys/national data/regional data.</p> <p>Please refer to the close out of CL 05 for further details.</p>
$EF_{\text{projected\_fossilfuel}}$	Emission factor as per AMS-I.E procedures when NRB is displaced or the emission factor of the fossil fuel substituted	<p>The PP initially set this as an ex-ante parameter for all CPA types. A CL was raised to address issues with the ex-ante parameter.</p> <p>PP was requested to clarify the approach for parameter <math>EF_{\text{projected\_fossilfuel}}</math>, as it was set ex-ante, and did not discuss the option of using a weighted average based on what proportion of users use biomass and what proportion use fossil fuel.</p> <p>In response, the PP has revised the parameter to be monitored ex-post, using surveys/national govt. data/regional govt. data as appropriate for all CPA types to estimate the percentage of different fuel types used by the target users. This data will be combined with default values for emission factors from the approved methodology AMS-I.E as allowed by AMS-III.A.V. for non-renewable biomass (81.6 tCO<sub>2</sub>/TJ) and default values from IPCC (2006) /26/ for natural gas (56.1 tCO<sub>2</sub>/TJ) and kerosene (71.9 tCO<sub>2</sub>/TJ) to estimate the overall emission factor for displaced/substituted fossil fuels. These emission factors values have been verified from the respective sources mentioned above.</p> <p>ERM CVS confirms that this approach is more appropriate and conservative than setting this parameter ex-ante.</p> <p>CL 12 is closed.</p>

\*These parameters are project specific parameters that the CME has introduced for this PoA.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
10.1	Are all required parameters included in the monitoring plan?	<del>To be confirmed.</del>  After the closure of CARs and CLs raised above, ERM CVS can confirm that all required parameters are included in the monitoring plan.	<del>TBC</del>	OK

## Conclusion

The monitored parameters included in the monitoring are complete and appropriate for monitoring of the generic CPA. In ERM CVS's opinion, the PPs are able to implement the monitoring plan.

### 10.1.1 Compliance of monitoring

For each parameter, ERM CVS has validated whether it has been addressed in accordance with the baseline and monitoring methodology.

Monitored Parameters	QPW <sub>y</sub>  (Quantity of purified water in year y (litres))	N <sub>y,i</sub>  (The average population serviced by water purification systems)	T <sub>y,i</sub>  (Total distributed water purification systems)	R <sub>y,i</sub>  (Average volume of drinking water per person per day)  (monitored for CPA types 4 and 5 i.e. CPAs involving institutions)
Parameter title correct?	Yes – Parameter title is correct and in line with the methodology AMS-III.A.V. (version 4)	Yes – Parameter title is not defined by methodology (only description is). ERM CVS confirms that the parameter has been consistently defined and used throughout the client documentation.	Yes – Parameter is not defined by methodology but has been consistently defined and used throughout the client documentation.	Yes – Parameter title is not defined by methodology (only description is). ERM CVS confirms that the parameter has been consistently defined and used throughout the client documentation.
Description in line with methodology?	The parameter QPW <sub>y</sub> has been described as 'Total volume of drinking water produced by technologies under the CPA' in section B.7.1 of the GSP-PoA-DD. This description does not align with the description of the parameter in the methodology. Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.	N/A. The parameter is not defined by the methodology.	N/A. The parameter is not defined by the methodology.	Parameter description states 'Weighted average volume of drinking water per person per day' which is not in line with the description in the methodology. Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.
Data unit correctly expressed?	Yes. ERM CVS checked that it is represented correctly in litres/yr.	Yes. ERM CVS checked that it is represented correctly as persons/unit.	Yes. ERM CVS checked that it is represented correctly as units.	Yes. ERM CVS checked that it is represented correctly in litres/person/day.

Monitored Parameters	QPy  (Quantity of purified water in year y (litres))	Ny,i  (The average population serviced by water purification systems)	Ty,i  (Total distributed water purification systems)	Ry,i  (Average volume of drinking water per person per day)  (monitored for CPA types 4 and 5 i.e. CPAs involving institutions)
Measurement method correctly described?	No - Please refer to CAR 06.  CL 06 is closed. Please refer to the remediation form for further details.	No - Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.	No – Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.	No – Please refer to CAR 06.  CL 06 is closed. Please refer to the remediation form for further details.
Measurement and recording frequency correctly described?	Yes. Annual or at least biennial monitoring is proposed.	No - Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.	No – Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.	Yes. Annual or at least biennial monitoring is proposed which is in compliance with the methodology.
Correct reference to standards?	N/A	N/A	N/A	N/A
Indication of accuracy provided?	N/A	N/A	N/A	N/A
QA/QC procedures described?	No – please see CAR 06  CAR 06 is closed. Please refer to the remediation form for further details.	Yes	Not sufficient – Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.	No – Please refer to CAR 06.  CAR 06 is closed. Please refer to the remediation form for further details.
QA/QC procedures appropriate?	<del>To be confirmed</del>  Yes	Yes – paper records are used for cross check. Confidence/precision requirements are stated for surveys.	Not sufficient – Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.	No – Please refer to CAR 06.  CAR 06 is closed. Please refer to the remediation form for further details.

Monitored Parameters	Existence of public distribution network of safe drinking water  (in year y)	Water Quality,i  (Water quality measurement )	Operational Units,i	EC <sub>PJ,j,y</sub>  (Quantity of electricity consumed by the project electricity consumption source j in year y)  (monitored for CPA types 3 and 5, i.e. CPA types that involve project emissions)
Parameter title correct?	Yes – Parameter title is correct and in line with the methodology AMS-III.A.V. (version 4)	Yes – Parameter title is not defined by methodology (only description is). ERM CVS confirms that the parameter has been consistently defined and used throughout the client documentation.	Yes – Parameter is not defined by methodology but has been consistently defined and used throughout the client documentation.	Yes – Parameter title is correct and in line with the 'Tool to calculate baseline, project and/or leakage CO <sub>2</sub> emissions from electricity consumption' version 1

Monitored Parameters	Existence of public distribution network of safe drinking water  (in year y)	Water Quality,i  (Water quality measurement )	Operational Units,i	EC <sub>PJ,j,y</sub>  (Quantity of electricity consumed by the project electricity consumption source j in year y)  (monitored for CPA types 3 and 5, i.e. CPA types that involve project emissions)
Description in line with methodology?	Yes – ERM CVS confirmed that the parameter is in line with the methodology.	N/A. The parameter is not defined by the methodology.	N/A. The parameter is not defined by the methodology.	Yes - ERM CVS confirmed that the parameter is in line with the tool.
Data unit correctly expressed?	N/A	N/A	N/A	Yes. ERM CVS checked that it is represented correctly in MWh/yr
Measurement method correctly described?	Yes – based on a review of Surveys or credible national or local, reports or announcements.	Yes – based on testing done on a sample of products. The measurement method is described appropriately.	No - Please refer to CAR 07.  CAR 07 is closed. Please refer to the remediation form for further details.	No - Please refer to CL 06.  CL 06 is closed. Please refer to the remediation form for further details.
Measurement and recording frequency correctly described?	Yes – based annually during the crediting period. This is considered appropriate.	Yes – annual or at least biennial. This is considered appropriate.	Yes – annual or at least biennial. This is considered appropriate.	Yes – annual or at least biennial. This is considered appropriate.
Correct reference to standards?	N/A	N/A	N/A	N/A
Indication of accuracy provided?	Sample size and confidence/precision requirements are covered by the sampling plan	Sample size and confidence/precision requirements are covered by the sampling plan	Sample size and confidence/precision requirements are covered by the sampling plan	Sample size and confidence/precision requirements are covered by the sampling plan
QA/QC procedures described?	N/A	No – please see CL 06  CL 06 is closed. Please refer to the remediation form for further details.	No – please see CL 06  CL 06 is closed. Please refer to the remediation form for further details.	No – please see CL 06  CL 06 is closed. Please refer to the remediation form for further details.
QA/QC procedures appropriate?	N/A	TBC  Yes	TBC  Yes	TBC  Yes

Monitored Parameters	$\eta_{wb}$  (Efficiency of water boiling system being replaced)	$f_{NRB,y}$  (Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable)	EF <sub>projected_fossilfuel</sub>  (Emission factor as per AMS-I.E procedures when NRB is displaced or the emission factor of the fossil fuel substituted)
Parameter title correct?	Yes	Yes	Yes
Description in line with methodology?	Yes	Yes	Yes



Monitored Parameters	$\eta_{wb}$ (Efficiency of water boiling system being replaced)	$f_{NRB,y}$ (Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable)	$EF_{\text{projected\_fossilfuel}}$ (Emission factor as per AMS-I.E procedures when NRB is displaced or the emission factor of the fossil fuel substituted)
Data unit correctly expressed?	Yes	Yes	Yes
Measurement method correctly described?	Yes	Yes	Yes
Measurement and recording frequency correctly described?	Yes	Yes	Yes
Correct reference to standards?	N/A	N/A	N/A
Indication of accuracy provided?	N/A	N/A	N/A
QA/QC procedures described?	Yes	Yes	Yes
QA/QC procedures appropriate?	Yes	Yes	Yes

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
10.1.2	Are all required parameters appropriately monitored in accordance with the methodology (including applicable tools)?	<del>To be confirmed.</del>  Yes, ERM CVS can confirm that all parameters have been appropriately monitored in accordance with the methodology (including applicable tools, wherever appropriate).	<del>TBC</del>	OK

## Conclusion

The means of monitoring all relevant monitored parameters for a generic CPA complies with the requirements of the methodology, including applicable tools.

### 10.2 Implementation of the monitoring plan

ERM CVS evaluated the feasibility and sufficiency of the monitoring plan for a generic CPA. The key components of the monitoring plan are as follows.

#### Operational and management structure:

The operational and management structure for monitoring has been described in the generic CPA-DDs. The responsibility for monitoring and reporting lies with the CME. Trained staff will be dedicated to carry out the monitoring process including data recording, reporting, archiving and management. The training will take place just before each CPA becomes operational in order to ensure that the monitoring activity will take place in accordance with the methodology and monitoring plan requirements. A table of roles and responsibilities for monitoring is included. The Project development director will be responsible for advising on monitoring issues, including receiving escalated monitoring issues and questions from the Water Programme Manager, clarifying uncertainties in the methodology, providing additional support to the Project Development team if needed. The



Programme Manager will manage the work of Third party monitoring, manage the Project Database, oversees the production of annual monitoring reports, and coordinate communication with the verifier and the UNFCCC Secretariat. In turn the CPA Implementer will collect data, or train Field Measurement Personnel to do so. The CPA implementer will also maintains monitoring records, and oversee maintenance of installed systems. Programme Associates will assist with the completion of monitoring reports, Field measurement personnel will conduct on the ground monitoring of end users.

## Equipment:

The monitoring will be based on recording sales/distribution, and conducting surveys. An electronic data management system will keep a record of the unique identification number of each product/unit and the date of sale of that product. The equivalent full time appliances in operation during the monitoring period are calculated from this system. Other than the electronic systems, there is no equipment involved in the monitoring of this PoA. Monitoring is based on records of sales and surveys – please refer to Section 9.2 of the report addressing Sampling for the issues raised in determining whether surveys will be appropriately conducted for this PoA.

## Quality Assurance and Quality Control (QA/QC) of equipment and data:

QA/QC procedures include theoretical and practical training for surveyors, testing questionnaires before use, procedures for dealing with non-responsiveness, analysing data for outliers etc. In order to minimise errors, the generic CPA-DD requires that a quality control and assurance strategy plan will be established, in which there is a clear definition of the target population, of the issues and variables to be investigated, of the sampling frame and sample size, and the design of a questionnaire that reflects the objectives of the survey and facilitates field operations and information processing. The team who will carry out the sampling survey will be appropriately selected to have previous field experience in performing similar surveys, and enumerators will be trained on the monitoring procedures, the format in which data is to be collected, the background of the project, basic functioning of the devices, and survey best practice.

External QAQC will be carried out on monitored data to verify the monitoring work done to ensure accuracy, review protocols, interview enumerators, and spot check data.

The procedures QA/QC are considered suitable for the proposed monitoring activities.

## Feasibility of the monitoring plan:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
10.2.1	Are the arrangements described in the plan feasible and practical? Please consider:  (a) operational and management structure, including responsibilities  (b) Plans for maintenance and calibration of equipment  (c) Plans for QA/QC of equipment and data  (d) Installation of monitoring equipment (whether in place, or planned)	<p>The monitoring plan framework set out in the PoA DD was validated by means of interviews with representatives of the CME.</p> <p>The monitoring plan is not complete:</p> <ul style="list-style-type: none"> <li>The monitoring management is referenced to the CME Manual and no description is provided in the PoA-DD or in the Generic CPA-DD. Furthermore, the operation and management structure, including responsibilities of designated individuals is not provided. Please refer to CL 10 <ul style="list-style-type: none"> <li>CL 10 was addressed. The updated generic CPA-DDs provide a description of the monitoring management, including the operation and management structure. A table showing roles and responsibilities for monitoring is provided. The monitoring plan of a generic CPA describes the record keeping provisions and database, procedures for quality assurance and quality control such as training, and states that a quality assurance and quality control strategy will be established.</li> </ul> </li> <li>The QA/QC section in the Monitoring Plan does not address any procedures for the checking, analysis or removal of outliers. Please refer to CL 10 <ul style="list-style-type: none"> <li>CL 10 was addressed. The QA/QC section of the monitoring plan has been revised to discuss procedures for minimising</li> </ul> </li> </ul>	<p><del>CL 10</del></p> <p><del>CAR 08</del></p>	OK

		<p>errors, and states that outliers will be removed as best practices and per the guidance in EB 75 Annex 8 (Guideline: Sampling and surveys for CDM project activities and PoAs, version 03.0). The appropriate EB guidelines are therefore referenced, and this is considered sufficient.</p> <ul style="list-style-type: none"> <li>• QA/QC: Procedures for training of surveyors needs to be clarified. Please refer to CL 10 <ul style="list-style-type: none"> <li>○ CL 10 was addressed. Details of the training that will be given to both sales staff (who record monitoring of sales i.e. parameter Ty) and staff conducting field measurements, i.e. surveyors/enumerators, have been provided in the updated generic CPA-DDs. Please refer to the remediation form, CL 10, for further details.</li> </ul> </li> <li>• The Monitoring Plan does not address if the PoA will undertake any measures to inform the target groups (earlier than the actual monitoring), that the users may be contacted for a survey. PP is requested to clarify. Please refer to CL 10. <ul style="list-style-type: none"> <li>○ CL 10 was addressed. The revised monitoring plan states that users will be notified that they may be selected for monitoring, and also to improve response rates users that are selected for surveys will be contacted in advance to arrange the visits.</li> </ul> </li> </ul> <p>Furthermore, the Monitoring Plan does not address how the electronic data management system will record Replacements. PP needs to clarify how it will be ensured that units used as replacements are not double counted with the ones that were replaced (for example if in year 4 of the crediting period, a household is surveyed to check the usage of a water purification unit that was bought in year 1 – but the same household has bought a new water purification unit in year 3 to replace the one bought in year 1). Please refer to CAR 08.</p> <p>CAR 08 was addressed: The PP now addresses replacements under the 'operational units' parameter and states that if a technology has been replaced, then it will be marked out of use, and deemed to be operational 0% of the monitoring period.</p>		
--	--	--	--	--

## **Conclusion**

Based on the validation activities performed, ERM CVS concludes that:

- (a) The monitoring plan for a generic CPA is fully in compliance with the requirements of the methodology;
- (b) The monitoring arrangements described in the monitoring plan are feasible within the design of a generic CPA;
- (c) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the generic CPA can be reported ex post and verified.

The assessment conducted by ERM CVS is by means of review of the documented procedures, interviews with relevant personnel, and a visit to the site of the first real case CPA.

## 11 Validation Findings – Sustainable Development, Local Stakeholder Consultation and Environmental Impact

### 11.1 Sustainable Development

As per VVS section 7.8, ERM CVS evaluated whether the letter of approval by the DNA of the host Party confirms the contribution of the proposed CDM PoA to the sustainable development of the host Party.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
11.1.1	Does the LoA from the Host Party confirm that the PoA contributes to the sustainable development of that country?	<p>The LoA from Rwanda confirms the contribution of the PoA to the sustainable development of the host country.</p> <p>CAR 01 is raised because the LoA for Uganda is not provided to the validation team.</p> <p>The LoA from Uganda confirms the contribution of the PoA to the sustainable development of the host country. CAR 01 was closed.</p>	CAR-01	OK

### 11.2 Local Stakeholder Consultation

As per VVS sections 7.14 and 8.4.13, ERM CVS evaluated whether local stakeholders had been invited to comment on the proposed PoA prior to the publication of the PoA-DD on the UNFCCC website as follows:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
11.2.1	Have comments from local stakeholders that can reasonably be considered relevant been invited prior to the publication of the PoA-DD on the UNFCCC website?	Yes, comments from stakeholders were invited at the PoA level for each host party included in the PoA (Rwanda and Uganda). This was undertaken through a number of avenues including newspaper adverts, posters and invitations.	OK	OK
	Is the summary of comments provided in the PoA-DD complete?	<p>ERM CVS has reviewed the local stakeholder consultation reports from Rwanda and Uganda/15/ as well as confirmed the comments of some attendees via telephonic interviews with personnel while on-site. Since the LSC is to be conducted at CPA level, the summary of comments is to be provided in the specific CPA-DD, rather than the PoA-DD.</p> <p>This is considered appropriate and in line with the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'.</p>	OK	OK
	Has due account been taken of any stakeholder comments received and is this adequately and clearly described in the PoA-DD?	<p>Since the LSC is to be conducted at CPA level, the summary of comments is to be provided in the specific CPA-DD, rather than the PoA-DD.</p> <p>Validation of the comments and the actions taken by the PP to address these comments will be performed at the CPA level.</p>	OK	OK

### Conclusion

Based on the document reviews undertaken and interviews with local stakeholders, ERM CVS concludes that relevant local stakeholders were invited to comment on the project prior to publication of the PDD on the UNFCCC website, and that the

consultation undertaken is adequate in the context of the project. Where negative comments were raised, it was validated that these were taken into account in the project development and that this was properly described in the PDD.

ERM CVS has therefore validated that the local stakeholder consultation is adequate.

## 11.3 Environmental Impacts

ERM CVS evaluated whether an analysis of the environmental impacts of the project activity had been conducted in accordance with the CDM modalities and procedures.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
11.4.1	Confirm whether an analysis of the environmental impacts of the project activity has been conducted, including transboundary impacts, and if those impacts are considered significant by the PPs or Host Party?	<p>The GSP-PoA-DD states that the EIA will be conducted at the CPA level. However, from discussions on site, it is not clear if the PP will choose to conduct the EIA at the PoA level or the CPA level. PP is requested to clarify and also provide justification of the choice in accordance with the Guidelines for 'completing the programme design document form for small-scale CDM programme of activities'.</p> <p>CL 07 was raised in this regard.</p> <p>In response, PP has confirmed that the EIA is conducted at the PoA level, with an analysis of the environmental impacts provided at the country level for Rwanda and Uganda in the PoA-DD. PP further justifies the choice stating that all the CPAs involved in this PoA include the dissemination and use of water purification technologies and follow the same methodology AMS-III.A.V. (version 4). These CPAs are also implemented within the same project boundaries by country.</p>	CL-07	OK
	Has the PP conducted an environmental impact assessment if required to do so by the host Party, in accordance with the Party's procedures?	<p>For Rwanda and Uganda, the PP detailed in the PoA-DD that Impact Carbon received a letter from the Rwanda Development Board (RDB) and the National Environment Management Authority (NEMA) stating that the PoA does not require an Environmental Impact Assessment. ERM CVS reviewed these letters/16//17/, and confirmed that the CME was exempted from doing an EIA for the project.</p> <p>CL 07 was therefore closed.</p>	CL-07	OK

## 11.4 Public funding

ERM CVS also evaluated whether the information relating to public funding in the PoA-DD Appendix 2 has been correctly presented.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
11.4.1	If the PoA involves public funding from an Annex 1 country, have the annex 1 parties involved provided an affirmation that such funding does not result in a diversion of official development assistance?	The PoA does not involve any public funding from Annex 1 Parties. This was confirmed by interviews with the CME during the site visit, and by review of the ODA Declaration signed by Jimmy Tran, Director of Project Development, Impact Carbon /05/.	OK	OK
	Is the information provided on public funding (PoA-DD, Appendix 2) provided in compliance with the actual situation or planning?	The PoA does not involve any public funding from annex 1 Parties. ERM CVS has reviewed a declaration signed by the CME /05/.	OK	OK

---

## **Conclusion**

The PoA does not involve any public funding from Annex 1 Parties.

## Appendix A: Documents and Interviewees

### A.1 DOCUMENT LIST

Reference number	Date	Document Title and version number (if applicable)
01	19 August 2013 24 March 2014	<b>PoA Design Document</b> for the proposed PoA  Version 02 (for GSC)  Version 03 (revised following validation findings)
02	10 September 2012 09 April 2014	<b>Host Country Letter of approval</b> for the proposed PoA issued by Rwanda  <b>Host Country Letter of approval</b> for the proposed PoA issued by Uganda
03		<b>Modalities of Communication</b> for the proposed PoA
04		Emission Reduction Calculations spreadsheet
05	12 August 2013	ODA Declaration letter signed by Jimmy Tran, Director of Project Development, Impact Carbon
06	November 2010	Uganda National Household Survey 2009/2010, Uganda Bureau of Statistics Kampala, Uganda
07	17 March 2014	Signed statement from Mr. Evan Haigler, Executive Director of Impact Carbon
08	August 2012	Ugandan Demographic and Health Survey 2011, Uganda Bureau of Statistics Kampala, Uganda
09	February 2012	Rwandan Demographic and Health Survey 2010, National Institute of Statistics of Rwanda Ministry of Finance and Economic Planning Kigali, Rwanda
10	2009	Country Profile of Environmental Burden of Disease 2009: Rwanda; World Health Organisation (WHO) - Public Health and the Environment, Geneva 2009
11	2009	Country Profile of Environmental Burden of Disease 2009: Uganda; World Health Organisation (WHO) - Public Health and the Environment, Geneva 2009
12	04 April 2013  <not dated>	Agreement between Impact Carbon and Nandadeep Int'l (U) Ltd.  Draft agreement prepared for Basic Water Needs
13	2005	Minimum water quantity needed for domestic uses; WHO Regional Office for South-East Asia
14	2003	Domestic Water Quantity Service Level and Health; World Health Organisation (WHO)
15		LSC report for Rwanda  LSC report for Uganda
16	17 August 2012	Letter from Rwanda Development Board Exemption letter for EIA (Rwanda)
17	08 July 2013	Letter from National Environment Management Authority Exemption letter for EIA (Uganda)
18	July 2013	Operation and management plan for the PoA: CME Manual. Developed by Impact Carbon
19	2011	World Health Organisation (WHO) guidelines: 'Evaluating household water treatment options: Health based targets and microbiological performance specifications'  <a href="http://www.who.int/water_sanitation_health/publications/2011/evaluating_water_treatment.pdf">http://www.who.int/water_sanitation_health/publications/2011/evaluating_water_treatment.pdf</a>

Reference number	Date	Document Title and version number (if applicable)
20	25 July 2012	WHU & UNICEF Joint Monitoring Programme (JMP): water/sanitation categories  (categorises 'improved' and 'unimproved' sources of drinking water)  <a href="http://www.wssinfo.org/definitions-methods/watsan-categories/">www.wssinfo.org/definitions-methods/watsan-categories/</a>
21	2010	African Ministers' Council on Water (AMCOW): Country Status overview, Rwanda: "Water Supply and Sanitation in Rwanda - Turning Finance into Services for 2015 and Beyond"
22	February 2010	REPUBLIC OF RWANDA MINISTRY OF INFRASTRUCTURE: National Policy & Strategy for Water Supply and Sanitation Services
23	October 2012	Government of Uganda Ministry of Water and Environment: Water and Environment Sector Performance Report 2012
24		Rwanda Energy Water and Sanitation Authority (EWSA) website  <a href="http://www.ewsa.rw/distributionrwasco.html">http://www.ewsa.rw/distributionrwasco.html</a>
25	June 2013	Rwanda Utilities Regulatory Authority (RURA) 'Key Statistics In Water And Sanitation Sector Of The First And Second Quarter June 2013'
26	2006	IPCC Guidelines for Greenhouse Gas Inventories, Chapter 2: Energy

## A.2 INTERVIEWS

Reference	Name	Title & Organisation	Main topics discussed
IV1	Joshua Lazarus	Impact Carbon	PoA-DD & CPA-DDs, eligibility criteria for CPA inclusion, additionality, monitoring plan
IV2	Megan O'Neil	Impact Carbon	PoA-DD & CPA-DDs, eligibility criteria for CPA inclusion, additionality, monitoring plan
IV3	Emily Smith	Impact Carbon	Technologies used, and implementation of the Uganda and Rwanda CPAs
IV4	Brendan Sullivan	Impact Carbon	Safe Water technologies and implementation plans; water quality testing
IV5	John Guillam	Impact Carbon: Country Director, Uganda	Implementation plans, Uganda
IV6	Astrid Haas	Innovations for Poverty Action (IPA), Uganda	Local Stakeholder Consultation; access to safe water in the baseline in Uganda; chlorine kiosk technology (Dispensers for Safe Water - DSW)
IV7	Leah Ndiuwera	Innovations for Poverty Action (IPA), Uganda: Information Systems Officer	Local Stakeholder Consultation
IV8	Carolyn Vierhaus	MyClimate	Solvatten Water Treatment technology; Local Stakeholder Consultation; access to safe drinking water in the baseline in Uganda & Rwanda
IV9	John Stefel	World Vision Uganda	Access to safe drinking water in the baseline in Uganda
IV10	Frank Mujani	World Vision Uganda	Access to safe drinking water in the baseline in Uganda
IV11	Christine Roy	International Lifeline Fund, Uganda	Access to safe drinking water in the baseline in Uganda
IV12	Ibrahim Metebi	WWF Uganda	Local Stakeholder Consultation; access to safe drinking water in the baseline in Uganda
IV13	Daniel Oloia	Tiva Water, Uganda	Local Stakeholder Consultation; access to safe drinking water in the baseline in Uganda
IV 14	Lamu Olwery	Uganda Ministry of Water: Principal Engineer, Rural Water Department	Access to safe drinking water in the baseline in Uganda; national and sectoral policies in Uganda
IV 15	Christopher Kanyesigye	Uganda National Water: Manager,	Access to safe drinking water in the baseline in Uganda;

Reference	Name	Title & Organisation	Main topics discussed
		Quality Control	national and sectoral policies in Uganda
IV 16	Julius Ecuru	Uganda National Council for Science and Technology	Water baseline in Uganda
IV 17	Christophe Ndahimanu	Impact Carbon, Rwanda	Implementation of the CPA in Rwanda
IV 18	Jason Lorenzetti	Impact carbon, Rwanda	Implementation of the CPA in Rwanda
IV 19	Rose Mukankomeje	Rwanda Environmental Management Agency (REMA) – Rwandan DNA	Environmental Impact Assessment requirements, EIA exemption and conditions, stakeholder engagement, host country approval
IV 20	Eugene	Stakeholder	Water baseline in Rwanda, stakeholder consultation
IV 21	Jean Bosco	Energy, Water and Sanitation Authority, Rwanda	Water baseline in Rwanda: access to safe water, existence of public distribution network, water quality standards
IV 22	Joseph Katarwa	Rwanda Ministry of Health – Environmental Health Desk Coordinator	Water baseline in Rwanda: access to safe water, existence of public distribution network, water quality standards; sustainable development impacts of the project on public health
IV 23	Jean Claude Uwizeye	World Vision Rwanda	Water baseline in Rwanda
IV 24	Emile Ruzibiza	CARE Rwanda	Water baseline in Rwanda, stakeholder consultation, sustainable development benefits



## Appendix B: Remediation Form

### Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FARs)

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<b>CAR 01:</b>  The Uganda LoA and the Modalities of Communication (MoC) have not been provided to the Validation team.	4 (4.1, 4.2, 4.3, 4.4)  11.1.1	The PP has submitted the modalities of communication to the DOE.  PP provided evidence to establish corporate, personal identity and employment status of Jimmy H. Tran and Evan Haigler.  The LoA from Uganda has been provided.	<p>ERM CVS has checked the submitted MoC and confirms that it has been completed correctly using the latest form and as per the guidelines. ERM CVS also noted that the MoC has been signed by Jimmy Tran and Evan Haigler from Impact Carbon. PP is requested to note that evidence needs to be provided to establish the corporate, personal identity and employment status of these signatories in accordance with the VVS, version 05.0.</p> <p>In response, PP has provided a signed statement by Evan Haigler confirming the corporate, personal identity, employment status and specimen signatures of the signatories of the MoC. This is in line with VVS, paragraph 54. c) Written confirmation from the project participant or the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate. In addition, the DOE is required to validate (as per VVS paragraph 56), <i>'that the official who submits the MoC statement to the DOE and the official who signed the written confirmation (if a different person) is/are duly authorized to do so on behalf of the respective project participant or coordinating/managing entity'</i>. CME is requested to provide proof that Evan Haigler is authorised to sign the written confirmation on behalf of Impact Carbon.</p> <p>In response, PP provided job description and employment terms for Mr. Evan Haigler. As part of the employment terms, this document clearly states that organisational communications is one of the key responsibility of the Executive Director. It also mentions that this role covers carbon project implementation and carbon consulting services. Therefore, ERM CVS deduced that Mr. Evan Haigler is authorised to sign the above written confirmation</p>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>on behalf of impact carbon.</p> <p>The Ugandan LoA is still outstanding, and is to be provided to the DOE when it is made available to the PP.</p> <p>CAR 01 remains open.</p>
<p><b>CAR 02:</b></p> <p>The Generic CPA-DD does not address different CPA types and their eligibility criteria, inclusion criteria etc. For example, different types of technologies with different emission reduction calculations (with project emissions and without project emissions) are currently being grouped into one single CPA type. This is not in accordance with Paragraph 143 of the CDM Project Standard and the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'.</p> <p>Please revise.</p>	<p>5.4.4</p> <p>7.5.2</p>	<p>The PP has revised the PDD to address different CPA types. The PP has updated the PDD to include 5 Generic CPAs that represent 5 different CPA types and address the eligibility criteria, technology types, and target groups for each CPA type. CPA types will not be defined regionally but the boundary of each CPA will be within one country and CPAs may have a regional focus.</p> <p>The CPA types are defined as follows:</p> <ol style="list-style-type: none"> <li>1. Small-scale technologies for household water consumption, with no project emissions. Technologies include water filters, solar disinfection devices, and chemical disinfection, all of which are designed for low flow consumption and are ideal for household use.</li> <li>2. Technologies for institutional water consumption (such as schools and prisons), with no project emissions. Technologies include water filters, solar disinfection devices, chemical disinfection, ultrafiltration devices and UV purification systems which require electricity installed with solar systems. UV purification systems using solar systems to supply power shall only be installed in institutions that lack access to reliable energy supply. Monitoring of a sample of solar powered technologies shall include confirmation of use according to manufacturer specifications, i.e. not connected to any other source of energy, aside from solar PV, as part of the Operational Units parameter. If any other energy source is used, the technology will be considered to be not in use for the monitoring period. Through use of Operational Units parameter, the fraction of technologies within the sample found using another energy source and considered not in use shall be applied to the population of units. the types of technologies included in CPA type 2 also include lower volume technologies, such as silver-treated ceramic filters, in which case an institution may purchase multiple units of the same type of technology. Both technology types will be used in institutions and will be monitored in the same manner, as described in generic CPA type 2, section B.7.</li> <li>3. Technologies for institutional water consumption, with project emissions. Technologies include reverse osmosis systems and</li> </ol>	<p>The DOE confirms that the revised PoA-DD addresses five categories of generic CPA types that the PP plans to implement in Rwanda and Uganda. These CPA types are clearly identified and split based on the different types of technologies being implemented and on the different emission reduction calculations (with and without project emissions), in accordance with Paragraph 143 of the CDM Project Standard and the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'.</p> <p>Regarding Generic CPA type 2 (technologies for institutional water consumption with no project emissions), the PP has further clarified in the PoA-DD that UV purification technologies with solar PV systems are the only type of UV purification systems that are eligible as part of this CPA type (in other words UV systems relying on the electricity grid or other source of electricity that included non-renewable electricity are not eligible). Such units are intended to be distributed to institutions that lack access to electricity from the grid. During the validation process, ERM CVS asked the CME to clarify whether they will ensure that such units will not be connected to the grid or other non-renewable electricity sources during the course of the crediting period. In response, the CME revised the description of the monitoring of the 'operational units' parameter for CPA type 2 to include confirmation that the units are being used according to technical specifications, i.e. to ensure that any units that are not being powered by solar PV-based electricity supply are excluded from the CPA.</p> <p>The fraction of sampled appliances found to be using an electricity source that is not 100% renewable shall be applied to the full population of units, and this proportion of the units will be deemed to be out of use since the start of</p>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
		<p>ultraviolet disinfection devices, which require electricity and are not installed with a solar system. While the target group is identical to CPA type 2, as the technology generates project emissions, it must be considered as a separate CPA type.</p> <p>4. Technologies for community water consumption, with no project emissions. Technologies include water filters, solar disinfection, chemical disinfection and ultraviolet disinfection devices with renewable power. Communities are defined as places for community use that have variable number of users, e.g. health centers and restaurants. Due to the variable number of users and the variable quantity of water consumed, the quantity of water purified in this CPA type will be measured directly from a representative sample of units of each technology type. No technologies in this CPA type result in project emissions. Similar to CPA type 2, monitoring will also ensure that any ultraviolet disinfection devices with solar power are not connected to any other source of electricity (such as the grid) that could result in project emissions, via the 'operational units' monitoring parameter.</p> <p>5. Technologies for community water consumption, with project emissions. Technologies include reverse osmosis systems and ultraviolet disinfection devices that utilize electricity and therefore result in project emissions. While the target group is identical to CPA type 4, as the technology generates project emissions, it must be considered as a separate CPA type.</p> <p>The PP notes that further description of how appliances found to be connected to the grid or other electricity sources that are not 100% renewable will be discounted (considering that the surveys are taken on a sample of end users), and from when the technologies will be considered to be out of use is included in the Operational Units parameter description. Specifically, "if the unit is not used according to specifications, it shall be deemed to be not in operation from the beginning of the monitoring period and deemed to be operational for 0% of the relevant monitoring period. This shall be determined through the monitoring of a sample of solar powered units; the fraction of units found using an alternate energy source and considered not in use shall be applied to the full population of UV systems connected to solar panels."</p>	<p>the monitoring period. These aspects have been delineated in the monitoring section for the parameter 'Operational units'.</p> <p>CAR 02 is closed.</p>
<p><b>CAR 03:</b></p> <p>The description of the baseline scenario is not presented in accordance to the 'Guidelines for completing the programme design document form for small-scale CDM programme of</p>	<p>5.4.6</p> <p>7.4.1</p>	<p>a) The PP has updated Section A of the PoA-DD and section B.4 of the Generic CPA-DDs to include additional information about the baseline</p>	<p>a) Section A of the PoA-DD and Section B.4 of the generic CPA-DD now contain a more detailed description of the baseline scenario. Each CPA is required to provide a</p>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>activities' – Version 03.0.</p> <p>a) Section A of the PoA-DD and Section B.4 of the generic CPA-DD contain a brief but insufficient description of the baseline scenario. e.g. the DD does not contain a sufficient description or present data relevant to the current practices used by households, communities and institutions in Rwanda and Uganda to treat water (information regarding the current trend in boiling and other types of water treatment techniques), type and efficiency of stoves used for boiling etc.</p> <p>b) It is not clear how the evidence presented supports the argument presented in favour of the baseline scenario. (e.g. one reference provided in the PoA-DD states that 'Access to improved sources of drinking water has increased from 67 percent in 2006 to 70 percent of households in 2011' in Uganda. The same reference also states that '44 percent of households boil their drinking water' – which is not a significant majority).</p> <p>c) Some statements and references also provide evidence on a global level, and not specifically for the countries where the PoA is proposed. More specific data on the baseline scenario needs to be provided for Rwanda and Uganda.</p> <p>Please revise.</p>		<p>scenario</p> <p>b) The PP has updated Section A to clarify the discrepancies in the baseline scenario. While access to "improved water" sources is 64% for rural areas, none of these improved sources consistently supply safe water as they are not treated and contamination is frequent particularly during the rainy season. While urban areas are serviced predominantly by improved water systems, in both Rwanda (90%)<sup>1</sup> and Uganda (91%) piped water systems are often in disrepair due to aged systems and insufficient capacity for operation and maintenance.</p> <p>c) The PP has provided baseline references and statements specific to the countries of Rwanda and Uganda in Section A of the PoA-DD, in addition to the evidence provided at the global level. These statements have been updated to references, and responses to the DOE's concerns have been embedded in the comments raised in the PDD.</p>	<p>description and present data relevant to the current practices used by households, communities and institutions in the CPA boundary to treat water, type and efficiency of stoves used for boiling, fuel used for boiling etc.</p> <p>b) The PoA-DD has been revised to consistently describe the current situation regarding access to clean water. ERM CVS verified during the site visit and interviews with experts and government officials /IV 14/IV15/ that access to 'improved water sources' does not mean that a user necessarily has access to 'safe and clean' drinking water, and that quality test results and user experience demonstrate that most users lack access to water that is genuinely safe for drinking. This is validated in more detail for each specific location/country at the CPA level.</p> <p>c) More specific data for the baseline scenario in Uganda and Rwanda has been provided. The PP has revised the background to explicitly state the baseline scenario for Uganda and Rwanda. In both countries, a large percentage of households boil the water as treatment before consumption (the Ugandan Demographic and Health Survey 2011 states this percentage as 43.9% of all households /08/; the Rwandan Demographic and Health Survey 2010 states this percentage as 41.2% of all households /09/). Again, in both cases, a large majority of households use biomass/wood for cooking (including boiling water). The Ugandan Demographic and Health Survey 2011 shows that a total of 95.5% of all households use wood (72.5%), charcoal (22.8%) and straw/shrubs/grass (0.2%) for cooking /08/. In Rwanda, 77% of the households use wood, and 12% use straw/shrubs/grass as cooking fuel (Demographic and Health Survey 2010 /09/).</p> <p>The interviews during the site visits demonstrated that unhealthy water storage practices, partial or non-treatment of water both caused and contributed to health issues (such as water borne diseases). Indoor air pollution from using unimproved cookstoves was also raised as one of the health concerns by people on the ground. The PP details that</p>

<sup>1</sup> Rwanda Demographic Health Survey 2010 Page 19

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>traditional stoves and diseases due to unsafe drinking water account for 12,500 and 16,700 deaths respectively in Rwanda (WHO Country Profile of Environmental Burden of Disease 2009: Rwanda /10/) and 19,700 and 27,200 deaths respectively in Uganda (WHO Country Profile of Environmental Burden of Disease 2009: Uganda /11/).</p> <p>All comments raised in the background section of the PoA-DD were addressed by the PP.</p> <p>Therefore, CAR 03 is closed.</p>
<p><b>CAR 04:</b></p> <p>As identified during the site visit, technologies using fossil fuels will not be included in the PoA. This information is not clearly stated in the PoA-DD. PP is requested to clarify the management of water purification technologies using fossil fuels in the PoA-DD and generic CPA-DD.</p>	<p>6.1.3</p> <p>7.5</p> <p>10.1</p>	<p>The PP confirms that technologies using fossil fuels will not be included in the PoA. The PP has removed all references to fossil fuel technologies and included a statement that no technologies using fossil fuels will be used in the PoA in Section A.6.</p>	<p>ERM CVS has checked the revised PoA-DD to confirm that technologies using fossil fuels have not been included in the PoA. The PP has also added a statement in section A.6 of the PoA-DD that technologies using fossil fuels will not be used in the PoA.</p> <p>Therefore, the ex-ante parameter 'Ex-ante determined parameters for the project emissions from fossil fuel combustion' was removed by the PP. This change is considered appropriate by ERM CVS.</p> <p>The PP has however included technologies involving project emissions (in CPA types 3 and 5) as they use electricity from the grid or other electricity sources that are not 100% renewable. Although electricity from the grid or other sources may include fossil fuels, such technologies are eligible under the methodology as the project emissions are calculated as follows:</p> <ul style="list-style-type: none"> <li>The emissions factor <math>EF_{EL,j,y}</math> parameter is fixed ex-ante by the PP at 1.3 tCO<sub>2</sub>/MWh as per the 'Tool to calculate baseline, project, and/or leakage CO<sub>2</sub> emissions from electricity consumption' version 01.</li> <li>The electricity consumption parameter <math>EC_{PJ,j,y}</math> is monitored by the PP annually or at least biennially.</li> <li>Transmission losses are fixed ex-ante at 20%</li> </ul>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			through parameter $TDL_{i,y}$ as per the 'Tool to calculate baseline, project, and/or leakage CO <sub>2</sub> emissions from electricity consumption' version 01.  CAR 04 is closed.
<b>CAR 05:</b>  a) A review of the project emissions calculation formula ( $PE_y$ ) revealed that the formula appears to be calculating project emissions per unit rather than all units (i.e. formula does not include parameter ( $T_y$ ). Please refer to CAR 05.  b) A review of the calculations that will be performed at CPA level revealed that the parameter for the number of appliances ( $T_y$ ) is being counted twice during baseline ( $BE_y$ ) and leakage ( $L$ ) emissions calculations. Please refer to CAR 05.	7.5.2	a) The PP has revised the equation in Section B.6.3 to include $T_y$  b) To account for Leakage the PP has elected to use the default value of 0.95 from AMS-I.E. Thus 0.95 is multiplied by Baseline Emissions ( $BE_y$ ) to account for leakage. $BE_y$ is calculated using $T_y$ , and then is discounted by a factor of 0.95 to account for Leakage. Leakage is never calculated, but is instead applied as a discount factor, thus the PP does not count for the number of appliances twice. PP has confirmed that the CER spreadsheet has been revised accordingly.  The PP has revised the ER calculations spreadsheet to resolve all inconsistencies; to demonstrate inclusion of <i>Water Quality</i> and <i>Operational Units</i> parameters in calculation of $QPW_y$ ; and to demonstrate application of $X_{boil}$ in Case 2 CPAs. Version number is updated to version 3.	ERM CVS has checked that the PP has revised the equation of $PE_y$ for CPA type 3 (institutions with project emissions) and for CPA type 5 (communities with project emissions). These are the CPA types for which project emissions are applicable and therefore, this revision is considered appropriate and correct. The other CPA types (1, 2, 4) do not involve technologies with project emissions and therefore $PE_y$ is assumed as zero, which is considered appropriate.  The PP has submitted a sample CER spreadsheet detailing the calculations at each CPA level, which has been reviewed by ERM CVS /04/. Leakage emissions are now being calculated as per the PoA-DD. Double counting of parameter $T_y$ has also been fixed. CAR 05 is closed.
<b>CAR 06:</b>  The monitoring plan with reference to $QPW_y$ parameter is not consistent with what was discussed on site, for example the fact that monitoring of $QPW_y$ may be different for households, institutions and communities. The description of the monitoring of $QPW_y$ needs to be clarified and revised.  Similarly, the measurement methods and procedures presented for parameter $R_y$ (used to calculate $QPW_y$ ) are not consistent with what was discussed on site, for example, it is not clear how the manufacturer's specifications for a water purification unit can be used as a value (capped at a value of 5.5	10.1	<u>Parameter <math>QPW_y</math></u>  The PP has developed additional Generic CPAs as per CAR 02 to ensure that monitoring is consistent within a CPA. Each Generic CPA provides a description of how $QPW_y$ will be monitored for each specific CPA type. The PP has also changed the equation of $QPW_y$ in Part II, section B.6.3 to include the water quality and operational units as parameters in order to ensure that these parameters are taken into account in the ER equation. The PP has also revised section B.6.1 of each Generic CPA to specifically describe how $QPW_y$ will be monitored in each CPA.  <u>Parameter <math>R_y</math></u>  the WHO report "Domestic Water Quantity Service Level and Health (2003)" <a href="http://www.who.int/water_sanitation_health/diseases/WSH03.02.pdf">http://www.who.int/water_sanitation_health/diseases/WSH03.02.pdf</a> f states that drinking consumption should be "4.5 litres per day	<u>Parameter <math>QPW_y</math></u>  The PP has updated section B.6.1 of the generic CPA-DDs to give a description of how $QPW_y$ will be monitored for each CPA type. Furthermore, the equation for $QPW_y$ has been modified by the PP to include 'Water Quality' and 'Operational Units' parameters. Please refer to section 7.5 of this validation report for further details of how this was validated.  <u>Parameter <math>R_y</math></u>  ERM CVS has noted that the PP has fixed the parameter $R_y$ ex-ante at the PoA level for CPA types involving households and institutions, i.e. 1, 2, 3 (fixed 3.5 litres/person/day, or 2L/person/day for day schools) based on a WHO report/13/14/.



Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>litres per person per day) for this parameter when the PoA can only credit drinking water.</p> <p>Also, no QA/QC framework is described for QPW<sub>y</sub>.</p> <p>Please revise.</p>		<p>under conditions typically facing the most vulnerable in tropical and higher in conditions of raised temperature and/or excessive physical activity. This figure can be interpreted as applying to all adults and to children, given the difficulty in determining whether the ration of adult/child water requirements would remain the same with increasing activity and/or temperature." Thus the PP believes the value of 3.5 L/p/day, from WHO source, 'Minimum water quantity needed for domestic use in emergencies' is conservative and should be applied to the project. Since the value is conservative and the project is to be conducted in Rwanda and Uganda only, the PP believes it is conservative to fix this value ex ante for CPA types 1, 2, and 3.</p> <p>The PP includes the value of 2 liters/student/day for for day-schools (For CPA types 2 and 3 related to institutions), which is also justified by WHO source, 'Minimum water quantity needed for domestic use in emergencies' (p.3). This is considered conservative given that the source is for use in emergency situations as minimum requirements for schools.</p> <p><u>Parameter N<sub>y,i</sub></u></p> <p>The PP has changed the approach for parameter N<sub>y,i</sub> so that the value is a monitored parameter in CPA type 1 as well to ensure data is in line with the target population. The 'Source of data' is defined as either National data or Surveys. National data may be used as data is available at a regional level in both Rwanda and Uganda from national surveys.</p> <p>PP included QA/QC procedures for all CPA types for N<sub>y</sub>.</p>	<p>Considering that this WHO report (2003) states that the drinking consumption should be 4.5 litres/day for vulnerable communities in tropical climates (adults and children alike), the DOE can validate the more conservative value of 3.5 litres/day (2 L/day for day schools). This figure is fixed ex-ante for CPA types 1, 2 and 3. For CPA types 4 and 5, this figure will be monitored directly from a representative sample annually or at least biennially.</p> <p>The figure of 2 litres/day for day-schools is justified by the WHO source 'Minimum water quantity needed for domestic use in emergencies' (page 3) /13/, which states that the standard water requirements in schools is 2 litres per student. This is acceptable considering that WHO reports this figure in its paper detailing the minimum water needed for domestic use, which also specifies the minimum water needs for various types of institutions, including schools. ERM CVS has reviewed the reference /13/ to confirm this number.</p> <p><u>Parameter N<sub>y</sub></u></p> <p>Parameter N<sub>y,i</sub> is now a monitored parameter.</p> <p>For type 1 and type 4 CPAs, the number of people per household will be monitored via surveys, at least biennially. This approach is considered conservative and appropriate by ERM CVS.</p> <p>For type 5 CPAs the number of people using the unit will be monitored at least biennially. This approach is considered conservative and appropriate by ERM CVS.</p> <p>For type 2 and type 3 CPAs, this parameter is monitored at the time of sale: the number of people using the technology will be recorded in the sales receipt (each time a sale is made, hence: continuously, since sales are made on an ongoing (continuous) basis). This approach is considered</p>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>appropriate by ERM CVS.</p> <p>The PoA includes provisions to ensure that emission reductions are not overestimated by crediting for more water purified than the maximum capacity of the units is capable of producing. The monitoring plans for the generic CPAs ensure that the product of <math>N_{y,i}</math> and <math>R_{y,i}</math> does not exceed the maximum capacity of the technology, for each water purification unit. For CPA types 1, 2, 3, this is accounted for by the QA/QC procedures in the <math>N_{y,i}</math> parameter table and the additional comments section in the <math>R_{y,i}</math> parameter table, and for CPA types 4 and 5 this is accounted for in the QA/QC section of the <math>R_{y,i}</math> parameter table. The QA/QC procedures are designed to ensure that PP does not claim credits for more water than which is treatable by the technologies (i.e. maximum possible output of the device is not crossed). This is appropriate and conservative.</p> <p>CAR 06 is closed.</p>
<p><b>CAR 07:</b></p> <p>It is noted that the table in section B.7.1 for 'Operational Units' parameter does not clearly define how this parameter will be monitored for different target groups (households, institutions, communities) and how it will be treated across different CPA types.</p> <p>Please clarify.</p>	10.1	<p>The PP has updated the Generic CPA-DDs to clearly define how the Operational Units parameter will be monitored for each CPA type (and hence how it is monitored for the associated target group of each CPA type). For cross-CPA sampling, Operational Units may only be monitored across CPAs if the CPA is the same type. Homogeneity may be proven by referencing one or more of the criteria in Part II, B.7.2.</p> <p>The PP has added, "If the specific technology being monitored has been replaced it will be marked as out of use" to the Operational Units parameter to clarify how replacement technologies will be accounted for.</p> <p>The PP has clarified that the parameter is used to determine the percentage of days of the monitoring period that the technology is in use by the end user. PP removed reference to technical specifications for monitoring this parameter. The critical information is if the technology was functional, meaning it was providing clean water. This aspect of a technology's functionality is captured by 'Water Quality' parameter, which determines if the technology is meeting required water quality standards.</p> <p>The PP revised the monitoring frequency to be "At least once per verification or biennially as per the monitoring requirements in the methodology" to ensure that the methodological requirements are met (at least biennial) and that each verification is based on relevant monitoring results.</p> <p>The PP has added the <i>Operational Units</i> parameter to the equation for</p>	<p>The operational units parameter is now defined and monitored separately for all CPA types (for each target group under each CPA type, the operational units parameter sets out the monitoring procedure and frequency clearly). The change is considered appropriate.</p> <p>The 'Operational units' parameter will involve monitoring to check the percentage of the monitoring period during which the technologies are considered in use. The monitoring frequency has been updated to state that this parameter will be monitored at least once per verification or biennially – which is in line with the monitoring requirements of the methodology.</p> <p><u>QA/QC</u></p> <p>ERM CVS confirms that the PP has updated QA/QC procedures for the 'Operational Units' parameter. For instances/cases where the unique serial numbers are not visible for the water purification technologies, the PP has proposed that the enumerators will enquire the date of the</p>



Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
		QPW <sub>y</sub> , to discount the total technologies distributed and ensure this value is applied to ERs. The PP also notes in parameter Ty that "Replacement technologies will be captured in monitoring the number of Operational Units."	<p>purchase of the technology to ensure the appliance is not a replacement. The PP now addresses replacements under the 'operational units' parameter and states that if a technology has been replaced, then it will be marked out of use, and deemed to be operational 0% of the year. Replaced units (as captured by the operational units parameter) will be marked out of use and deemed to be operational 0% of the monitoring period.</p> <p><u>Emission Reductions</u></p> <p>The PP has modified the QPW<sub>y</sub> calculation procedure to include the operational units parameter, and the water quality parameter. Please see section 7.5 for details.</p> <p>The ER calculations will now take into account the deductions due to the fact that not all devices are used throughout the year, and that devices failing the water quality tests should not be included in estimating the baseline emissions.</p> <p>CAR 07 is therefore closed.</p>
<p><b>CAR 08:</b></p> <p>The Monitoring Plan does not address how the electronic data management system will record Replacements. PP needs to clarify how it will be ensured that units used as replacements are not double counted with the ones that were replaced.</p> <p>Please revise.</p>	10.2.1	<p>Replacements will not be recorded directly, but instead this will be captured when monitoring Operational Units. If a unit that has been selected for monitoring has been replaced, this will be identified during monitoring of operational units and the unit will be recorded as being out of use.</p> <p>The PP has added language to the Operational Units parameter box to describe how during monitoring of operational units if a unit has been replaced it will be viewed as out of use. This value is applied in calculation of QPW<sub>y</sub> and thus to the ER equation. The PP confirms that the parameter, and therefore the check for replacement equipment, shall be monitored at least once per verification as stated in the Operational Units parameter box, ensuring that each verification is based on relevant monitoring results for replacement units.</p>	<p>The PP now addresses replacements under the 'Operational units' parameter and the updated monitoring plan states that if a unit has been replaced, then it will be marked as out of use, and deemed to be operational for 0% of the monitoring period.</p> <p>The monitoring frequency has been updated to state that this parameter will be monitored at least once per verification or biennially – which is in line with the monitoring requirements of the methodology.</p> <p>CAR 08 is therefore closed.</p>
<p><b>CAR 09:</b></p> <p>Parameter <math>f_{NRB,y}</math>:</p>	7.5	<p>The PP revised the PoA-DD to confirm that <math>f_{NRB,y}</math> is a monitored parameter for all CPA types, which is calculated using default values for <math>f_{NRB}</math>, combined with</p>	<p><u>Parameter <math>f_{NRB,y}</math></u></p> <p>The PP has removed <math>f_{NRB,y}</math> as an ex-ante parameter, and has set it as a monitored parameter for all CPA types. The</p>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>To estimate this value for Uganda, the CME has chosen data from the Uganda National Household Survey 2009/2010 for determining the weighting of displaced fuels (fossil fuels and woody biomass). The value for fossil fuel usage (5.5%) needs to be justified further since it adds up kerosene usage, electricity usage and usage from other sources – but electricity and other sources include renewable sources of energy and therefore it is not considered appropriate to group their usage under fossil fuels.</p> <p>Additionally, it is not clear how data from the Household Survey can be used for other target groups such as institutions and communities.</p> <p><u>Parameter <math>\eta_{wb}</math>:</u></p> <p>The 'Source of Data' and 'Measurement methods and procedures' tabs for <math>\eta_{wb}</math> parameter were not clearly presented in the parameter tables.</p> <p>PP is requested to clarify/revise the DD.</p>		<p>survey, national, or regional data to determine the mix of fuels used in the baseline (proportion of biomass and proportion of other fuels such as fossil fuels). Therefore, data from the National Uganda Household Survey (2009/2010) and the Rwanda RBESS report has been removed.</p> <p>The PP updated the 'Source of Data' and 'Measurement methods and procedures' sections of the parameter boxes for <math>\eta_{wb}</math> to include the use of default values combined with surveys, national, or regional data, as specified in the parameter boxes and in response to CL 05 below.</p>	<p>default values approved by the CDM EB for fNRB in each country will be used, combined with national government data, regional government data or sampled surveys to determine the proportion of people using biomass and proportion of people using other fuels e.g. fossil fuels.</p> <p><u>Parameter <math>\eta_{wb}</math></u></p> <p>The 'Source of Data' and 'Measurement methods and procedures' tabs for <math>\eta_{wb}</math> parameter (across all CPA types) have now been updated to reflect that this parameter will be using default values from AMS-III.A.V, in combination with surveys/national data/regional data to determine the mix of difference devices used in the baseline (with the value being ascertained at the CPA level).</p> <p>CAR 09 is therefore closed.</p>
<p><b>CAR 10:</b> the following aspects of the sampling plan were not in line with the Sampling standard or guidelines:</p> <ul style="list-style-type: none"> <li>a) The parameters to be obtained by means of sampling and their respective confidence/precision levels as well as expected values are not listed in the sampling plan</li> <li>b) The sampling plan in the PoA-DD refers to sampling across CPAs wherever possible but justification is not provided for the suitability of this</li> </ul>	9.2	<ul style="list-style-type: none"> <li>a) The PP has revised Part II, Section B.7.2, so that the "b. Data to be collected" section outlines the parameters to be obtained through sampling and their confidence and precision. Their expected values will be listed at the CPA level</li> <li>b) The PP has change the monitoring plan so that it is clear that across CPA monitoring can only be conducted across CPAs of the same type. CPA types will have the same sampling plans and parameters across CPA types should be homogenous as CPA types will have the same target population and technologies. The PP has added the criteria to determine homogeneity in Part II, Section B.7.2, (a), (v).</li> </ul> <p>PP added parameters <math>f_{NRB,y}</math>, <math>\eta_{wb}</math>, and <math>EF_{projected\_fossilfuel}</math> to the sampling plan, but noted that they "shall be determined through default values combined with survey, national, or regional data. In case survey is</p>	<p>The sampling plan is described within the monitoring plan of each generic CPA-DD.</p> <ul style="list-style-type: none"> <li>a) The parameters to be obtained by means of sampling and their respective confidence/precision levels as well as expected values are listed in the sampling plan, and are in line with the methodology.</li> <li>b) The sampling plan has been revised. It has been made clear that sampling across CPAs can only be done for CPAs of the same type. Justification is given for the use of cross-CPA sampling as it is claimed that this is critical for the feasibility of the PoA due to the large number of CPAs envisaged. This is considered reasonable. The monitoring</li> </ul>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>approach as well as what types of water purification systems will be considered as similar types for the purpose of grouping for the sampling effort. According to the sampling standard, the sampling can be done across CPAs when either homogeneity of CPAs relative to the parameter to be obtained by sampling can be demonstrated or the differences among the CPAs is taken into account in the sample size calculation</p> <p>c) The target population is not clearly defined. It is specified as "households/SMEs/communities" and it is not clear whether these will be considered as separate target groups. If they are proposed to be grouped for the purpose of sampling, justification is missing on how the group can be regarded as homogeneous in relation to parameters to be sampled</p> <p>d) The sampling plan states that either multi-stage sampling or simple random sampling will be used but no explanation is provided on the suitability of the sampling approaches and in the case of multi-stage sampling – it is not sufficiently clear what are the primary sampling units and secondary sampling units. Further, the sampling plan inconsistently states that sampling will be different for each user type, households, communities, and SMEs, and that sampling will be grouped for similar</p>		<p>chosen, the sampling plan described below shall apply."</p> <p>c) The PP has decided to define CPA types by target population therefore sampling within CPAs will only include the same target population. As mentioned above cross CPA sampling will be limited to CPAs of the same type, and thus sampling will not be across different target users</p> <p>d) The sampling plan has been revised to include simple random sampling, stratified random sampling, and multi-stage sampling. The suitability of these approaches has been explained. For stratified sampling, the strata shall be the technology type. For multi-stage sampling, the primary sampling units shall be administrative clusters, i.e. district, region, county, or village [to be determined at specific CPA]. The secondary sampling unit shall be the technology.</p> <p>e) Sample size calculations have been calculated using guidelines from EB 69 Annex 5. Explanations of the parameter estimates have been added to the CPA-DD, as parameters can be more accurately estimated at the CPA level</p> <p>f) The PP has updated the sampling frame to be all technologies within the CPA, i.e. the sales database, with the possibility of sampling multiple CPAs together if they are of the same CPA type and are deemed homogeneous. The sales database will contain details of all end users who have purchased water purification units.</p> <p>g) Frequency of monitoring and procedures to monitor water quality have been outlined in the parameter boxes. Water Quality will be monitored, as per the World Health Organizations Guidelines. The guidelines state that it is more cost-effective and feasible to monitor indicator organisms such as E.coli. Monitoring of proxies such as E.coli, faecal coliform counts, chlorine levels may be used to assess water quality. Enumerators will be trained on proper testing procedures and the appropriate testing technology will be used. The PDD states that sampling will meet 90/10, but if sampling is conducted biennially or across CPAs then 95/10 confidence and precision.</p> <p>The PP also revised the measurements methods to not specify nationally certified laboratories as there are appropriate testing technologies available to the general public.</p> <p>h) The PP has referenced procedures in EB 75 Annex 8 as to the identification and removal of outliers.</p> <p>The PP has updated the monitoring plan to further clarify the address the inconsistencies noted by the DOE</p>	<p>plan requires that the CME will define a sampling frame for each CPA type such that the homogeneity of the group can be expected to be sufficient to allow for cross-CPA sampling. Sampling frames will be classified as homogeneous if the following conditions are met:</p> <ul style="list-style-type: none"> <li>Project technology/equipment have comparable input/output characteristics, including efficiency, and provide comparable service, e.g. water flow rates and filtration or disinfection mechanism are comparable</li> <li>End users of the project technology/equipment have comparable socioeconomic conditions (e.g. middle class households);</li> <li>The geographic locations of project equipment do not have a significant influence on the parameter of interest. Please note that sampling will be conducted separately for the country of Uganda and Rwanda</li> <li>Installation dates of the technologies are not significantly different to considerably impact on the parameter of interest</li> </ul> <p>The monitoring plan also states that although different sampling approaches may be set in different CPAs, as additional CPAs are included the sampling approach selected in these CPAs may change (to ensure the same approach is used across CPAs) to enable cross CPA sampling.</p> <p>The PP has provided a list of criteria by which CPAs can be considered homogeneous. The list is in line with the sampling standard. This issue is therefore closed.</p> <p>c) It is now clear that households, institutions, and communities will be considered as separate target groups, since they are now defined as different CPA types. Only CPAs of the same types and located in the same country may be sampled together.</p> <p>d) The PP has clarified that simple random, stratified random, and multi-stage sampling may be used'. For stratified sampling the definition of the strata are based on</p>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>technologies and user groups.</p> <p>e) Sample size calculations could not be reproduced by the DOE as estimated parameter values as well as their assumed variability were not provided in the GSP PoA-DD. Further, the Sampling guidelines recommend conducting sample size calculations for a range of possible estimates.</p> <p>f) The sampling frame is not clear and in the case of primary sampling units for multi-stage sampling – not mentioned. If end-user data is not collected for all users, description is missing how the collection of the data will ensure that the sampling frame is representative of the project population</p> <p>g) Description of field measurements is not sufficient: timing and frequency of surveys are not clear, and it is not clear how data on water quality will be obtained for the selected sample</p> <p>h) Quality assurance/quality control measures are not sufficiently described: no procedure is described for defining outliers and under what circumstances outlier data/measurements may be excluded and/or replaced</p> <p>i) Some inconsistencies were found in the plan that do not correspond with other parts of the PoA-DD, e.g. (i) reference to the list of parameters to be dependent on the choice of</p>		<p>The PP has included the following description of outliers in Part II, Section B.7.2 under (ii.) <i>Quality Assurance/Quality Control</i>:</p> <p>Outliers will be defined as datapoints that are more than 1.5 times the inner quartile range. Outliers will be dealt with by applying the CDM materiality principles outlined in CMP7. That is, the outliers will be disregarded provided that doing so does not lead to an overestimation of the emissions reductions of a group of CPAs of higher than:</p> <p style="text-align: center;">- 5% in the case of SSC-CPAs (CMP 7, Paragraph 4(d))</p> <p>i) The monitoring plan and sampling plan has been updated to correct the inconsistencies noted.</p>	<p>the technology types.</p> <p>For multi-stage sampling, the CPA-DDs state that the primary sampling units shall be administrative clusters, i.e. district, region, county, or village [to be determined at specific CPA], and the secondary sampling unit shall be the technology type. This is reasonable.</p> <p>e) Sample size calculations will be conducted at the CPA level, since determining the sample size requires the following to be known: the total number of strata in the population; the average units per strata; an estimate of the proportion/mean; an estimate of the variance between and within clusters/strata.</p> <p>f) The revised generic CPA-DDs clarify that the sampling frame will be all technologies (units) within a CPA, which will be derived from the sales database. The monitoring plan for Ty also makes clear that all units will be included in the sales database. OK.</p> <p>g) Field measurements have been described in further detail. Frequency of surveys is specified in section B.7.1 in the monitoring tables: monitoring of all surveyed parameters will take place annually or at least biennially as per the monitoring requirements in the methodology. The sampling plan states that 95/10 confidence/provision requirement applies if biennial (every two years) sampling is done,</p> <p>Data on water quality: more details have been provided on how water quality will be obtained for the selected sample. A dedicated water container will be taken to the location where the system is installed to take a sample of the cleaned water for testing. Water quality is defined in a relevant national standard or guidelines for drinking water quality, but an indicator may be monitored to assess whether samples meet these requirements [i.e. monitoring of proxies such as E.coli, faecal coliform counts, chlorine levels may be used to assess water quality]. In case a national standard / guideline for drinking water quality is not available, the standards / guidelines by the WHO or US-EPA shall be applied. These provisions are considered appropriate and are in line with</p>

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
methodology, (ii) total number of distributed water purification systems being one of the parameters to be obtained by sampling; and (iii) which parameter(s) are determined using ex-ante surveys for Case 2 activities			<p>the methodology and WHO standards.</p> <p>h) Quality assurance/quality control measures have been described in more detail. The monitoring plan states that outliers will be removed as per the guidance in EB 75 Annex 8 (Guideline: Sampling and surveys for CDM project activities and PoAs, version 03.0). The PP included an approach for defining and addressing outliers. Outliers will be defined as datapoints that are more than 1.5 times the inner quartile range. Outliers will be dealt with by applying the CDM materiality principles outlined in CMP7. That is, the outliers will be disregarded provided that doing so does not lead to an overestimation of the emissions reductions of a group of CPAs of higher than 5% in the case of SSC-CPAs (CMP 7, Paragraph 4(d)). This approach is considered reasonable.</p> <p>i) The monitoring plan and sampling plan has been updated to correct the inconsistencies noted.</p> <p>CAR 10 is closed.</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<b>CL 01:</b> The policy/measure or stated goal in the PoA-DD does not mention specifically where the PoA will be implemented and what populations/groups will be targeted. Please clarify the policy/measure/stated goal.	5.4.2	<p>The PoA-DD has been revised to include multiple Generic CPAs which define specific target groups and technologies to be incorporated.</p> <p>The PP updated the PDD throughout the document to include a clarification of each target group. "Institutional applications may include schools or prisons. Community applications may include restaurants, community centres, villages, offices, or health centres". Each specific CPA will provide additional details of specific populations included within the target group of the CPA</p>	<p>The PP has the revised the policy measure/stated goal to include that the PoA plans to target households, communities and institutions in Uganda and Rwanda.</p> <p>Examples of institutions include schools and prisons (where people are enrolled), and example of communities include restaurants, community centres, village local communities, offices, health centres etc. PP has further clarified that specific CPAs will detail specific target user</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
		type.	groups and their characteristics.  CL 01 is therefore closed.
<p><b>CL 02:</b> The description of the generic CPA lacks detail and does not give sufficient understanding of how a CPA might look like, e.g. the description does not address whether CPAs will be implemented across the country or in a specific region, whether each CPA will specify which technology and model will be distributed, whether it will specify the target group, or whether distribution mechanisms will differ between CPAs and CPA implementers.</p> <p>Moreover, the generic CPA-DD also does not specifically address the main technologies and equipment to be involved, lifetime, capacities and efficiencies, emissions sources, and energy flows and balances. It also does not address technology transfer.</p> <p>Please clarify the missing information.</p>	5.4.4	<p>The PoA-DD has been updated to further define the Generic CPAs and establish which technologies and target groups will be included in each CPA type</p> <p>The Generic CPA generally discusses the technology and equipment to be used in the eligibility criteria. Specific technologies will be described at the CPA level. The PP has also added a flow diagram to each generic CPA.</p>	<p>The PP has given a clearer description of what a CPA will look like. They have categorised five different types of CPAs based on the different types of technologies being implemented and on the different emission reduction calculations (with and without project emissions):</p> <p>CPA type 1: Small scale technologies for household water consumption (without project emissions). This includes Water Filters, Solar Disinfection systems, and Chemical Disinfection,.</p> <p>CPA type 2: Technologies for institutional water consumption with no project emissions. This includes Water Filters, Solar Disinfection systems, Chemical Disinfection, ultrafiltration devices and Ultraviolet disinfection devices with renewable power for large scale consumption in institutions.</p> <p>CPA type 3: Technologies for institutional water consumption with project emissions. This includes reverse osmosis systems and UV purification systems which require electricity and are not installed with solar systems.</p> <p>CPA type 4: Technologies for community water consumption with no project emissions. This includes water filters, solar disinfection, chemical disinfection and Ultraviolet purification with renewable power.</p> <p>CPA type 5: Technologies for community water consumption with project emissions. This includes technologies using electricity and therefore result in</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>project emissions, i.e. ultraviolet disinfection devices which require electricity and are not installed with solar systems, and reverse osmosis systems.</p> <p>The PP has further added technology requirements for each CPA type under the eligibility criterion 'Technology' (section B.2 of the PoA-DD). These include conditions for minimum flow rate, minimum capacity/lifespan of technology, for removal of e-coli, for whether the device is portable or fixed and for the wattage/voltage associated with the technology.</p> <p>PP has further clarified that the CPA types have not been defined regionally, and that individual CPAs included will be implemented in one country (of the two – Uganda and Rwanda).</p> <p>Flow diagrams have been added to each generic CPA-DD.</p> <p>CL 02 is therefore closed.</p>
<p><b>CL 03:</b> The following are issues identified with eligibility criteria for inclusion of a CPA in the PoA:</p> <p>(a) The verifiable evidence for eligibility criteria under 'target group' is presented as Sales Receipts. Similarly, the verifiable evidence for 'double counting' and 'start date' is presented as the CPA Project Database and Sales Receipts. PP is requested to clarify the usage of this evidence considering both of these will be</p>	<p>6.1.2- 6.1.6</p> <p>6.1.8</p>	<p>a) The PP has updated the eligibility criteria table to clarify the evidence that will be provide prior to the start of implementation therefore CPA inclusion. Target User will be proved via the Operations Manual, Contracts with CPA Implementers or partners, or Technology type used, Double counting will be proved via the procedures in the Operations Manual, and the start date will be demonstrated by a Purchase order to technology supplier or Contract with technology supplier</p> <p>b) The evidence for sampling requirements has been changed from monitoring report to the sampling plan</p>	<p>a) ERM CVS has checked that the verifiable evidence for 'Double counting' has been updated to reflect the fact that the Operation and Management Plan (CME Manual) /18/ or other documented procedures will be used instead of the CPA Project Database or Sales Receipts. Similarly, the verifiable evidence for 'Target Group' has been updated to Operations Manual, Contracts with CPA implementers/partners or Technology type – which is appropriate. Finally, the verifiable evidence for 'Start Date' has been updated to Purchase order to technology supplier or Contract with technology supplier,</p>



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>available only after the start of implementation and therefore, are not likely be available at the time of CPA inclusion.</p> <p>(b) The verifiable evidence for eligibility criteria under 'sampling requirements' is presented as Monitoring report. PP is requested to clarify this choice since at the time of CPA inclusions, the monitoring plan includes these provisions, not the monitoring report.</p> <p>(c) The eligibility criterion related to double counting mentions the agreements that the CME has with individual WPS owners (carbon rights waivers within sales receipts), but does not mention if the CME has similar agreements in place with technology suppliers. These documents also need to be provided to the validation team for validation purposes.</p> <p>(d) The eligibility criteria do not clearly state the required technical specifications for water purification systems to be suitable for the PoA. The information presented does not align with the requirements in the standard 'Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for</p>		<p>c) The PP has updated the PDD to include, "The CME has an agreement in place with each technology supplier in which it is stated that the supplier transfers the rights to the emissions reductions of each water purification system exclusively to the CME." PP has submitted agreement with Nandadeep technology supplier and generic agreement, prepared for partner, Basic Water Needs. The agreement with Nandadeep represents the first agreement between the parties and may be modified by either party, pending both parties approval, as the project progresses. The current language regarding the price of the units is applicable for current technologies to be sold, all of which exceed 500,000UGS. However it is possible that through the life of the project, smaller and/or less-expensive technologies produced by Nandadeep shall be included, in which case the clause contract shall be revised to ensure the eligibility of the technologies.</p> <p>d) The PP has added technology requirements for each CPA type. The PP has included general requirements in the PoA and plans to include more specific requirements in the CPA. The PP has further modified the eligibility criteria to be more specific to each CPA type, and added photos to demonstrate potential technology types used for each CPA type.</p> <p>e) The PP has updated the PDD so that the evidence required for the start date is a purchase order to technology supplier or a contract with the technology supplier. This the evidence for the start date now demonstrates the earliest date at which either the implementation or construction or real action of a CPA begin</p> <p>f) The contact details that the CME has provide are for a mobile number that should not change. All users will be notified via SMS in the event that the phone number does change. Additionally at the time of sale, the sales</p>	<p>which is appropriate and considered correct.</p> <p>b) ERM CVS has checked the revision and confirms that the sampling plan can be considered appropriate verifiable evidence for the eligibility criteria under 'sampling requirements'.</p> <p>c) The PP provided Impact Carbon's agreement with Nandadeep technology supplier and a template agreement /12/. Both documents clearly delineate that Impact Carbon will bear the sole right to the emission reductions from this project.</p> <p>d) The DOE has checked that the PP has added technology requirements for each CPA type under the eligibility criterion 'Technology'. These include conditions for minimum flow rate, minimum capacity/lifespan of technology, for removal of e-coli, for whether the device is portable or fixed and for the wattage/voltage associated with the technology. The PP has also included photographic evidence to demonstrate the types of filters that will be distributed under each CPA type. The revisions align with the standard 'Demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programmes of activities' as the PP have clarified the specifics for technologies to be included at the CPA level. Further information regarding the technologies is to be provided in the specific CPA-DDs.</p> <p>e) ERM CVS confirms that the start date – taken as the date of the purchase order to the technology supplier or the date of the contract with the technology supplier, is a realistic representation of the earliest date of implementation or real action of the CPA. Therefore, the revisions to this criterion are now in line with the CDM</p>



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>programmes of activities' – which requires that PP's clarify the 'technology/measure including the level and type of service, performance specifications' etc. of each WPS to be included in the CPA.</p> <p>(e) The eligibility criteria related to start date mentions that 'the start date of the CPA is the date on which the first water purification system to be included in the CPA is sold'. However, this may or may not be the earliest date at which either the implementation or construction or real action of a CPA begins. Therefore, this criterion is not in line with the CDM glossary of terms.</p> <p>(f) The PP is requested to justify how providing contact details will ensure that households, communities and institutions will have access to replacement systems considering that the personnel (CME/CPA Implementer personnel) contact details could change over time.</p> <p>(g) The eligibility criteria do not clearly state what the additionality requirements are for this PoA. Specific conditions detailed in the 'Guidelines on the Demonstration of Additionality of Small-Scale</p>		<p>representative will explain the mechanism through which the end-user can access replacement parts</p> <p>g) The PP has removed the option for applying micro-scale additionality. The PP has also updated the PDD so that the specific criteria for the requirements of 'Guidelines on the Demonstration of Additionality of Small-Scale Project Activities' (Attachment A to Appendix B) (version 09.0), are included in the eligibility criteria. Such criteria include that: systems must operate as isolated units, users must be household, communities, or institutions, and the size of each unit must be less than 3,000 tonnes of emission reductions per year or a maximum output of 25000 liters. The PP has since removed the 25,000 liter criteria and will fulfill the criteria that each unit reduces less than 3,000 tonnes of emissions by presenting the DOE with a sample ER calculation of the maximum ER values. Further, the PP included that Ny shall not exceed 5,500 to ensure that emission reductions are less than 3,000 tCO<sub>2</sub>e per annum (5% of the small-scale CDM threshold). The PP has since removed the limit of 5,500 for Ny, as the requirement is encapsulated in the preceding criteria of emissions reductions of less than 3,000 tCO<sub>2</sub>e per annum.</p> <p>h) The PP has add an eligibility criteria stating that the technology cannot exceed 3,000 tonnes of emission reductions</p> <p>i) The PP has updated the PDD to further describe the target groups as well as including possible distribution mechanisms such as indirect sales and sales through distribution partners as outlined in Section A.2</p>	<p>glossary of terms.</p> <p>f) The explanation provided by the PP indicates that the mobile number provided to the users is not likely to change, as it is registered to the company. In case that the number does change, they have made clear in the DD that they will notify the users via SMS. The users are also explained the process to obtain replacement parts through contacting the CME or the CPA implementer (at the time of sale). Additionally, during the household visits, it was noted that the users mentioned that they were likely to contact the local distributor if they had any issues with the devices, as the distributors were known directly to the users in most cases. All these factors indicate that the users will have means of accessing replacements (or replacement parts) of comparable quality, should a need arise.</p> <p>g) The DOE confirms that the PP has removed the option for applying micro-scale additionality..</p> <p>The PP has also included specific criteria for the requirements of 'Guidelines on the Demonstration of Additionality of Small-Scale Project Activities' (Attachment A to Appendix B) (Version 09.0) to be met by the CPA. This include that the CPA demonstrate:</p> <ul style="list-style-type: none"> <li>• The WPS is operating as an isolated unit</li> <li>• The users of the WPS is either a household, an institution, or a community</li> <li>• the size of each unit is no larger than 5% of the small-scale CDM threshold or 3,000 tCO<sub>2</sub>e reduced per year</li> </ul> <p>h) . The PP has clarified the additionality eligibility</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>Project Activities' are not clearly listed as criteria for inclusion of CPAs to the PoA. Based on discussions on site, PP also needs to clarify if micro-scale additionality will be applied.</p> <p>(h) The description for proving that the communities covered under the PoA will not be larger than 5% of the SSC threshold is missing. PP is requested to clarify.</p> <p>(i) The eligibility criteria do not significantly discuss the target group and do not address the distribution mechanisms. PP is requested to clarify.</p>			<p>criteria, as well as procedures to stay within the &lt;5% of the SSC threshold to comply with additionality. Each CPA is required to demonstrate that the size of each unit is no larger than 5% of the small-scale CDM threshold or 3,000 tCO<sub>2</sub>e reduced per year, by means of the Emissions Reductions calculations spreadsheet demonstrating ERs per unit.</p> <p>i) Section A.2 of the PoA-DD describes the distribution mechanisms for different target groups. All water purification systems are to be distributed to end-users or community leader (in case of communities target group) directly through Sales Representatives, who collect user or community level information via Sales Receipts. These sales representatives are also tasked with explaining the correct usage of the systems.</p> <p>The CPA implementer and CME (in cases where the CME is also the implementer) will be directly responsible for sales and dissemination. The CME will also work with local partners to enhance and improve dissemination and distribution capacity of the project as a whole. These local partners are identified as NGOs, local entrepreneurs, government organizations and academic institutes.</p> <p>The CME will oversee the distribution efforts to end users and will oversee the process through the Operations Manuals. Distribution will include the capture of end user for record keeping.</p> <p>The end-user (or community leader in case of community target groups) will be provided with the contact details of the CME/CPA Implementer, whom they can contact should any maintenance of the system be required.</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			CL 03 is therefore closed.
<p><b>CL 04:</b></p> <p>(a) The applicability condition 3 from the methodology (Case 1 or Case 2 determination) is not mentioned in the PoA-DD or the generic CPA-DD.</p> <p>(b) Section B.2 of the generic CPA-DD does not address the applicability condition of AMS-III.AV related to PoAs (paragraph 22 of the methodology).</p> <p>(c) Section B.4 of the generic CPA-DD makes a statement that 'the programme only credits non-renewable biomass (NRB)'– this is not in line with the methodology as the methodology includes baseline users that maybe using fossil fuel.</p> <p>PP is requested to clarify.</p>	<p>7.2.1</p> <p>7.4.1</p>	<p>a) The PP has updated Section B.2 of the Generic CPA to include (Case 1/Case 2) as an applicability condition</p> <p>b) The PP has noted that leakage has been accounted for as per guidance in AMS-I.E and thus methodology is applicable to a PoA</p> <p>c) The PP has removed this statement</p>	<p>a) ERM CVS confirms that the revised Section B.2 of the Generic CPAs now include the applicability condition 3 from the methodology AM-III.AV.</p> <p>b) ERM CVS confirms that the revised Section B.2 of the Generic CPAs now include the applicability condition of AMS-III.AV related to PoAs (paragraph 22 of the methodology). Leakage has been accounted for as per AMS-I.E, and an adjustment factor of 0.95 is applied to account for leakages.</p> <p>c) ERM CVS confirms that this statement has been deleted from section B.4 of the generic CPA-DD.</p> <p>CL 04 is closed.</p>
<p><b>CL 05:</b> The following are issues identified with ex-ante parameters:</p> <p>(a) Parameter 'Case 1 or Case 2': The PP is requested to clarify the 'choice of data or measurement methods and procedures' to determine if the CPA is</p>	7.5	<p>(a) The PP has updated the "choice of data or measurement method" for "Case 1 or Case 2" to include, Case 1 and Case 2 will be determined using one of the three options below:</p> <p>(i) Proportion of populations using an improved drinking-water source for the most recent year for which data is available from WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation shall be used</p>	<p>a) ERM CVS confirms that the changes are in line with the methodological requirements for Case 1 and Case 2 parameter determination.</p> <p>b) The PP has removed <math>f_{NRB,y}</math> as an ex-ante parameter for CPA type 1, and has set it as a</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>determined as Case 1 or Case 2. The current description is unclear.</p> <p>(b) Source of data for <math>f_{NRB,y}</math> parameter is stated as one of two options:</p> <ul style="list-style-type: none"> <li>• EB 67 Annex 22 Default Values for Fraction of Non-Renewable Biomass for Least Developed Countries and Small Island Developing States; or</li> <li>• Surveys: following approaches explained in AMS.I.E</li> </ul> <p>PP is requested to clarify which option applies to the PoA.</p> <p>(c) Please clarify the following points - for parameter <math>f_{NRB,y}</math>:</p> <ul style="list-style-type: none"> <li>• It is not clear if the parameter <math>f_{NRB,y}</math> is to be set at PoA level or the CPA level.</li> <li>• From the discussions on site in Rwanda, it is not clear what source will be used to determine the value for <math>f_{NRB,y}</math> parameter in the country.</li> </ul> <p>(d) Parameter 'L' uses default value of 0.95 as per the methodological requirements of AMS-I.E. (version 5). However, although the value has been chosen from the relevant</p>		<p>(&lt;<a href="http://www.wssinfo.org/data-estimates/table/">http://www.wssinfo.org/data-estimates/table/</a>&gt;) for this purpose. Definition of improved and unimproved drinking water source shall be as per the information provided by JMP;</p> <p>(ii) Using official data such as publicly available statistical data from a government agency or an independently commissioned study by an international organization or an university;</p> <p>(iii) Using survey methods (use 90/10 confidence/precision for sampling);</p> <p>(b) The PP has revised documentation to reflect for all CPA types that the parameter will be monitored ex-post to allow for use of surveys, national, or regional data to determine the proportion of NRB and fossil fuel used to determine the <math>f_{NRB,y}</math> parameter. PP clarified in 'Additional comments' section for <math>f_{NRB}</math> and <math>\eta_{wb}</math> parameters that national data is appropriate to determine national values of proportions of fuel use if the CPA covers the entire boundary of the host country. If not, regional government data may be used. The default values applied for <math>f_{NRB}</math> are fixed but the percent of the population they are applied to are dependent on monitoring, therefore the parameter is not determined ex-ante</p> <p>(c) The PP has revised this parameter to be assessed for all CPA types by sampling baseline fuel usage among target populations in Rwanda and Uganda and applying weighted average for <math>f_{NRB}</math>. Therefore <math>f_{NRB}</math> will be determined using the national default values for Rwanda and Uganda, combined with survey, national or regional data as noted above in point (b).</p> <p>(d) The PP has corrected the parameter box to refer to the correct methodology, AMS-I.E</p> <p>(e) The PP has updated the Parameter box to clarify that a weighted average will be used if more than one system is encountered. The PP has revised the value applied to be</p>	<p>monitored parameter for all CPA types, and has included procedures to use sampled surveys (used for determining <math>\eta_{wb}</math> parameter) or national data in combination with default data from EB 67 Annex 22 for determining <math>f_{NRB,y}</math>. The source of data tab has been updated correspondingly. Furthermore, The source of data tabs for CPA types 2, 3, 4 and 5 now also reflect that the parameters are ascertained by default values as well as surveys/national data. The additional comments section now details that national data will be used if the CPA covers the entire boundary – but in case the CPA covers specific portions of the country, regional government data may be used by the PP to ensure more conservative and accurate representation of the target population. These changes are considered appropriate.</p> <p>c) The PP has clarified that <math>f_{NRB,y}</math> will be monitored for all CPA types, and individual CPAs will be able to select between national data, regional data or surveys to estimate the percentage of people using non-renewable biomass (monitored via. parameter <math>\eta_{wb}</math>) and using that data in combination with default values for fraction of non-renewable biomass from EB 67 Annex 22. If a mixture of biomass and fossil fuel is used, then a weighted average is proposed by the PP, which is considered appropriate and relevant for the project.</p> <p>d) ERM CVS has checked that the revised document (section B.6.2 of generic CPA-DDs) now references the correct methodology AMS-I.E. (Version 5) for the default value of 0.95</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>methodology correctly, the parameter table in section B.6.2 of the generic CPA-DD references the methodology 'AMS-III. A.V. (version 4)' incorrectly.</p> <p>(e) For parameter <math>\eta_{wb}</math> (efficiency of water boiling system being replaced), the option of a weighted average is not discussed.</p> <p>PP is requested to clarify.</p>		<p>"See specific CPA". The PP has also moved the parameter box in CPA 1 to a monitored parameter to be in line with all other CPA types.</p>	<p>chosen for Parameter 'L'.</p> <p>e) The updated parameter box now includes the option of a weighted average should more than one system be used by any user. CPA type 1 has also been moved to the monitoring section – this parameter will now be monitored for all CPA types.</p> <p>ERM CVS confirmed that surveys/national govt. data/regional govt. data will be used to establish the types of baseline water boiling systems by different users. This data, in combination with default efficiency values from AMS-III.A.V to get to the efficiency of water boiling systems being replaced.</p> <p>CL 05 is therefore closed.</p>
<p><b>CL 06:</b> The following are issues identified with monitored parameters:</p> <p>(a) Parameter QPW<sub>y</sub> has been described as 'Total volume of drinking water produced by technologies under the CPA' in section B.7.1 of the GSP-PoA-DD. This description does not align with the description of the parameter in the methodology.</p> <p>(b) It is noted that the monitoring of N<sub>y,i</sub> parameter is not clear, e.g. it is not clear how sales receipts will show how many people are using water from each unit. The</p>	10.1	<p>a) The PP has revised the description of QPW, to be "Quantity of purified water in year y (litres)"</p> <p>b) N<sub>y,i</sub> will be monitored based on the number of people using the technology. For communities and institutions the PP will monitor the number of people access the technology at the time of sale, thus the parameter will be monitored continuously. For households, the number of people per household will be monitored via surveys. Please refer to CAR 06.</p> <p>c) QA/QC protocols have been revised to define the cap for the amount of treated water that can be credited. For CPA types 1, 2 and 3, parameter R<sub>y,I</sub> will be set ex-ante, using a conservative value of 3.5</p>	<p>(a) ERM CVS confirms that the parameter description now aligns with the description in the methodology 'Quantity of purified water in year y (litres)'.</p> <p>(b) Parameter N<sub>y,i</sub> will now be monitored for all CPA types. For CPA types 1, 4 and 5 the number of people using the unit will be monitored at least biennially via surveys. For CPA types 2 and 3 the number of people using the unit will be recorded in the sales receipt at the time of sale (each time a sale is made, hence: continuously, since sales are made on an ongoing (continuous) basis). .</p> <p>(c) QA/QC protocols have been revised to define the cap on the amount of treated water that can be credited. For CPA types 1, 2 and 3, parameter R<sub>y,I</sub> will be set ex-ante, using a conservative value of 3.5 L/person/day (2</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>monitoring plan also mentions different methods of measurement, such as ex-ante and ex-post surveys, literature etc., but the description and frequency for each is not presented clearly.</p> <p>(c) Please clarify the cap on the amount of treated water that can be credited.</p> <p>(d) PP is requested to clarify issues related to Parameter <math>T_{y,i}</math>:</p> <ul style="list-style-type: none"> <li>• The parameter table for parameter <math>T_{y,i}</math> does not list measurement methods and procedures.</li> <li>• The monitoring frequency for <math>T_{y,i}</math> parameter is specified as annual or at least biennial in the GSP-PoA-DD. PP needs to clarify how annual or biennial monitoring can be considered suitable given that sales are likely to be monitored continuously as they are made (and then <i>recorded</i> periodically e.g. annually).</li> <li>• The QA/QC procedures for the parameter <math>T_{y,i}</math> do not cover procedures in case of replacement of units (for e.g. due to damage or end of lifetime of</li> </ul>		<p>L/person/day (2 L/person/day for day schools. For CPA types 4 and 5, parameter <math>R_{y,i}</math> will be monitored, and as per the methodology, the cap of 5.5 L/person/day shall not be exceeded.</p> <p>(1)</p> <p>d) The PP has updated the Parameter box for <math>T_{y,i}</math> to explain the measurement methods, monitoring frequency and QA/QC protocols. <math>T_{y,i}</math> will be derived from the sales database which is composed of data collected in the sales receipt. Thus <math>T_{y,i}</math> is monitored continuously. It is explained that the QA/QC procedure to account for replacement technologies is to monitor the Operational Units, and thus capture units that have been replaced.</p> <p>Operational Units has been added to the equation for QPW<sub>y</sub> and will be used to adjust ERs accordingly. The inclusion of <i>Operational Units</i> and <i>Water Quality</i> parameters into the ER equation is reflected in version 3 of the emissions reductions calculation spreadsheet.</p> <p>e) The PP has removed the term Weighted from the description of <math>R_y</math>.</p> <p>f) The PP has clarified the description of the parameter to state, "Monitoring to check the percentage of the year which appliances are in use". If the appliance is not in use than a value of 0 will be assigned. The PP has clarified that the parameter is used to determine the percentage of days of the year that the technology is in use by the end user. PP removed reference to technical specifications for monitoring this parameter. The critical information is if the technology was functional, meaning it was providing clean water. This</p>	<p>L/person/day for day schools. For CPA types 4 and 5, parameter <math>R_{y,i}</math> will be monitored, and as per the methodology, the cap of 5.5 L/person/day shall not be exceeded. This has been clearly presented in the parameter tables for <math>R_{y,i}</math>.</p> <p>(d) The PP has clarified the monitoring methodology for Parameter <math>T_{y,i}</math> (total number of distributed water purification systems). The total number of appliances distributed are recorded in the Project Database (entries are logged using Sales Receipts by the Sales Representative and the CPA Project Database is then maintained by the CME, Impact Carbon). The type of appliance and date of sale is recorded via sales Receipts as well. PP has also included that should any appliance not be recorded in the Project Database, it will not be credited for emission reductions, which seems appropriate and conservative to ERM CVS.</p> <p>The PP has also revised the monitoring frequency for parameter <math>T_{y,i}</math> to continuous, which is more appropriate and is reflective of the actual situation on ground (as sales are made continuously and recorded periodically).</p> <p>The updated parameter tables for <math>T_{y,i}</math> now clarify (in the QA/QC section) that replacements will be addressed by 'Operational units,i' parameter. The 'Operational units,i' parameter and the monitoring of replacements within the surveys for this parameter have been validated in detail. Please refer to CAR 07 and CAR 08 for further details.</p> <p>(e) ERM CVS has checked that the parameter description now aligns with the description of monitoring requirements 'Average volume of drinking water per person per day'.</p>



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>units).</p> <p>(e) Parameter description table in section B.7.1 for <math>R_y</math> states 'Weighted average volume of drinking water per person per day', which is not in line with the description of monitoring requirements in the methodology.</p> <p>(f) Parameter 'Operational Units' is defined as 'Monitoring to check the percentage of the year which appliances are still operating' – PP is requested to clarify since the wording of this description is not clear.</p> <p>(g) The 'Purpose of data' column of the parameter table for 'Operational Units' mentions that the parameter is used for eligibility criteria evaluation, but does not mention that it is also used for emission reduction calculations.</p> <p>(h) No QA/QC procedures are described for parameter 'operational units'.</p> <p>(i) It is noted that the monitoring plan with reference to <math>EC_{PJ,j,y}</math> parameter is not consistent with what was discussed on site. Specifically, the source of data and measurement methods sections need to be</p>		<p>aspect of a technology's functionality is captured by 'Water Quality' parameter, which determines if the technology is meeting required water quality standards.</p> <p>g) The PP has replaced "Eligibility Criteria with "Emissions reductions calculations". The PP has added Operational Units to the QWP equation which will adjust ER values for usage and replacement technologies.</p> <p>h) The PP has included, "In the case that the unique serial number is no longer visible enumerators will inquire as to the date of purchase of the technology to ensure that the appliance is not a replacement. Enumerators will be trained as to proper procedures to assess the percentage of the year which the appliance is used", in the QA/QC procedures. Regarding replacements, the PP included the following in the parameter box:" If the specific technology selected for monitoring has been replaced it will be marked as out of use from the beginning of the monitoring period and deemed to be operational for 0% of the monitoring period."</p> <p>i) The PP has clarified that <math>EC_{PJ,j,y}</math> can be monitored directly or alternatively can be derived from manufacturer's specifications. If manufacturer's specifications are used the electricity consumption can be derived by monitoring the number of hours the technology is used or conservatively assuming the technology is running at its maximum capacity all the time.</p>	<p>(f) The wording of the parameter description has been made clearer. Operational Units parameter monitors the percentage of the monitoring period during which the appliances/units are in use via sampled surveys.</p> <p>The PP has removed the reference to technical specifications for monitoring QPW<sub>y</sub> parameter. This change is considered appropriate as this aspect is already being monitored by the 'water quality' parameter.</p> <p>(g).This point has been appropriately addressed by the PP (and has been validated under CAR 07). No further action is required by the PP on this point.</p> <p>(h) As mentioned above in CAR 07, the PP has updated QA/QC procedures for the 'Operational Units,i' parameter. For instances/cases where the unique serial numbers are not visible for the water purification technologies, the PP has proposed that the enumerators will enquire the date of the purchase of the technology to ensure the appliance is not a replacement. The PP has further clarified the treatment of replacements (all CPA types) and treatment of technologies using alternate source of energy (CPA type 2) under QA/QC for this parameter.</p> <p>(i) The monitoring of parameter <math>EC_{PJ,j,y}</math> has been clarified by the PP. The PP proposes three approaches for calculating the electricity consumption</p> <ul style="list-style-type: none"> <li>• Directly monitoring the electricity consumption</li> <li>• Using manufacturers' specifications to calculate electricity consumed (assuming that the technology is operating 24 hours a day all year)</li> <li>• Applying manufacturers' specification to user</li> </ul>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>clarified.</p> <p>(j) No QA/QC procedures are described for water quality testing.</p> <p>(k) It is not clear what will happen if a proportion of appliances do not meet the water quality testing standards.</p> <p>(l) No QA/QC procedures are described for parameter <math>EC_{PJ,j,y}</math></p> <p>PP is requested to clarify.</p>		<p>j) The PP has added QAQC procedures indicating that indicators may be monitored as proxies for water quality.</p> <p>k) Emission reductions will be discounted by the percent of appliances that do not meet water quality standards. The PP has noted that the purpose of this parameter is emission reduction calculations. The PP has revised the parameter table and QWP equation so that it is clear how the water quality parameter is used to calculate ERs</p> <p>l) The PP has added QAQC procedures for <math>EC_{PJ,j,y}</math>. The PP has updated the parameter box to include the option to meet 95/10 confidence and precision if monitored biennially.</p>	<p>reported operation hours (obtained via. surveys) These options are considered appropriate and are in line with the tool.</p> <p>(j) The PP has added information regarding indicators such as E.coli, faecal coliform counts and chlorine levels being used for assessing water quality. This is backed by the WHO Guidelines 'Drinking water Quality' fourth edition (page 41), which states that it is more feasible and cost effective to monitor for indicator organisms such as E.coli.</p> <p>(k) The PP has provided the explanation here and included ER calculations as one of the purposes of the parameter</p> <p>This point has been appropriately addressed by the PP (and has been validated under CAR 07). The PP has included the parameter 'water quality' in estimating <math>QPW_y</math>. This is considered appropriate as the ER calculations will now take into account the deductions due to the fact that devices failing the water quality tests should not be included in estimating the baseline emissions.</p> <p>(l) The PP has revised the monitoring plan to include 95/10 confidence and precision for surveys in cases where a parameter has the option for biennial monitoring. This is considered appropriate.</p> <p>CL 06 is therefore closed.</p>
<b>CL 07:</b>	6.1.7		
The GSP-PoA-DD states that the EIA will		An environmental impact analysis (EIA) has been carried out for	The PP has confirmed that the EIA is conducted at the



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
be conducted at the CPA level. However, from discussions on site, it is not clear if the PP will chose to conduct the EIA at the PoA level or the CPA level. PP is requested to clarify and also provide justification of the choice in accordance with the Guidelines for 'completing the programme design document form for small-scale CDM programme of activities'.		<p>the CPA, or evidence is provided that the programme activities are exempt from an EIA.</p> <p>PP has submitted the waste management plan to the DOE.</p> <p>PP confirmed addressed the requirements from Uganda's NEMA as follows:                      "The CME conducts in-person training and provides user manuals with each technology disbursed. Further, the CME has signed a statement declaring their intent to mitigate any unforeseen undesirable environmental impacts caused by the project and comply with any other requirement as may be prescribed by other relevant lead agencies."</p> <p>PP has submitted the documentation to the DOE regarding awareness raising around the proper use of technologies, including:</p> <ul style="list-style-type: none"> <li>- Presentation on Water, Sanitation and Health for Schools</li> <li>- Institutional Water Partner guidance for schools using the technology</li> <li>- Poster for Ultraguard Water Purification Systems explaining technologies</li> <li>- Water Filter Instructions for households</li> </ul> <p>PP has submitted the signed statement to the DOE, confirming that Impact Carbon will further comply with any other requirement as may be prescribed by other relevant lead agencies.</p>	<p>CPA level, with an analysis of the environmental impacts provided at the country level for Rwanda and Uganda in the PoA-DD.</p> <p>The PP has provided the waste management plan to the DOE. The waste management plan covers the disposal or recycling of 4 main materials used in the water purification systems used by Impact Carbon: Metal components, Ceramic components, Plastic components and other materials. The PP also justify that all materials used in the project technologies are non-toxic, and that they shall dispose the materials in the most sustainable manner wherever possible.</p> <p>Furthermore, the Uganda's National Environment Management Authority (NEMA) highlights a number of requirements that PP is required to implement:</p> <ul style="list-style-type: none"> <li>• In liaison with the local authorities, ensure that awareness is raised among the communities on the proper use of the technologies suggested in the districts you (Impact Carbon) will be operating in.</li> <li>• Fulfil any other requirement as may be prescribed by other relevant lead agencies.</li> <li>• In accordance with section 22 (4) of the National Environment Act, cap 153 ensure that any undesirable environment impacts that may arise due to implementing this project but were not contemplated by the time this approval was granted are efficiently and effectively mitigated.</li> </ul> <p>The PP needs to demonstrate how they comply with</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>these requirements.</p> <p>ERM CVS has reviewed the signed statement by the PP which states that Impact Carbon will ensure that any undesirable environmental impacts that may arise due to implementation of the project (which were not contemplated at the time the project approval was granted), will be efficiently and effectively mitigated by the Impact Carbon team and partners. The statement also states that the PP will further comply with any other requirements prescribed by other relevant lead agencies. This statement, signed by John Gwillam (Country Director Uganda, Impact Carbon), and whom the validation team met/interviewed during the site visit, is in line with NEMA's requirements for the project.</p> <p>To address that Impact Carbon is active in raising awareness among the communities on the proper use of the technologies in the districts they will be operating in, they have provided presentation and guidance (on water, sanitation and health) keeping in mind schools as the target populations (an example: a presentation dated 08 November 2012 presented by Alex Mbaguta from Impact Carbon for the Mgobo College School, Kampala). Water filter instructions have also been provided for Tulip filters (Better life) – which will be distributed to households when the devices are sold. In addition, the DOE also noted (during the site visits), that individual water filters are also fitted with instructions for proper use and handling of the technologies. Furthermore, a technology describing document (including poster pictures) for Nandadeep UV technology have also been provided to the DOE, which the PP aims to use on the ground.</p> <p>These documents, as well as site visit interviews (including interviews related to the stakeholder consultation) demonstrate that the PP is keen to ensure</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			that awareness is raised among the communities on the proper use of the technologies that they will be implementing.  CL 07 is therefore closed.
<p><b>CL 08:</b></p> <p>The following are issues identified with whether the PoA-DD and Generic CPA-DD have been prepared in accordance with the latest forms and guidance:</p> <p>(a) The required and applicable tools for the methodology AMS-III.A.V. (version 4) are not referenced in the PoA-DD and in section B.1 of the generic CPA-DD as per the 'Guidelines for completing the programme design document form for small-scale CDM programmes of activities'.</p> <p>(b) Section B.3 of the PoA-DD does not include a description of the sampling plan and how it meets provisions in the 'Standard for sampling and surveys for CDM project activities and programme of activities'. This is not in accordance with the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'.</p>	<p>5.3.1</p> <p>7.1.1</p> <p>7.5.2</p> <p>10.1</p>	<p>a) The PP has updated Section B.1 of the Generic CPA to clarify that the CPA uses the "Tool to calculate baseline, project, and/or leakage CO<sub>2</sub> emissions from electricity consumption" version 1, as well as guidance from AMS-I.E version 5. The PP has added reference to the "Tool to calculate baseline, project, and/or leakage CO<sub>2</sub> emissions from electricity consumption" version 1, as well as guidance from AMS-I.E version 5, in CPAs 3,5 and removed reference to the former tool in CPAs 1,2,4.</p> <p>b) The PP has reference Section B.7.2 in the Generic CPAs to demonstrate the monitoring plan. The PP has addressed this in CAR 10.</p> <p>c) The PP has updated the PDD to include a flow diagram that demonstrates all the equipment, systems and flows of mass and energy. The PP had added flow diagrams to the Generic CPAs</p> <p>d) The PP has updated Section C of the PoA to include a detailed description of the management system.</p> <p>e) Section B.6.1 has been revised to elaborate the methodological choices in more detail. For the equations themselves, the PP references section B.6.3 of the PoA-DD, which shows the required parameters and tools, as well as the Emission Reduction Equations, rather than repeating the equations in both sections.</p> <p>f) The PP has revised the PDD and included the "Purpose of data" for the ECP<sub>J,j,y</sub> parameter</p>	<p>a) The PP has revised the wording. ERM CVS confirms that CPA types 3 and 5 now correctly reference the tools related to the calculation of project emissions.</p> <p>b) The PP has revised section B.1 of the PoA-DD and referred to Part II, section B.7.2 where the sampling plan has been described in detail. Please refer to CAR 10, where the sampling plan has been validated in detail.</p> <p>c) ERM CVS has checked that the PP has updated section B.3 of the PoA-DD with a flow diagram.</p> <p>The PP has revised this to align with the Guidelines for completing the programme design document form for small-scale CDM programme of activities.</p> <p>The Generic CPA-DDs now also present a flow diagram to include the equipment, flow of mass/energy, emission sources and the GHGs associated with the project.</p> <p>d) The management system (Section C of the PoA-DD) has been revised appropriately by the PP. Please refer to CL 11.</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>(c) Section B.3 of the Generic CPA-DD does not 'present a flow diagram physically delineating each generic CPAs, based on the descriptions provided in section A.6 "Technologies/measures" of Part I' of the PoA-DD'. This section needs to 'include in the flow diagram all the equipment, systems and flows of mass and energy described in that section. In particular, indicate in the diagram the emissions sources and GHGs included in the project boundary and the data and parameters to be monitored' – as per the Guidelines for completing the programme design document form for small-scale CDM programme of activities.</p> <p>(d) Section C of the PoA-DD does not include a description of the management system in accordance with applicable provisions in the PoA standard. This is not in accordance with the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'.</p> <p>(e) Section B.6.1 of the Generic CPA-DD does not present parameters required by the methodology/tools. Furthermore, the section does not state which equations will be used</p>			<p>e) Section B.6.1 has been revised to provide more detail on the methodological choices adopted by the CME (please see section 7.5 of this report for further details of how these were validated), and have cross-referenced section B.6.3 of the CPA-DD for the equations, rather than repeating the equations in both sections. This approach is considered reasonable to avoid repetition of information.</p> <p>f) The PP has appropriately revised this in the updated PoA-DD to include that this parameter's purpose is 'Calculation of project emissions'. This change has been made for CPA types 3 and 5 where the parameter is applicable.</p> <p>CL 08 is closed.</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>in calculating emission reductions, which is not in line with the 'Guidelines for completing the programme design document form for small-scale CDM programme of activities'.</p> <p>(f) The parameter table for <math>EC_{PJ,j,y}</math> parameter does not align with the latest template for the simplified PoA Design Document (version 02.0). The column 'Purpose of data' is missing.</p> <p>PP is requested to clarify.</p>			
<p><b>CL 09:</b></p> <p>The emission reduction calculation spreadsheets do not have a date and version number. Please clarify.</p>	7.5.2	<p>The PP will submit the ER calculation spreadsheets with each CPA, and include the correct date and version number. PP submitted generic calculation sheet. PP included version # 3 and date of submission in Emissions Reductions calculation spreadsheet.</p>	<p>PP has submitted a draft emission calculation spreadsheet (including a tab for each CPA type) to demonstrate what a CER spreadsheet at the specific CPA level is likely to look like. This document is referenced by a date (17/03/2014) and version number (#3).</p> <p>CL 09 is therefore closed.</p>
<p><b>CL 10:</b> The monitoring plan is not complete:</p> <p>(a) The monitoring management section references the CME Manual and no description is provided in the PoA-DD or in the Generic CPA-DD. Furthermore, the operation and management structure, including responsibilities of designated individuals is not</p>	10.2.1	<p>a) The PP has provided a description of the management and operational plan for monitoring. This includes the management structure and the responsibilities associated with monitoring</p> <p>b) The Analysis section of the monitoring plan states that outliers will be removed as per best practices and guidance from EB 75 Annex 8.</p> <p>c) The PP has included that, "Enumerators will also be trained as to best practices of survey implementation</p>	<p>a) The updated generic CPA-DDs provide a description of the monitoring management, including the operation and management structure. A table showing roles and responsibilities for monitoring is provided. The monitoring plan of a generic CPA describes the record keeping provisions and database, procedures for quality assurance and quality control such as training, and states that a quality assurance and quality control strategy will be established.</p> <p>b) The QA/QC section of the monitoring plan has been</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>provided.</p> <p>(b) The QA/QC section in the Monitoring Plan does not address any procedures for the checking, analysis or removal of outliers.</p> <p>(c) QA/QC: Procedures for training of surveyors needs to be clarified.</p> <p>(d) The Monitoring Plan does not address if the PoA will undertake any measures to inform the target groups (earlier than the actual monitoring), that the users may be contacted for a survey.</p> <p>PP is requested to clarify.</p>		<p>to ensure that all bias is removed.”</p> <p>d) The PP has included that the project will inform end-users of monitoring through clauses in the sales receipts and by encouraging sales representatives to explain that monitoring and by purchasing the product the end-user agrees to participate in project monitoring.</p>	<p>revised to discuss procedures for minimising errors, and states that outliers will be removed as best practices and per the guidance in EB 75 Annex 8 (Guideline: Sampling and surveys for CDM project activities and PoAs, version 03.0). The appropriate EB guidelines are therefore referenced, and this is considered sufficient.</p> <p>c) Details of the training that will be given to both sales staff (who record monitoring of sales i.e. parameter Ty) and staff conducting field measurements, i.e. surveyors/enumerators, have been provided in the updated generic CPA-DDs.</p> <p>Sales staff will receive training on the management system for monitoring including the data to be recorded, how to complete the Sales Receipt record, how to identify the serial number on a water purification unit, how to fill out and where to submit copies of the sales contract, installation records and invoice and any associated documentation, the procedure for dealing with a change in serial number, address or capacity of a water purification unit, and general monitoring procedures.</p> <p>All personnel conducting field measurements will receive training on the background to the project and how the purification units work. They will also be trained on the procedures to be used for data collection, and survey best practice to ensure bias is removed. The monitoring plan also requires that the team who will carry out the sampling survey will be appropriately selected to have previous field experience in performing similar surveys.</p> <p>The training provisions are considered sufficient to ensure that emission reductions can be monitored and verified.</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>d) The revised monitoring plan states that users will be notified that they may be selected for monitoring, and also to improve response rates users that are selected for surveys will be contacted in advance to arrange the visits.</p> <p>CL 10 is closed.</p>
<p><b>CL 11:</b></p> <p>(a) The PoA-DD does not provide a summary of the operation and management plan for the CME.</p> <p>(b) The competency requirements of the Program Manager are not specifically stated in the CME manual.</p>	9.1	<p>a) The PP has updated the PoA-DD to include a summary of operations and management plan, as outlined in the CME manual.</p> <p>b) The competency requirements for the Program Manager have been include in the operation and management plan in the PDD.</p>	<p>a) Section C of the PoA-DD (management system) has been revised to provide more details of the operation and management plan of the CME. The plan now includes:</p> <p>(a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies: a table of roles and responsibilities for monitoring is included. Furthermore a table showing the relevant competency requirements for personnel involved in the process of CPA inclusions is also provided.</p> <p>(b) Records of arrangements for training and capacity development for personnel: the PoA-DD states that the CME is responsible for ensuring PoA personnel have the knowledge and skills needed, which will be accomplished through reviews, evaluations and training. The PoA-DD states that it will be the responsibility of the CPA implementer to ensure that CPA staff have received the appropriate training. Training will include induction training for all new personnel, management system training, training on ensuring each CPA meets the eligibility criteria, and monitoring related training.</p> <p>(c) A procedure for technical review of</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>inclusion of CPAs: the PoA-DD states that the programme manager in the CME will conduct a technical review to check if the CPA-DD is drafted following the requirements of the Generic CPA and if the proposed CPA complies with the eligibility criteria.</p> <p>(d) A procedure to avoid double counting: the PoA-DD requires that each water purification system disseminated through this PoA shall have a unique serial number attached to ensure that double-counting does not occur. Serial numbers will be recorded in the project database and checked during monitoring. All users will also sign a Carbon Rights Waiver as part of the Sales Receipt acknowledging that they are not operating in any other carbon project and that emissions rights can be transferred to the CME.</p> <p>(e) Records and documentation control process for each CPA under the PoA: a procedure for data collection is provided. Sales receipts are the key document that will be used to track sales. Details are entered into the database and hard copies will also be kept. All information will be stored by the CME for at least two years after the end of the crediting period of the relevant project activity</p> <p>(f) Measures for continuous improvements of the PoA management system: the PoA-DD requires that the CME tracks performance of the PoA throughout its lifetime. Internal audits will be conducted biennially, resulting in system improvement requests.</p>



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			<p>The summary of the operation and management plan provided in the PoA-DD contains all relevant elements and is considered sufficient to ensure that the PoA can be managed, CPA inclusions can be properly reviewed, and data can be monitored and verified.</p> <p>b) The competency requirements of the programme manager have been stated in the PoA-DD section c 'management system'. The programme manager shall have knowledge and relationship with all CPAs and Implementing Partners, understanding of the PDD and all eligibility criteria, and understanding of the monitoring plan. These requirements are broad, but are considered appropriate to the scale of the PoA. The CME will have to demonstrate to the verifying DOE that the programme manager is competent to fill their role.</p> <p>CL 11 is closed</p>
<p><b>CL 12:</b></p> <p>PP is requested to clarify the approach for parameter <math>EF_{\text{projected\_fossil fuel}}</math>, as it is currently set ex-ante, and does not discuss the option of using a weighted average based on what proportion of users use biomass and what proportion use fossil fuel.</p>		<p>PP revised the documentation to include <math>EF_{\text{projected\_fossil fuel}}</math> as a monitored parameter in order to take into account the use of different fuel types by users. The parameter will be calculated using a combination of default values for emissions factors from AMS-I.E for <math>f_{\text{NRB}}</math> and IPCC (2006) for natural gas and kerosene combined with survey, national, or regional data to determine the type of baseline fuel used by the target population. If a mixture of woody biomass and fossil fuels is used in the absence of the project activity a weighted average value should be used for the parameter.</p>	<p>The PP has revised the parameter to be monitored ex-post, using surveys/national govt. data/regional govt. data as appropriate for all CPA types to estimate the percentage of different fuel types used by the target users. This data will be combined with default values for emission factors from the approved methodology AMS-I.E as allowed by AMS-III.A.V. for non-renewable biomass (81.6 tCO<sub>2</sub>/TJ) and default values from IPCC (2006) for natural gas (56.1 tCO<sub>2</sub>/TJ) and kerosene (71.9 tCO<sub>2</sub>/TJ) to estimate the overall emission factor for displaced/substituted fossil fuels.. These values have been verified from the respective sources mentioned above.</p> <p>ERM CVS confirms that this approach is more appropriate and conservative than setting this parameter</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			ex-ante.  CL 12 is therefore closed.

In addition some editorial and minor changes to the PoA-DD were made by the PP that had no relevance on compliance with CDM requirements.

Forward Action Requests	Ref. to Section Number	Summary of PP's response	Final conclusion
No FARs raised			