



**Monitoring report form for CDM programme of activities
(Version 03.0)**

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

MONITORING REPORT

Title of the PoA	Impact Carbon Global Safe Water Programme of Activities (PoA)	
UNFCCC reference number of the PoA	9948	
Version numbers of the PoA-DD applicable to this monitoring report	7.0	
Version number of this monitoring report	3.0	
Completion date of this monitoring report	08/08/2019	
Monitoring period number	Second monitoring period	
Duration of this monitoring period	23/05/2017 – 22/05/2019 (both days inclusive)	
Monitoring report number for this monitoring period	2.0	
Coordinating/managing entity	Impact Carbon	
Host Parties	Host Party of the PoA	Is this the host Party of a CPA covered in this monitoring report? (yes/no)
	Rwanda	No
	Uganda	Yes
	Nigeria	No
	Kenya	No
Applied methodologies and standardized baselines	Methodology: AMS-III.AV. ver.4 Low greenhouse gas emitting safe drinking water production systems Standardized Baseline: N/A	
Sectoral scopes	3: Energy Demand	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by all CPAs covered in this monitoring report in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	0 tCO ₂ e	92 tCO ₂ e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the CPA-DDs for the CPAs covered in this monitoring report	22,010 tCO ₂ e	

PART I Monitoring of programme of activities (PoA)

SECTION A. Description of PoA

A.1. General description of PoA

>>

The purpose of the PoA is dissemination of low-carbon water purification technologies to households, communities, and institutions in Rwanda, Nigeria, Kenya and Uganda. Households throughout Rwanda, Uganda, Nigeria and Kenya lack access to reliably safe drinking water.

In Rwanda, only 36.8% of the population have access to piped water, with only 9.5% population having access to piped water within their homes¹. Only 51.8% population uses an appropriate treatment method, with boiling being practiced by 47.0% population for water treatment². 83.3% population uses wood or charcoal for cooking and boiling water³.

In Nigeria, only 9.6% of the population have access to piped water, with only 2.8% population having access to piped water within their homes⁴. Only 4.9% population uses an appropriate treatment method with boiling being practiced by 2.6% population for water treatment⁵. 66.9% population uses wood or charcoal for cooking and boiling water⁶.

In Kenya, only 43.6% of the population have access to piped water, with only 27.8% population having access to piped water within their homes⁷. Only 44.5% population uses an appropriate treatment method with boiling being practiced by 23.7% population for water treatment⁸. 73.3% population uses wood or charcoal for cooking and boiling water⁹.

In Uganda, only 22.1% of the population have access to piped water, with only 8.1% population having access to piped water within their homes¹⁰. Only 44.1% population uses an appropriate treatment method with boiling being practiced by 38.3% population for water treatment¹¹. 94.8% population uses wood or charcoal for cooking and boiling water¹².

Thus, the PoA by dissemination of low carbon, low cost water purification technologies aim to address the issue of lack of access to safe drinking water in target countries. In the absence of the project activity, the baseline scenario would be the use of non-renewable woody biomass / fossil fuels for boiling water to make it fit for drinking. The water purification systems (WPS), by replacing the use non-renewable biomass/ fossil fuel for water boiling, reduce equivalent amount of greenhouse gases (GHG) emissions.

Impact Carbon is the Coordinating/Managing Entity (CME) of the PoA.

¹ Rwanda Demographic and Health survey Report, March 2016, table 2.5

² Rwanda Demographic and Health survey Report, March 2016, table 2.5

³ Rwanda Demographic and Health survey Report, March 2016, table 2.8

⁴ Nigeria Demographic and Health survey Report, June 2014, table 2.1

⁵ Nigeria Demographic and Health survey Report, June 2014, table 2.1

⁶ Nigeria Demographic and Health survey Report, June 2014, table 2.3

⁷ Kenya Demographic and Health survey Report, June 2014, table 2.1

⁸ Kenya Demographic and Health survey Report, June 2014, table 2.1

⁹ Kenya Demographic and Health survey Report, June 2014, table 2.3

¹⁰ Uganda Demographic and Health survey Report, January 2018, table 2.1

¹¹ Uganda Demographic and Health survey Report, January 2018, table 2.1

¹² Uganda Demographic and Health survey Report, January 2018, table 2.4

A.1.1. Corresponding generic component project activities (CPAs)

Title and reference number of the corresponding generic CPA	Version of the PoA-DD	Sectoral scopes	Applied methodologies and standardized baselines
CPA type 1: Small-scale technologies for household water consumption, with no project emissions	7.0	Sectoral scope 3: Energy demand	AMS-III.AV: "Low greenhouse gas emitting safe drinking water production systems" Version 4
CPA type 2: Technologies for Institutional water consumption, with no project emissions	7.0	Sectoral scope 3: Energy demand	AMS-III.AV: "Low greenhouse gas emitting safe drinking water production systems" Version 4
CPA type 3: Technologies for institutional water consumption, with project emissions	7.0	Sectoral scope 3: Energy demand	AMS-III.AV: "Low greenhouse gas emitting safe drinking water production systems" Version 4
CPA type 4: Technologies for community water consumption, with no project emissions	7.0	Sectoral scope 3: Energy demand	AMS-III.AV: "Low greenhouse gas emitting safe drinking water production systems" Version 4
CPA type 5: Technologies for community water consumption, with project emissions	7.0	Sectoral scope 3: Energy demand	AMS-III.AV: "Low greenhouse gas emitting safe drinking water production systems" Version 4

A.1.2. CPAs included in the PoA

Title and UNFCCC reference number of the CPA	Version of the PoA-DD	Title and reference number of the corresponding generic CPA	Crediting period type and duration	Covered in this monitoring report? (yes/no)
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 1, Version: 3.0, 9948-0001	3.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 30/05/2014 – 29/05/2021	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 2, Version: 3.0, 9948-0002	3.0	CPA type 3: Technologies for institutional water consumption, with project emissions	Renewable 30/05/2014 – 29/05/2021	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 3, Version: 1.3, 9948-0003	6.1	CPA type 3: Technologies for institutional water consumption, with project emissions	Renewable 23/05/2017 – 22/05/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 4, Version: 01.2, 9948-0004	7.0	CPA type 3: Technologies for institutional water consumption, with project emissions	Renewable 15/06/2017 – 14/06/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 5, Version: 5.0, 9948-0005	7.0	CPA type 2: Technologies for institutional water consumption, with no project	Renewable 04/10/2017 – 03/10/2024	No

		emissions		
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 6, Version: 5.0, 9948-0006	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 7, Version: 5.0, 9948-0007	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 8, Version: 5.0, 9948-0008	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 9, Version: 5.0, 9948-0009	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 10, Version: 5.0, 9948-0010	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 11, Version: 5.0, 9948-0011	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 12, Version: 5.0, 9948-0012	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 13, Version: 5.0, 9948-0013	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 04/10/2017 – 03/10/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 14, Version: 1.0, 9948-0014	7.0	CPA type 3: Technologies for institutional water consumption, with project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 15, Version: 1.0, 9948-0015	7.0	CPA type 3: Technologies for institutional water consumption, with project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 16, Version: 5.0, 9948-0016	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 17, Version: 5.0, 9948-0017	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 18, Version: 5.0, 9948-0018	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 15/12/2017 – 14/12/2024	No

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 19, Version: 5.0, 9948-0019	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 20, Version: 5.0, 9948-0020	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 21, Version: 5.0, 9948-0021	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 22, Version: 5.0, 9948-0022	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 15/12/2017 – 14/12/2024	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 23, Version: 4.0, 9948-0023	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 24, Version: 4.0, 9948-0024	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 25, Version: 4.0, 9948-0025	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 26, Version: 4.0, 9948-0026	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 27, Version: 4.0, 9948-0027	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 28, Version: 4.0, 9948-0028	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 29, Version: 4.0, 9948-0029	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 30, Version: 4.0, 9948-0030	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 31, Version: 4.0, 9948-0031	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water	7.0	CPA type 2: Technologies for	Renewable	No

Programme of Activities (PoA): CPA 32, Version: 4.0, 9948-0032		institutional water consumption, with no project emissions	18/11/2018 – 17/11/2025	
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 33, Version: 4.0, 9948-0033	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 34, Version: 4.0, 9948-0034	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 35, Version: 4.0, 9948-0035	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 36, Version: 4.0, 9948-0036	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 37, Version: 4.0, 9948-0037	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 18/11/2018 – 17/11/2025	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 38 supported by Republic of Korea, Version: 1.0, 9948-0038	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 39 supported by Republic of Korea, Version: 1.0, 9948-0039	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 40 supported by Republic of Korea, Version: 1.0, 9948-0040	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 41 supported by Republic of Korea, Version: 1.0, 9948-0041	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 42 supported by Republic of Korea, Version: 1.0, 9948-0042	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 43 supported by Republic of Korea, Version: 1.0, 9948-0043	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 44 supported by Republic of Korea, Version: 1.0, 9948-0044	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA	7.0	CPA type 2: Technologies for institutional water	Renewable 26/04/2019 –	No

45 supported by Republic of Korea, Version: 1.0, 9948-0045		consumption, with no project emissions	25/04/2026	
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 46 supported by Republic of Korea, Version: 1.0, 9948-0046	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 47 supported by Republic of Korea, Version: 1.0, 9948-0047	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 48 supported by Republic of Korea, Version: 1.0, 9948-0048	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 49 supported by Republic of Korea, Version: 1.0, 9948-0049	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 50 supported by Republic of Korea, Version: 1.0, 9948-0050	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 51 supported by Republic of Korea, Version: 1.0, 9948-0051	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 52 supported by Republic of Korea, Version: 1.0, 9948-0052	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 53 supported by Republic of Korea, Version: 1.0, 9948-0053	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 54 supported by Republic of Korea, Version: 1.0, 9948-0054	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 55 supported by Republic of Korea, Version: 1.0, 9948-0055	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 56 supported by Republic of Korea, Version: 1.0, 9948-0056	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 57 supported by Republic of Korea, Version: 1.0, 9948-0057	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 58 supported by Republic of Korea,	7.0	CPA type 2: Technologies for institutional water consumption, with no project	Renewable 26/04/2019 – 25/04/2026	No

Version: 1.0, 9948-0058		emissions		
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 59 supported by Republic of Korea, Version: 1.0, 9948-0059	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 60 supported by Republic of Korea, Version: 1.0, 9948-0060	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 61 supported by Republic of Korea, Version: 1.0, 9948-0061	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 62 supported by Republic of Korea, Version: 1.0, 9948-0062	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 63 supported by Republic of Korea, Version: 1.0, 9948-0063	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 64 supported by Republic of Korea, Version: 1.0, 9948-0064	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 65 supported by Republic of Korea, Version: 1.0, 9948-0065	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 66 supported by Republic of Korea, Version: 1.0, 9948-0066	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 67 supported by Republic of Korea, Version: 1.0, 9948-0067	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 68 supported by Republic of Korea, Version: 1.0, 9948-0068	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 69 supported by Republic of Korea, Version: 1.0, 9948-0069	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 70 supported by Republic of Korea, Version: 1.0, 9948-0070	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 71 supported by Republic of Korea, Version: 1.0, 9948-0071	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No

Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 72 supported by Republic of Korea, Version: 1.0, 9948-0072	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 73 supported by Republic of Korea, Version: 1.0, 9948-0073	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 74 supported by Republic of Korea, Version: 1.0, 9948-0074	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 75 supported by Republic of Korea, Version: 1.0, 9948-0075	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 76 supported by Republic of Korea, Version: 1.0, 9948-0076	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 77 supported by Republic of Korea, Version: 1.0, 9948-0077	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 78 supported by Republic of Korea, Version: 1.0, 9948-0078	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 79 supported by Republic of Korea, Version: 1.0, 9948-0079	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 80 supported by Republic of Korea, Version: 1.0, 9948-0080	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 81 supported by Republic of Korea, Version: 1.0, 9948-0081	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 82 supported by Republic of Korea, Version: 1.0, 9948-0082	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 83 supported by Republic of Korea, Version: 1.0, 9948-0083	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 84 supported by Republic of Korea, Version: 1.0, 9948-0084	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water	7.0	CPA type 2: Technologies for	Renewable	No

Programme of Activities (PoA): CPA 85 supported by Republic of Korea, Version: 1.0, 9948-0085		institutional water consumption, with no project emissions	26/04/2019 – 25/04/2026	
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 86 supported by Republic of Korea, Version: 1.0, 9948-0086	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 87 supported by Republic of Korea, Version: 1.0, 9948-0087	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 88 supported by Republic of Korea, Version: 1.0, 9948-0088	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 89 supported by Republic of Korea, Version: 1.0, 9948-0089	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 90 supported by Republic of Korea, Version: 1.0, 9948-0090	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 91 supported by Republic of Korea, Version: 1.0, 9948-0091	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 92 supported by Republic of Korea, Version: 1.0, 9948-0092	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 93 supported by Republic of Korea, Version: 1.0, 9948-0093	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 94 supported by Republic of Korea, Version: 1.0, 9948-0094	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 95 supported by Republic of Korea, Version: 1.0, 9948-0095	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 96 supported by Republic of Korea, Version: 1.0, 9948-0096	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 97 supported by Republic of Korea, Version: 1.0, 9948-0097	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA	7.0	CPA type 2: Technologies for institutional water	Renewable 26/04/2019 –	No

98 supported by Republic of Korea, Version: 1.0, 9948-0098		consumption, with no project emissions	25/04/2026	
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 99 supported by Republic of Korea, Version: 1.0, 9948-0099	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 100 supported By Republic of Korea, Version: 1.0, 9948-0100	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 101 supported By Republic of Korea, Version: 1.0, 9948-0101	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA 102 supported By Republic of Korea, Version: 1.0, 9948-0102	7.0	CPA type 2: Technologies for institutional water consumption, with no project emissions	Renewable 26/04/2019 – 25/04/2026	No

A.2. Coordinating/managing entity

>>

Impact Carbon

SECTION B. Implementation of PoA

B.1. Description of implemented PoA

>>

1. Operational and Management Framework

Impact Carbon is the Coordinating and Managing Entity (CME) for the PoA. The Implementation of the PoA followed the following management system:

1. The CME / CPA implementer (CPAI) provided guidance / training / instructions to local sales and distribution partner (SDP) to collect requisite sales / installation data. The SDP sales staff compiled the list of units installed / distributed along with other required information and transferred the same to the electronic database management system at regular intervals managed by CME / CPAI.
2. The SDP operated and managed the electronic database with information on units installed / distributed under the CPAs, as received from the sales staff. The electronic database contains the following information for each installation / distribution¹³:
 - CPA Identifier
 - Location (Name and address of user, contract details, if available)
 - Unique serial number of the unit installed
 - Date of installation / distribution
 - Type of user (Household, Community, Institution etc.)
 - Technology types (UV, Chlorination etc.)
3. The CME / CPAI ensured that end users (schools) are aware of, and have agreed, that their unit (Ultra Flo / Ultra tab) is being subscribed to the PoA through informational material, trainings, social media and in contractual agreements.

¹³ The five CPAs covered in this monitoring report are Generic CPA Type 2 CPAs implemented in Schools in Uganda, thus the type of user is institution (Schools) and technology type is Chlorination (Ultra Flo / Ultra Tab).

4. The CME / CPAI ensured that there is no double counting of any unit in the electronic database by means of unique serial number (product ID) associated with each unit.
5. The CME / CPAI coordinated all ex-post monitoring activities in the PoA. The CME / CPAI:
 - Implemented the monitoring plan,
 - Determined the sample size as per sampling plan and identified the samples to be monitored (a single sampling plan has been applied to CPA 9948-0038 to 9948-0042 as detailed in section E.3 below), if applicable
 - Provided monitoring templates and training to the SDP for field monitoring
6. SDP recorded the following key parameters in a CPA Monitoring Record as per templates provided by CME /CPAI. Key monitored parameters were:
 - Operational Status of sampled WPS (in use / out of use)
 - Output Water Quality of sampled WPS units (Safe / unsafe)
 - Presence of safe public distribution network
7. The CME / CPAI, with support from external experts, checked and reviewed the monitoring data and calculated the emission reductions based on precision / reliability levels achieved for the monitored parameters.
8. The CME / CPAI, with support from external experts, calculated of emission reductions based on monitoring data collected and prepared the monitoring report.

2. Sampling Approach

Not applicable

Only 19 units (09 UltraFlo and 10 UltraTab) units are installed/distributed under in the sub-grouped CPAs (CPA 9948-0038 to CPA 9948-0042) covered in this monitoring report. Given, the number of installed units is small, the entire population was monitored and no sampling approach was applied.

B.2. Post-registration changes to PoA

B.2.1. Corrections

>>

N/A

B.2.2. Inclusion of monitoring plan

>>

N/A

B.2.3. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

>>

N/A

B.2.4. Changes to programme design

>>

Two changes to the programme design have been made to the registered PoA and approved prior to this monitoring period.

PRC request number	Approval Status	Date of Approval	Description
PRC-9948-002	Approved	03 Jul 17	Expansion of PoA Boundary to include Host Country Nigeria

PRC-9948-001	Approved	08 May 17	Expansion of PoA Boundary to include Host Country Kenya
--------------	----------	-----------	---

B.2.5. Changes specific to afforestation or reforestation activities

>>

N/A

PART II Monitoring of CPAs

>>

This Monitoring report covers five CPAs in Uganda (from CPA 9948-0038 to CPA 9948-0042), as listed in section A.1.2. These five CPAs are deemed homogeneous due to the following:

1. Have the same project boundary/country (i.e. Uganda)
2. Follow generic CPA type 2, as listed in section A.1.1 above
3. Implement the same technology / measure (i.e. Chlorination).

Thus, these CPAs have been sub-grouped for monitoring purposes. The following sections of the monitoring report present information pertaining to these five CPAs only.

SECTION C. Implementation of CPAs

C.1. Description of implemented CPAs

>>

a) Purpose of the specific-case CPA(s) and the measures taken for GHG emission reductions or net GHG removals by sinks –

Purpose: The CPAs involve installation / distribution of Chlorination technology based WPSs (UltraFLO / UltraTAB) for use by institutions (schools) in Uganda. The WPSs installed / distributed under the CPAs reduce dependency on the conventional water purification technique (i.e. boiling). Boiling water involves using non-renewable biomass (charcoal and fuelwood) based traditional cook stoves (unimproved) or fossil fuel (coal, kerosene) based stoves. Transition to the project WPSs reduces greenhouse gas emissions by avoidance of non-renewable / fossil fuel for boiling water in the baseline.

CERPD Co., Ltd. (CERPD) a company based in the Republic of Korea, is the CPAI for these CPAs. CERPD has provided all implementation costs for the CPAs. CERPD has fully sponsored the WPS to make WPS affordable to beneficiary schools, as well covered the cost of operation and management of the CPAs in a financially sustainable condition.

b) Description of the technology employed and installed equipment and/or infrastructure

The CPAs involve following two types of chlorination technology based WPS.

Description	UltraFlo	UltraTab
		
Size Dimensions	Cartridge Length: ~12 cm Cartridge height: ~10 cm Cartridge circumference: ~22 cm	Strip size: ~13 cm X ~5.5 cm (10 tablets per strip)
Application	Piped water	Un-piped water
Flow rate	20L/min	1 tablet treats 100 L
Capacity/lifespan	340,000 L / 5-year expiry	10,000 L / 5-year expiry

Fixed or Portable	Fixed	Portable
Removal of E. Coli	99 (2-log)	99 (2-log)
Watts/Voltage	Not applicable	Not applicable

The distribution of units under the CPAs is as follows:

S.No.	CPA Reference No.	Ultra Flo Systems	Ultra Tab Systems
1	9948-0038	2	2
2	9948-0039	2	2
3	9948-0040	2	2
4	9948-0041	2	2
5	9948-0042	1	2
Total		9	10

c) Relevant dates for the specific-case CPA(s) (e.g. construction, commissioning, continued operation periods, etc.);

S.No.	CPA Reference No.	Date of installation of first unit in the CPA	Crediting Period Start date
1	9948-0038	23-04-2019	26-04-2019
2	9948-0039	24-04-2019	26-04-2019
3	9948-0040	24-04-2019	26-04-2019
4	9948-0041	24-04-2019	26-04-2019
5	9948-0042	24-04-2019	26-04-2019

d) Total GHG emission reductions or net GHG removals by sinks achieved in this monitoring period for the specific-case CPA(s), including information on how double counting is avoided

Each of the installed systems have a unique ID to avoid double counting. This ID is also mentioned in the Salesforce (the data management system in the PoA) along with the name, address, location and contact details of the school / institution where the system is installed. This ensures that each WPS unit can be uniquely identified and double counting is avoided.

Serial No.	CPA Reference No.	Emission Reductions tCO ₂ e ¹⁴
1	9948-0038	28
2	9948-0039	12
3	9948-0040	20
4	9948-0041	27
5	9948-0042	5
Total		92

C.2. Location of CPAs

>>

The CPA covers the geographical boundary of Uganda. Uganda lies between 4°N and 2°S latitude and between 29° and 35°east longitude. The map of Uganda, for reference purpose, is as follows:

¹⁴ No CERs are being claimed for the period 23/05/2017 to 25/04/2019, as the crediting period of CPAs covered in the monitoring report starts from 26/04/2019. All information / monitoring data specified in the monitoring report pertains to the period 26/04/2019 – 22/05/2019. Accordingly, the confidence / precision of 95/10, as applicable, has been applied for sub-grouped CPAs in line with registered PoA-DD / CPA-DDs.



C.3. Post-registration changes to CPAs

C.3.1. Temporary deviations from the monitoring plans in the included CPA-DDs, applied methodologies, standardized baselines or other methodological regulatory documents

>>
N/A

C.3.2. Corrections

>>
N/A

C.3.3. Changes to the start date of the crediting period

>>
N/A

C.3.4. Inclusion of monitoring plan

>>
N/A

C.3.5. Permanent changes to the included monitoring plans, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

>>
N/A

C.3.6. Changes to project design

>>
N/A

C.3.7. Changes specific to afforestation or reforestation CPA

>>
N/A

SECTION D. Description of monitoring system of CPAs

>>

The monitoring system under the CPAs involve following elements to ensure that the CME has unbiased, accurate and reliable monitoring information for the purposes of ex-post ER calculations.

1.Total Sales Record: The total sales record documents information of the WPS (UltraFLO / UltraTAB) implemented in the beneficiary school. The total sales record is kept electronically with supporting evidence in form of paper records and/or SMS tracking records. The Total Sales Record contains information related to WPS system, including the following, but not limited to:

- a) Type of system (UltraFLO / UltraTAB)
- b) Unique serial number of the units installed / distributed
- c) Date of installation / distribution
- d) Address and details of school and contact detail (if available) of representative
- e) Type of School (Boarding / Non-boarding)
- f) School population count (number of students / staff in boarding / non-boarding category)

2.Other performance parameters: The other monitoring parameters are determined via ex-post monitoring surveys or using published literature/data/national reports etc. as detailed in section E.2 and E.3 below.

SECTION E. Data and parameters**E.1. Data and parameters fixed ex ante**

Data/Parameter	Case1 or Case 2
Data unit	-
Description	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).
Source of data	Registered CPA-DD, page 12
Value(s) applied	Case 1
Choice of data or measurement methods and procedures	Established ex-ante in the registered CPA-DDs
Purpose of data	Calculation of baseline emissions
Additional comment	

Data/Parameter	WH
Data unit	Kj/L.°C
Description	Specific Heat of Water
Source of data	AMS-III.AV Version 4
Value(s) applied	4.186
Choice of data or measurement methods and procedures	Default Value from methodology
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	T _f
Data unit	°C
Description	Final Temperature

Source of data	AMS-III.AV Version 4
Value(s) applied	100
Choice of data or measurement methods and procedures	Default Value from methodology
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	T_i
Data unit	°C
Description	Initial Temperature
Source of data	AMS-III.AV Version 4
Value(s) applied	20
Choice of data or measurement methods and procedures	Default Value from methodology
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	WHE
Data unit	Kj/L
Description	Latent Heat of Water Evaporation
Source of data	AMS-III.AV Version 4
Value(s) applied	2,260
Choice of data or measurement methods and procedures	Default Value from methodology
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	L
Data unit	-
Description	Leakage
Source of data	AMS-I.E. Version 5
Value(s) applied	0.95
Choice of data or measurement methods and procedures	Default Value from methodology
Purpose of data	Calculation of leakage emissions
Additional comment	-

Data/Parameter	$R_{y,i}$
Data unit	Liters / person / day
Description	Average volume of drinking water per person per day
Source of data	WHO Minimum water quantity needed for domestic use in emergencies.
Value(s) applied	3.5 (for boarding schools, prisons) and 2 (for day schools). Refer ER calculator for details
Choice of data or measurement methods and procedures	Fixed ex-ante in the registered PoA-DD / CPA-DDs
Purpose of data	Calculation of baseline emissions
Additional comment	$N_{y,i}$ multiplied by $R_{y,i}$ shall not exceed the maximum output of the technology

E.2. Data and parameters monitored

Data/Parameter	QPW _y
Data unit	Litres/yr
Description	Quantity of purified water in year y (litres)
Source of data	Calculated (Refer ER calculator)
Value(s) applied	492,073
Measurement methods and procedures	Calculated through Equation (1.a) For Case 1: $QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$
Monitoring frequency	Annual or at least biennial
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	Instead of 365 days 22 days has been applied in the formula above as the systems were deemed operational for 22 days in the monitoring period.

Data/Parameter	η_{wb}
Data unit	Fraction
Description	Efficiency of water boiling system being replaced
Source of data	MP#1 Monitoring Report, section E.2, page 16
Value(s) applied	0.1172
Measurement methods and procedures	-
Monitoring frequency	Continuously or at least biennial or using values established in last monitoring period.
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	<p>The monitoring parameter η_{wb} is calculated based on “AMS III.AV ver 4 default efficiency value for various stove types combined with survey, national, or regional data to determine the percentage of users using different type of cooking technology in line with registered PoA-DD, page 72 and 82. In MP#1, CME had used national data to determine the percentage of users using different cooking technology (refer MP1 MR, section E.2, page 17).</p> <p>Further, the registered CPA-DDs section B.5.1, data/parameter table (η_{wb}) mentions:</p> <p style="padding-left: 40px;">“the value established in the previous monitoring period can be used for the next monitoring period, in case more recent data is not available.”</p> <p>The data source used for determining η_{wb} in MP#1 is “CITIZEN'S SURVEY ON UGANDA VISION 2040” which remains the most recent national data on penetration of various cooking technology (unimproved / improved / fossil fuel stoves) in Uganda, hence MP1 value has been used in MP2.</p>

Data/Parameter	T _{y,i}
Data unit	Number
Description	Total distributed water purification systems
Source of data	Project Sales database
Value(s) applied	Total Water Purification Systems installed 9 UltraFLO 10 UltraTAB
Measurement methods and procedures	The total number of units by technology type and date deployed in each specific CPA is tracked in the in the Project Database.

Monitoring frequency	Continuous
QA/QC procedures	Project Sales Database is cross-checked with paper records to ensure transparent and robust data.
Purpose of data	Calculation of baseline emissions
Additional comment	In case of Ultra tabs, parameter $T_{y,i}$ is the number of institutions where UltraTABS are being supplied. Thus, each school receiving Ultra tab will be counted as one unit, for the purpose of determining $T_{y,i}$ Thus, number of institutions supplied with UltraTAB and total number of UltraTABS supplied to each of these institutions is monitored.

Data/Parameter	$N_{y,i}$
Data unit	Persons/equipment
Description	The average population serviced by water purification systems
Source of data	Project Sales database
Value(s) applied	561
Measurement methods and procedures	At the time of sale, the number of people using the unit is recorded in the sales receipt (PO / delivery note)
Monitoring frequency	Continuously
QA/QC procedures	$N_{y,i}$ multiplied by $R_{y,i}$ shall not exceed the maximum output of the unit [per unit].
Purpose of data	Calculation of baseline emissions
Additional comment	

Data/Parameter	Water Quality _i
Data unit	Proportion
Description	Water quality measurement
Source of data	Monitoring surveys
Value(s) applied	1.00
Measurement methods and procedures	Aquagenx testing kits were used to monitor E.Coli as the indicator organism to test the quality of water
Monitoring frequency	Annual or at least biennial
QA/QC procedures	Monitoring staff with prior experience of testing water quality was used
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	Operational Units _i
Data unit	Percentage
Description	Percent of the monitoring period in which the units are in use
Source of data	Monitoring surveys
Value(s) applied	100%
Measurement methods and procedures	Surveys were conducted for UltraFLO and UltraTAB to check their operational status
Monitoring frequency	At least once per verification or biennially
QA/QC procedures	Enumerators were trained to assess the use of system at the time of survey
Purpose of data	Calculation of baseline emissions
Additional comment	

Data/Parameter	$f_{NRB,y}$
Data unit	Fraction

Description	Fraction of woody biomass saved by the project activity in year, y, that can be established as non-renewable biomass using national or local statistics, survey results, studies, maps or other sources of information, such as remote-sensing data.
Source of data	MP#1 Monitoring Report, section E.2, page 16
Value(s) applied	0.8304
Measurement methods and procedures	-
Monitoring frequency	Continuously or at least biennial or using values established in last monitoring period.
QA/QC procedures	
Purpose of data	Calculation of baseline emissions
Additional comment	<p>The monitoring parameter $f_{NRB,y}$, is calculated based on “EB 67 Annex 22 Default Values for f_{NRB} for LDCs and SIDS combined with survey, national, or regional data to determine the percentage of users using given fuel type (biomass / fossil fuels) in line with registered PoA-DD page 69 and 82. In MP#1, CME had used national data to determine the percentage users using biomass/ fossil fuel (refer MP#1 MR, section E.2, page 16).</p> <p>Further, the registered CPA-DDs section B.5.1, data/parameter table ($f_{NRB,y}$) mentions:</p> <p>“the value established in the previous monitoring period can be used for the next monitoring period, in case more recent data is not available.”</p> <p>The data source used for determining $f_{NRB,y}$ in MP#1 is UNHS report dated 2018. No more recent national study, providing information on percentage population using different fuel types, is available, hence MP#1 value has been used in MP#2.</p>

Data/Parameter	$EF_{projected_fossilfuel}$
Data unit	tCO ₂ /TJ
Description	Emission factor as per AMS-I.E. procedures when NRB is displaced or the emission factor of the fossil fuel substituted
Source of data	MP#1 Monitoring Report, section E.2, page 17
Value(s) applied	80.12
Measurement methods and procedures	-
Monitoring frequency	Continuously or at least biennial or using values established in last monitoring period.
QA/QC procedures	
Purpose of data	Calculation of baseline emissions
Additional comment	<p>The monitoring parameter $EF_{projected_fossilfuel}$, is calculated based on “AMS I.E as referenced by AMS III.AV ver 4 for f_{NRB} and IPCC Default Values for fossil fuels combined with survey, national, or regional data to determine the percentage of users using given fuel type (biomass / fossil fuels) in line with registered PoA-DD page 69 and 84. In MP#1, CME had used national data to determine the percentage users using biomass/ fossil fuel (refer MP#1 MR, section E.2, page 18).</p> <p>Further, the registered CPA-DDs section B.5.1, data/parameter table ($EF_{projected_fossilfuel}$) mentions:</p> <p>“the value established in the previous monitoring period can be used for the next monitoring period, in case more recent data is not available.”</p> <p>The data source used for determining $EF_{projected_fossilfuel}$ in MP#1 is UNHS report dated 2018. No more recent national study, providing information on percentage population using different fuel types, is available, hence MP#1 value has been used in MP#2.</p>

Data/Parameter	Existence of public distribution network of safe drinking water
Data unit	Fraction
Description	Existence of public distribution network of safe drinking water in year y
Source of data	Monitoring Survey
Value(s) applied	0
Measurement methods and procedures	Monitoring surveys were conducted to assess existence of safe drinking water public distribution network
Monitoring frequency	Annual or at least biennial
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

E.3. Implementation of sampling plan

>>

Not applicable

Only 19 units (09 UltraFlo and 10 UltraTab) units are installed/distributed under in the sub-grouped CPAs (CPA 9948-0038 to CPA 9948-0042) covered in this monitoring report. Given, the number of installed units is small, the entire population was monitored and no sampling approach was applied.

SECTION F. Calculation of emission reductions or net anthropogenic removals

F.1. Calculation of baseline emissions or baseline net removals

>>

Emission reductions are calculated as follows¹⁵:

Step 1: Calculate the quantity of purified water in year y (QPW_y)

Equation (1.a)

QPW_{y1}	$QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$ $= 4 \times 786 \times 2.10 \times 22^{16} \times 1.0 \times 1.0$ $= 145,383\text{L}$
-------------------------	---

Where,

QPW_y Quantity of purified water for drinking for all technologies type i in year y (Liters)

T_{y,i} Total distributed water purification systems

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_i Percent of units that meet water quality requirements

Operational Units_i Percent of the monitoring period in which the units are in use

Step 2: Calculate the specific energy consumption [SEC] required to boil one litre of water.

Equation (2)

SEC	$= [WH \times (T_f - T_i) + 0.01 \times WHE] / n_{wb}$ $= [4.186 \times (100 - 20) + 0.01 \times 2260] / 0.1172$
------------	--

¹⁵ The example calculation pertains to CPA 9948-0038 only. Please refer ER Calculator (tab 'ERs Summary') for calculation for each CPA.

¹⁶ Instead of 365 days 22 days has been applied as the systems were deemed operational for 22 days in the monitoring period.

	= 3050.17 kJ/L
--	----------------

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)
n_{wb}	Efficiency of water boiling system being replaced (fraction)

Step 3: Calculate baseline emissions.

Equation (1)

BE_y	$= QPW_y \times SEC \times f_{NRB,y} \times EF_{projected_fossilfuel} \times 10^{-9}$ $= 145,383 \times 3050.17 \times 0.8304 \times 80.12 \times 10^{-9}$ $= 29.50 \text{ tCO}_2\text{e}$
--------	---

Where.

BE_y	Baseline emissions during the year y in (tCO ₂ e)
QPW_y	Quantity of purified water in year y (Liters/yr).
SEC	Specific energy consumption required to boil one litre of water (kJ/L)
$f_{NRB,y}$	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable. For biomass, the default values of f_{NRB} shall be used from EB67. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of biomass and other fuels (e.g. fossil fuels) are used, a weighted average renewability factor shall be applied.
$EF_{projected_fossilfuel}$	Emission factor when NRB is displaced or the emission factor of the fossil fuel substituted Default emission factors from AMS-I.E as referenced in AMS-III.AV version 4 and IPCC shall be used. A survey, national, or regional data is conducted to determine the mix of fuels (% of biomass, % of other fuels) used in the baseline. If a mixture of woody biomass and fossil fuels are used in the absence of the project activity a weighted average value shall be applied, as described in parameter box in section E.2

F.2. Calculation of project emissions or actual net removals

>>

$PE_y = 0$, for type 2 CPAs

F.3. Calculation of leakage emissions

>>

Leakage has been calculated using a default 95% leakage adjustment factor to baseline emissions.

L_y	$= BE_y \times (1 - L_y)$ $= 29.50 \times (1 - 0.95)$ $= 1.48 \text{ tCO}_2\text{e}$
-------	--

Where:

L_y	Leakage emission during the year y in (tCO ₂ e)
BE_y	Baseline emissions during the year y in (tCO ₂ e)

F.4. Calculation of emission reductions or net anthropogenic removals¹⁷

CPA UNFCCC reference number	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)		
				Before 01/01/2013	From 01/01/2013	Total amount
9948-0038	29.50	0	1.48	0	28	28
9948-0039	13.22	0	0.66	0	12	12
9948-0040	21.93	0	1.10	0	20	20
9948-0041	28.97	0	1.45	0	27	27
9948-0042	6.24	0	0.31	0	5	5
Total	99.86	0	4.99	0	92	92

F.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the included CPA-DDs

CPA UNFCCC reference number	Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the CPA-DD (t CO ₂ e)
9948-0038	28	4,402
9948-0039	12	4,402
9948-0040	20	4,402
9948-0041	27	4,402
9948-0042	5	4,402
Total	92	22,010

F.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the CPA-DD”

>>

The ex-ante estimate for the monitoring period has been calculated as follows:

$$= \text{Ex-ante ER as per CPA-DD (Section B.4.4)} * \text{effective duration of monitoring period}^{18} / 365$$

$$= 59,514 * 27 / 365 = 4,402$$

F.6. Remarks on increase in achieved emission reductions

>>

N/A

F.7. Remarks on scale of small-scale CPAs

>>

¹⁷ BE_y – L_y is not equal to ER_y due to rounding down of the ERs value as a conservative measure.

¹⁸ The effective duration of monitoring period is deemed as 27 days as per following:

Crediting period start date of all CPAs considered in this monitoring report = 26 April 2019

Monitoring period start date = 23 May 2017

End date of monitoring period = 22 May 2019

27 days = 22 May 2019 – {Max (26 April 2019, 23 May 2017)} + 1

The emission reductions are lower than the ex-ante estimates substantiating that the CPAs are below the limit of type III category (60,000, per annum equivalent to 4,402 tCO₂e for the monitoring period).

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN); • Add a section on remarks on the observance of the scale limit of small-scale CPAs during the crediting periods; • Add "changes specific to afforestation or reforestation activities/CPA" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R PoAs between two commitment periods; • Make structural and editorial improvements.
02.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 01.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN); • Make editorial improvements.
01.0	1 April 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report, programme of activities		