



**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	1.0	
Completion date of this monitoring report	19/06/2019	
Monitoring period number	2	
Duration of this monitoring period	23/05/2017 – 22/05/2019 (both days inclusive)	
Monitoring report number for this monitoring period	1.0	
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	No
	Nigeria	Yes
	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	1,750 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	153,860 tCO ₂ e	

PART I Monitoring of programme of activities (PoA)

SECTION A. Description of PoA

A.1. General description of PoA

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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 aims 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	3.0	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	No
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	No
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	No
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	No
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	No
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	Yes
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	Yes
Impact Carbon Global Safe Water Programme of Activities (PoA): CPA	7.0	CPA type 2: Technologies for institutional water	Renewable 26/04/2019 –	Yes

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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes

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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes

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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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	Yes
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 thirty-five CPAs covered in this monitoring report are Generic CPA Type 2 CPAs implemented in Schools in Nigeria, 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 43 - 77 as detailed in section E.3 below)
 - 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

A single sampling plan has been carried out for CPA 43 - 77. For more detail, refer section E.3 below.

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 thirty-five CPAs in Nigeria (from CPA 43 to CPA 77), as listed in section A.1.2. These thirty-five CPAs are deemed homogeneous due to the following:

1. Have the same project boundary/country (i.e. Nigeria)
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 thirty-five CPAs only.

SECTION C. Implementation of CPAs**C.1. Description of implemented CPAs**

>>


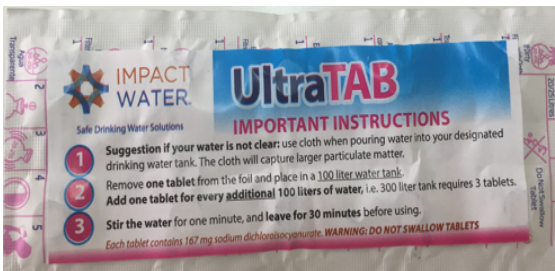
a) Purpose of the specific-case CPA(s) and the measures taken for GHG emission reductions or net GHG removals by sinks –

Purpose: The CPAs involve installation / distribution of Chlorination technology based WPSs (UltraFLO / UltraTAB) for use by institutions (schools) in Nigeria. 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 also provided subsidy 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:

Type of system	Number of Schools	Number of Units Installed
UltraFLO	175	210
UltraTAB	79	79

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

CPA Reference number	9948-0043 to 9948-0077
Start date of installation of first unit in the CPA	23/04/2019
Continued operation period	Since 23/04/2019

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.

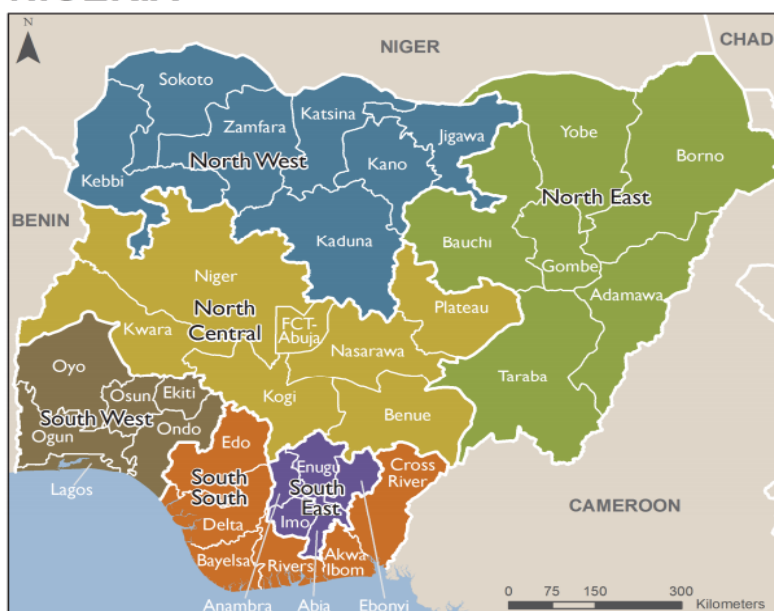
CPA	Emission Reductions tCO ₂ e ¹⁴
9948-0043 to 9948-0077	1,750

C.2. Location of CPAs

>>

The CPA covers the geographical boundary of Nigeria. Nigeria lies between 4°16' and 13°53' north latitude and between 2°40' and 14°41' east longitude and has a land area of 924,000 sq. km, one of the largest in Africa. The map of Nigeria, for reference purpose, is as follows:

NIGERIA



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 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 on sampling basis 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	8,246,907
Measurement methods and procedures	Calculated through Equation (1.a) For Case 1: $QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times Water\ Quality_i \times Operational\ Units_i)$
Monitoring frequency	Annual or at least biennial
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	η_{wb}
Data unit	Fraction
Description	Efficiency of water boiling system being replaced

Source of data	Default values as per AMS-III.AV for thermal efficiency of traditional three stone fire The Truth About Cooking Landscape Analysis, Nigeria, 2016 by GACC for % population using three stone fire
Value(s) applied	0.10
Measurement methods and procedures	Default value of 10% thermal efficiency for traditional stoves As per GACC report, all public institutions cook with wood on traditional three stone fire. Thus, $\eta_{wb} = 100\% \times 0.1$
Monitoring frequency	Continuously or at least biennial as per the monitoring requirements in the methodology.
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	$T_{y,i}$
Data unit	Number
Description	Total distributed water purification systems
Source of data	Project Sales database
Value(s) applied	210 UltraFLO 79 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 UltraTABS 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	308
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	Sampling surveys
Value(s) applied	1.00

Measurement methods and procedures	Aquagenix 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:
Data unit	Percentage
Description	Percent of the monitoring period in which the units are in use
Source of data	Sampling surveys
Value(s) applied	100%
Measurement methods and procedures	Surveys were conducted on sample of units 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	Default value of f_{NRB} from UNFCCC SSC WG 37th Meeting Report for Nigeria ¹⁵ The Truth About Cooking Landscape Analysis, Nigeria, 2016 by GACC for % population using non-renewable / fossil fuel.
Value(s) applied	0.93
Measurement methods and procedures	As per GACC report, all public institutions cook with wood on traditional three stone fire. Thus, $f_{NRB,y} = 100\% * 0.93 + 0.0\% * 1.00$
Monitoring frequency	Continuously or at least biennial
QA/QC procedures	
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data/Parameter	$EF_{\text{projected_fossilfuel}}$
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	AMS-I.E. as referenced by AMS-III.AV Version 4 for $EF_{f_{NRB}}$ and IPCC default values for fossil fuels The Truth About Cooking Landscape Analysis, Nigeria, 2016 by GACC for for % population using non-renewable / fossil fuel.
Value(s) applied	81.6
Measurement methods and procedures	As per GACC report, all public institutions cook with wood on traditional three stone fire. Thus, $f_{NRB,y} = 100\% * 81.6$

¹⁵http://cdm.unfccc.int/Panels/ssc_wg/meetings/037/ssc_37_an14.pdf

Monitoring frequency	Continuously or at least biennial
QA/QC procedures	
Purpose of data	Calculation of baseline emissions
Additional comment	-

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	Survey Records
Value(s) applied	0
Measurement methods and procedures	Sampling 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

>>

A single sampling plan was carried out for CPA43 to CPA77 (covered in this monitoring report).

a) Description of implemented single sampling design

(i) Sampling Design

Due to the large number of WPS installed / distributed under these CPAs, it was not economically feasible to monitor each individual WPS unit distributed. Therefore, representative sampling-based monitoring approach was adopted as part of CPA-wide sampling plan (sub-grouping CPAs 43 to 77 as explained in section: Part II above). The sampling was therefore based on 95/10 confidence/precision levels:

(ii) Objectives and Reliability Requirements

The objective was to obtain an unbiased and reliable estimate of the proportion value of the following parameters over the course of the monitoring period, and with 95/10 confidence/precision for annual sampling across CPAs.

Sl. No.	Parameter	Description of parameter
1	Water Quality _i	Water quality measurement of project WPS
2	Operational Units _i	Monitoring to check the operational status of project WPS.
3	Existence of public distribution network of safe drinking water	Existence of public distribution network of safe drinking water in year y

(iii) Target Population

The target population for the parameters stated above are WPS Units installed / distributed in schools and recorded in the project sales database.

(iv) Sampling Frame:

The target population are WPS Units installed / distributed in schools and recorded in the project sales database (21UltraFLO and 79UltraTAB). The parameters for monitoring are homologous (i.e. implemented in schools), hence a common sampling was followed for all the parameters monitored.

(v) Sampling Method

The required sample sizes were derived using equation (1), (2), (3), (4) and (9) of Appendix 3 of the Guideline: Sampling and surveys for CDM project activities and programmes of activities, Version 04.0 for proportion based parameter as follows:

$$n \geq \frac{z^2 * N * V}{(N-1) * precision^2 + z^2 * V}$$

Where,

n = number of WPS to be sampled

N = Total number of WPS in the population

z = Constant referring to level of confidence (1.96 for 95 % confidence)

Precision = Required precision (e.g. 10% = 0.1)

$$V = \frac{SD^2}{p}$$

Where:

$$SD^2 = \frac{\sum_{i=1}^k g_i * p_i * (1 - p_i)}{N}$$

$$\bar{p} = \frac{\sum_{i=1}^k g_i * p_i}{N}$$

Where,

g_i = weight of strata i in the population

p_i = expected proportion of strata i in the population

k = total number of strata in the population

Stratified Random Sampling was applied by dividing the population into two strata (UltraFLO and UltraTAB). The expected parameter values (proportion) were determined based on project developer's knowledge and experience as per para 12(b) and 12(c) of the "Standard: Sampling and surveys for CDM project activities and programmes of activities"

The CPA sub-group population was arranged chronologically for each stratum. The WPS were selected by randomly assigning, in corresponding stratum, a number to each stove and sorting in increasing order from lower to higher number. Random numbers were generated using online random number generator for each stratum and the numbers obtained were used to identify the samples from the stratum population. A slightly higher number of samples were identified than that required to cover for outliers / non-response and ensure that the desired precision / confidence is achieved.

Please refer ER calculator for sample size calculations and results.

b) Collected data (electronic spreadsheets may be attached and referenced)

Data was collected by the Impact Water team. The team is well trained for the usage related surveys and water quality tests given prior experience of monitoring WPS devices. Surveyors visited the school premises, did visual inspections and interviewed school representatives to assess usage (operational status) and existence of safe drinking water public distribution network via a monitoring questionnaire. The Monitoring team also collected swater samples for water quality testing using Aquagenix test kits.

c) Analysis of the collected data

Data obtained from the surveys / tests were used to estimate proportions values for the parameters described above.

Sl. No.	Parameter	value	Reliability / precision
1	Water Quality _i	1.00	achieved
2	Operational Units _i	1.00	achieved
3	Existence of public distribution network of safe drinking water	0.00	achieved

The values were then be factored into the emissions reduction calculations.

d) Demonstration of whether the samples were randomly selected and are representative of the population

WPS were selected randomly from each stratum, after arranging them in chronological order by date of sale and assigning a serial number to each school. Random numbers were used to identify the samples to the monitored. This approach ensured that the entire population had an equal chance of being selected, and hence samples picked are representative of the population.

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 follows:

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

Equation (1.a)

QPW_{y1}	$QPW_y = \sum (T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality}_i \times \text{Operational Units}_i)$
------------	---

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

Equation (2)

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

Step 3: Calculate baseline emissions.

Equation (1)

BE _y	$= QPW_y \times SEC \times f_{NRB,y} \times EF_{\text{projected_fossilfuel}} \times 10^{-9}$
-----------------	---

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.

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

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
9948-0043	52.6	0	2.6	0	50	50
9948-0044	52.6	0	2.6	0	50	50
9948-0045	52.6	0	2.6	0	50	50
9948-0046	52.6	0	2.6	0	50	50
9948-0047	52.6	0	2.6	0	50	50
9948-0048	52.6	0	2.6	0	50	50
9948-0049	52.6	0	2.6	0	50	50
9948-0050	52.6	0	2.6	0	50	50
9948-0051	52.6	0	2.6	0	50	50
9948-0052	52.6	0	2.6	0	50	50
9948-0053	52.6	0	2.6	0	50	50
9948-0054	52.6	0	2.6	0	50	50
9948-0055	52.6	0	2.6	0	50	50
9948-0056	52.6	0	2.6	0	50	50
9948-0057	52.6	0	2.6	0	50	50
9948-0058	52.6	0	2.6	0	50	50
9948-0059	52.6	0	2.6	0	50	50
9948-0060	52.6	0	2.6	0	50	50
9948-0061	52.6	0	2.6	0	50	50
9948-0062	52.6	0	2.6	0	50	50
9948-0063	52.6	0	2.6	0	50	50
9948-0064	52.6	0	2.6	0	50	50
9948-0065	52.6	0	2.6	0	50	50
9948-0066	52.6	0	2.6	0	50	50
9948-0067	52.6	0	2.6	0	50	50
9948-0068	52.6	0	2.6	0	50	50
9948-0069	52.6	0	2.6	0	50	50
9948-0070	52.6	0	2.6	0	50	50
9948-0071	52.6	0	2.6	0	50	50
9948-0072	52.6	0	2.6	0	50	50
9948-0073	52.6	0	2.6	0	50	50
9948-0074	52.6	0	2.6	0	50	50
9948-0075	52.6	0	2.6	0	50	50
9948-0076	52.6	0	2.6	0	50	50
9948-0077	52.6	0	2.6	0	50	50

Total	1,841	0	91	0	1,750	1,750
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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)
9948-0043	50	4,396
9948-0044	50	4,396
9948-0045	50	4,396
9948-0046	50	4,396
9948-0047	50	4,396
9948-0048	50	4,396
9948-0049	50	4,396
9948-0050	50	4,396
9948-0051	50	4,396
9948-0052	50	4,396
9948-0053	50	4,396
9948-0054	50	4,396
9948-0055	50	4,396
9948-0056	50	4,396
9948-0057	50	4,396
9948-0058	50	4,396
9948-0059	50	4,396
9948-0060	50	4,396
9948-0061	50	4,396
9948-0062	50	4,396
9948-0063	50	4,396
9948-0064	50	4,396
9948-0065	50	4,396
9948-0066	50	4,396
9948-0067	50	4,396
9948-0068	50	4,396
9948-0069	50	4,396
9948-0070	50	4,396
9948-0071	50	4,396
9948-0072	50	4,396
9948-0073	50	4,396
9948-0074	50	4,396
9948-0075	50	4,396
9948-0076	50	4,396
9948-0077	50	4,396
Total	1,750	153,860

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

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

$$= \text{Ex-ante ER as per CPA-DD (Section B.4.4)} * \text{effective duration of monitoring period}^{16} / 365$$

$$= 59,433 * 27 / 365$$

F.6. Remarks on increase in achieved emission reductions

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N/A

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

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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 4,396 tCO₂e for the monitoring period).

Document information

Version	Date	Description
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		

¹⁶ The effective duration of monitoring period is deemed as 27 days as per following:

Crediting period start date of CPAs = 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