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TEMPLATE

# MONITORING REPORT

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VERSION **v. 1.1**

RELATED SUPPORT - **TEMPLATE GUIDE Monitoring Report v. 1.1**

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This document contains the following Sections

Key Project Information

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## KEY PROJECT INFORMATION

### Programme of Activity Information – (delete below table if N/A)

<b>GS ID of Programme</b>	GS11009
<b>Title of Programme</b>	TASC Clean Cooking PoA
<b>Version of POA-DD applicable to this monitoring report</b>	5.0
<b>Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)</b>	GS11145 – TASC Clean Cooking PoA – VPA 1 (Zambia) GS11551 - TASC Clean Cooking PoA – VPA 2 (Zimbabwe) GS11596 – TASC Clean Cooking PoA – VPA 3 (Zambia) GS11604 – TASC Clean Cooking PoA – VPA 4 (Zambia) GS11901 – TASC Clean Cooking PoA – VPA 6 (Zambia) GS12144 – TASC Clean Cooking PoA – VPA 7 (Zimbabwe)

### Key Project Information

<b>GS ID (s) of Project (s)</b>	GS11551 GS12144
<b>Title of the project (s) covered by monitoring report</b>	TASC Clean Cooking PoA – VPA 2 (Zimbabwe) TASC Clean Cooking PoA – VPA 7 (Zimbabwe)
<b>Version number of the PDD/VPA-DD(s) applicable to this monitoring report</b>	GS11551: 2.0 GS12144: 2.0
<b>Version number of the monitoring report</b>	7
<b>Completion date of the monitoring report</b>	30/12/2025
<b>Date of project design certification</b>	07/06/2024
<b>Date of Last Annual Report</b>	GS11551: 13/12/2024 GS12144: 13/12/2024
<b>Monitoring period number</b>	GS11551 VPA 2: 5 GS12144 VPA 7: 2
<b>Duration of this monitoring period</b>	VPA 2 (MP 5): 01/09/2024 – 30/11/2025 (inclusive) VPA 7 (MP 2): 14/12/2024 – 30/11/2025 (inclusive)
<b>Project Representative</b>	The African Stove Company Ltd. (TASC)

<b>Host Country</b>	Zimbabwe
<b>Activity Requirements applied</b>	<input checked="" type="checkbox"/> Community Services Activities <input type="checkbox"/> Renewable Energy Activities <input type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A
<b>Methodology (ies) applied and version number</b>	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1
<b>Product Requirements applied</b>	<input checked="" type="checkbox"/> GHG Emissions Reduction & Sequestration <input type="checkbox"/> Renewable Energy Label <input type="checkbox"/> N/A

**Table 1 - Sustainable Development Contributions Achieved**

<b>Sustainable Development Goals Targeted</b>	<b>SDG Impact</b>	<b>Amount Achieved</b>	<b>Units/ Products</b>
1 No Poverty	Installation of ICS Financial savings for the monitoring period	79,000 (VPA 2) 39,672 (VPA 7)  13.83 (VPA 2) 9.03 (VPA 7)	ICS  USD/month
3 Good Health and Well-Being	Households reporting reduction in smoke/ PM emissions while cooking on project ICS	97% (VPA 2) 100% (VPA 7)	Households
5 Gender Equality	Female households reporting time saving due to reduced cooking time whilst using ICS	96% (VPA 2) 100% (VPA 7)	Households
7 Affordable and Clean Energy	ICS installed that are in operation	79,000 (VPA 2) 39,672 (VPA 7)	ICS
8 Decent Work and Economic Growth	Number of persons (male and female) hired under Project	24 (Combined for both VPAs)	Contracted Staff
12 Responsible Consumption and Production	Wood fuel saving while cooking on project ICS	4.6752 (VPA 2) 4.6003 (VPA 7)	Tonnes per stove per annum

13 Climate Action	Net emission reductions of 734,464 (VPA 2) CO <sub>2</sub> for the monitoring period 289,923 (VPA 7) tCO <sub>2</sub> e
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**Table 2 – Product Vintages**

**VPA 2**

		Amount Achieved
Start Dates	End Dates	VERs
01/09/2024	31/12/2024	195,319
01/01/2025	30/11/2025	539,145

**VPA 7**

		Amount Achieved
Start Dates	End Dates	VERs
14/12/2024	31/12/2024	14,826
01/01/2025	30/11/2025	275,097

## SECTION A. DESCRIPTION OF PROJECT

### **A.1. General description of project**

The goal of the proposed project is to distribute improved cookstoves (ICS) to households in Zimbabwe.

The African Stove Company Ltd. (TASC) is the coordinating/managing entity (CME) of the PoA, Cicada Carbon Ltd. (Cicada) is the Project Developer and the MyTrees Trust (MyTrees) is the Implementer of the VPA (VPAI). TASC is acting as the Project Representative for the VPA.

TASC's mission is financing and developing high-impact climate mitigation projects. Cicada is a Mauritian registered company whose principal objective is to generate carbon credits and revenue from carbon sequestration projects and associated activities that are accredited carbon credit projects.

MyTrees is a Zimbabwean non-profit organisation whose principal activity is reforestation in protected areas as well as other conservation field work.

The first ICS was distributed in Zimbabwe on 23/09/2021 for VPA 2. A total of 79,000 ICS devices have been distributed since VPA 2's project start date. For VPA 7, the first ICS was distributed in Zimbabwe on 20/04/2023. A total of 39,672 ICS devices have been distributed since VPA 7's project start date.

The VPA's are considered homogeneous as they share the same project boundary, technology distributed and end-user profile, therefore a consolidated monitoring report is compiled for the VPA's. The monitoring report covers the 5<sup>th</sup> monitoring period for VPA 2 and the 2<sup>nd</sup> monitoring period for VPA 7.

The project ICS combust biomass fuels more efficiently, reducing the greenhouse gas (GHG) emissions and particulate emissions (PM), thus improving the indoor air quality in project households. Due to the higher thermal efficiency of the ICS relative to the 3-stone fires, the ICS reduce the amount of non-renewable biomass (NRB) fuel required for meeting similar thermal energy needs.

In the absence of the VPA, inefficient, traditional 3-stone fires would have been used for cooking. Replacing these with project ICS reduces non-renewable biomass fuel consumption and corresponding GHG emissions.

The ICS was distributed by MyTrees in rural or peri-urban Zimbabwe to individual households, which have been identified as using wood fuel on open fires for day-to-day cooking purposes. Sensitization meetings inform communities of the project, the technology and the agreement between the end users and the Project Participants. MyTrees managed the logistics of the ICS distribution process and collected all the required data from ICS end users via a bespoke app that connects automatically to the project monitoring database.

## A.2. Location of project

Host Country: Zimbabwe



Figure 1: Map of Zimbabwe and its provinces

The VPA is implemented across Zimbabwe and not limited to any specific provinces. The GPS coordinates of Zimbabwe are 19.0154 °S, 29.1549 °E.

### **A.3. Reference of applied methodology**

Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1

### **A.4. Crediting period of project**

Start and end date of crediting period:

VPA 2 (GS 11551): 23/09/2021 – 22/09/2026

VPA 7 (GS 12144): 20/04/2023 – 19/04/2028

Total length of crediting period:

5 years, renewable twice

## SECTION B. IMPLEMENTATION OF PROJECT

### **B.1. Description of implemented project**

The goal of the proposed project is to distribute improved cookstoves (ICS) to households in Zimbabwe.

The African Stove Company Ltd. (TASC)<sup>1</sup> is the coordinating/managing entity (CME) of the PoA and is the sole implementer of the VPA. TASC's mission is financing and developing high-impact climate mitigation projects.

The Voluntary Project Activities (VPAs) "TASC Clean Cooking PoA – VPA 2 (Zimbabwe)" and "TASC Clean Cooking PoA – VPA 7 (Zimbabwe)" have been implemented within the project boundary in line with the approved VPA designs. The VPAs distributed ICS technologies which are based on the principle of improving heat transfer from combustion chamber to cooking pot, saving cooking/fuel collection time.

The design of the ICS optimizes the combustion chamber shape, amount of fuel and air flow through the stove. Furthermore, thermal energy is maximized by reducing the thermal mass of the ICS minimizing heat loss through the sides and bottom of the stove. The cooking surface is positioned at the optimal distance from the fire providing optimal gas flow needed for efficient heat transfer. Wood fuel models may have a grate provided at the base of the stove for placing wood fuel on. The clearance between the grate and the floor provides for natural draft of air into the combustion chamber resulting in improved combustion as compared to traditional cook stoves where such natural draft is absent resulting in incomplete combustion of fuel. The combustion chamber may also have a refractory lining that reduces heat loss from the walls of the stove.

Kuniokoa model wood fuel cookstoves manufactured by Burn Manufacturing LLC were distributed in the VPA. This cookstove delivers a thermal efficiency of 41.6% according

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<sup>1</sup> <https://tasc.je/>

to an independent lab report from the Kenya Industrial Research and Development Institute (KIRDI) of 19/11/2017.

Funding for this project was supplied by the private sector and no public finance from any Annex 1 party is involved.

Distribution started on the 23/09/2021 (VPA 2) and 20/04/2023 (VPA 7) when the first ICS devices were distributed to families within Zimbabwe. All of the ICSs were distributed prior to the start of this MP for both VPA 2 and VPA 7.

The monitoring period covered within this report is from 01/09/2024 – 30/11/2025 for VPA 2 and 14/12/2024 – 30/11/2025 for VPA 7. In the table below, a summary of all field project activities is presented:

**VPA 2:**

<b>Date</b>	<b>Activity</b>
23/09/2021	Project start date (Start of stove distribution) Start of project crediting period
24/01/2022 – 27/01/2022	Baseline KPTs
14/07/2022 - 24/08/2022	1 <sup>st</sup> Project Habit Survey
30/08/2022 - 21/10/2022	1 <sup>st</sup> Project KPTs
15/05/2023 - 11/08/2023	2 <sup>nd</sup> Project Habit Survey
16/05/2023 - 22/07/2023	2 <sup>nd</sup> Project KPTs
24/10/2023 – 15/12/2023	3 <sup>rd</sup> Project Habit Survey
31/10/2023 – 15/12/2023	3 <sup>rd</sup> Project KPTs
24/05/2024 – 30/07/2024	4 <sup>th</sup> Project Habit Surveys
27/05/2024 – 23/08/2024	4 <sup>th</sup> Project KPTs
21/05/2025 – 24/07/2025	5 <sup>th</sup> Project Habit Surveys
17/06/2025 – 02/08/2025	5 <sup>th</sup> Project KPTs
10/11/2025- 30/11/2025	6 <sup>th</sup> Project Habit Surveys

**VPA 7:**

<b>Date</b>	<b>Activity</b>
20/04/2023	Project start date (Start of stove distribution)

	Start of project crediting period
24/01/2022 – 27/01/2022	Baseline KPTs
12/09/2024 – 13/12/2024	1 <sup>st</sup> Project Habit Survey
31/10/2023 – 15/12/2023	1 <sup>st</sup> Project KPTs
21/05/2025 – 03/07/2025	2 <sup>nd</sup> Project Habit Survey
16/06/2025 – 04/07/2025	2 <sup>nd</sup> Project KPTs
10/11/2025- 30/11/2025	3 <sup>rd</sup> Project Habit Surveys

### B.1.1 Forward Action Requests

During the design review the following Forward Action Requests (FAR) were raised for **VPA 7**. FAR’s raised were:

*FAR 1: Verifying VVB shall check and confirm whether the target communities/regions of the VPA overlap with the other VPAs covered under the PoA. PD shall clarify the measures undertaken to avoid any double-counting of emission reductions.*

During the design review the following Forward Action Requests (FAR) were raised for **VPA 2**. FAR’s raised were:

*FAR 1: During this validation the VVB did not conduct a physical site visit and conducted a remote audit instead. According to para 3.2.1 of Site Visit and Remote Audit Requirements and Procedures v 1.0. Thus, VVB must ensure that according to §3.2.2 of Site Visit and Remote Audit Requirements and Procedures v 1.0 a physical site-visit has been mandatorily undertaken at the time of first verification of the project.*

A physical site visit was completed by the verifying VVB during the 1<sup>st</sup> verification.

*FAR 2: PD shall conduct physical stakeholder consultation prior to the next verification. VVB shall verify.*

The physical stakeholder consultation was completed on 15/11/2022 and the LSC Feedback round lasted from 09/01/2023 to 11/02/2023. The LSC Report labelled “TASC GS11009 – Stakeholder-Consultation-Report Zimbabwe\_v1.0” was submitted along with the monitoring report on the Sustain-cert platform during the 1<sup>st</sup> verification and performance review.

*FAR 3: CME shall conduct baseline KPT to determine the value of By before the first verification.*

Baseline KPT's were completed from 24/01/2022 – 27/01/2022 and the results and calculations sheets were submitted in the monitoring report for the first verification/performance review.

During the 1st Performance review (**VPA 2**), the following FAR was raised:

*FAR1: All future verifications, VVB shall describe clearly how they have assessed and the applied method of verification and type of interview questions for monitored SDGs to reach the conclusion that meet the compliance of the requirements of the parameter.*

This FAR is applicable to the VVB and should be responded to in the VVB verification report. The SDGs are monitored by the PP through conducting in-person habit surveys and KPTs to determine the impact parameters as per Sections C and D of the MR.

## **B.2. Post-Design Certification changes**

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

n/a

B.2.2. Corrections

n/a for VPA 7.

For **VPA 2**, the value of 6.3056 tonnes of wood used per household per annum was noted in the VPA 2 DD for parameter  $B_{b,y}$ . This value was estimated using country statistic values and FAR 3 (Section B.1.1) was raised to address during the first verification of the project. This FAR has been addressed and the parameter  $B_{b,y}$  has been set at 5.4880. The value for  $EF_{b,I,nonCO_2}$  was updated from the VPA-DD from  $0.56 \text{ tCO}_2/\text{t}_{\text{fuel}}$  to  $0.5588 \text{ tCO}_2/\text{t}_{\text{fuel}}$  as a result of not rounding up the value. Thus, this value is more conservative compared to the original value of  $0.56 \text{ tCO}_2/\text{t}_{\text{fuel}}$ .

B.2.3. Changes to start date of crediting period

n/a

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

n/a

B.2.5. Changes to project design of approved project

n/a for VPA 7.

For **VPA 2**, the fNRB value of 0.89 was changed to 0.79 during the 4th monitoring period. This is because the value of 0.79 is the most recent and conservative value, which was determined from an fNRB assessment of Zimbabwe prepared by Promethium Carbon on 14 June 2024, and is also used in VPA 7 (GS 12144).

## SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

Two different monitoring survey results are applied during the monitoring period: the first being a qualitative user habit survey (i.e. project survey and usage survey) and the second being quantitative kitchen performance tests (KPTs).

Furthermore, to determine the number of devices present during the monitoring period, the distribution database is used. All devices distributed prior and during the monitoring period are regarded as eligible for crediting pending internal check on any duplication of data (i.e. ICS barcodes and ID numbers). Only devices that are unique with regards to ICS barcode and beneficiary ID are considered for crediting

### **Habit Surveys**

User habit surveys were carried out by using a pre-created webform on the SurveyCTO<sup>2</sup> application on DC's smartphones. Samples were drawn at random from the respective distribution databases for each VPA by using an MS Excel randomizer and the first 140 households were selected for sampling. 140 were selected to account for cases where beneficiaries are not available for interviews. Out of the sample of 140, 102 beneficiaries were interviewed for VPA 2 and 102 beneficiaries were interviewed for VPA 7. Each DC visited the randomly sampled households from the Monitoring Database and surveyed the stove user filling in the SurveyCTO form on the DC's smartphone. The results were uploaded directly to TASC's SurveyCTO cloud-based monitoring database and could then be exported into an excel spreadsheet for analysis.

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<sup>2</sup> <https://www.surveyccto.com/>

This survey captured basic social, economic, and cooking habit information from the participants. Information captured included: name, Identification number, contact phone number, device serial number and location (i.e., region, village and GPS coordinates). Further information in these habit surveys included stove usage habits, reduction in smoke/wood consumption/time cooking/time collecting wood and other relevant information on the characteristics of the kitchen to check if there are any changes that may impact the emission reductions e.g., stove stacking, and other relevant information as per the VPA-DD Monitoring Plan.

The 102 User Habit Surveys for VPA 2 were completed between 21/05/2025 – 24/07/2025.

The 102 User Habit Surveys for VPA 7 were completed between 21/05/2025 – 03/07/2025.

Given the homogeneity of VPA 2 and VPA 7, a further 103 Habit Surveys were completed between 10/11/2025- 30/11/2025 to account for the MP running longer than 365 days and to ensure the stove usage parameter is representative of the entire MP.

### **Kitchen Performance Tests (KPTs)**

KPT's were carried out on a random sample of project households according to the KPT Version 4.0 document<sup>3</sup>. The KPT's were implemented in the monitoring period of each VPA to determine the average wood use per household per annum with the ICS.

The KPT's were carried out at randomly sampled households from the Monitoring Database and consisted of tests being done on 4 consecutive days at each household at approximately the same time each day. At the start of the KPT, an amount of woodfuel that was estimated to be required for the next 4 days of usage was weighed and set aside as a Control Pile. Family members were then instructed to only use wood from this Control Pile during the KPT and to maintain their normal cooking/heating practices to ensure the usage rate of wood during the KPT's was best representative. DC's then visited the same households at roughly the same time on each of the 4 days in order to weigh the wood left in the Control Pile, or to check and weigh any additional

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<sup>3</sup> <https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf>

wood that needed to be added, and measure the moisture content of randomly selected wood pieces. For each visit, the number of people that ate their meals in the household since the DC’s last visit was recorded as this number can vary from one day to the next. Also, the age and gender of all persons in the household were recorded. At the end of the KPT the final weight of the remaining wood in the Control Pile was recorded.

Data was captured using the SurveyCTO application on the DC’s phone with a specific survey created for the KPT data. The results were uploaded directly to TASC’s SurveyCTO cloud-based monitoring database and could then be exported into an excel spreadsheet for analysis.

Project KPT was carried out in 65 households in VPA 2 between 17/06/2025 – 02/08/2025.

Project KPT was carried out in 55 households in VPA 7 between 16/06/2025 – 04/07/2025.

## SECTION D. DATA AND PARAMETERS

### D.1. Data and parameters fixed ex ante or at renewal of crediting period

#### SDG13

Data/parameter	$B_{b,y}$
Unit	Tonnes per household per annum
Description	Quantity of fuel consumed in baseline scenario b during year y, in tonnes
Source of data	Baseline kitchen performance tests (KPTs)
Value(s) applied	VPA 2: 5.4880 tonnes VPA 7: 5.4880 tonnes
Choice of data or Measurement methods and procedures	KPT Version 4.0 <sup>4</sup>
Purpose of data	Calculation of baseline scenario
Additional comment	-

<sup>4</sup> <https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf>

**SDG 13**

Data/parameter	$EF_{b,i,CO_2}$
Unit	$tCO_2/t_{fuel}$
Description	CO <sub>2</sub> emission factor arising from use of fuel type <i>i</i> in baseline scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.5 - Default emission factors for stationary combustion in the residential and agriculture/forestry/fishing/fishing farms categories
Value(s) applied	Fuelwood: 1.68 $tCO_2/t_{fuel}$
Choice of data or Measurement methods and procedures	Mean value of the range of default IPCC values has been applied. The final value is calculated by multiplying the IPCC default emissions factor for biomass fuel (112 tCO <sub>2</sub> /TJ) by the default NCVbiomass figure (0.015).
Purpose of data	Calculation of baseline scenario
Additional comment	-

**SDG 13**

Data/parameter	$EF_{b,i,nonCO_2}$
Unit	$tCO_2/t_{fuel}$
Description	Non-CO <sub>2</sub> emission factor arising from use of fuel type <i>i</i> in baseline scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.9 - Residential Source Emission Factors
Value(s) applied	Fuelwood: 0.5588 $tCO_2/t_{fuel}$
Choice of data or Measurement methods and procedures	Mean value of the range of default IPCC values has been applied and multiplied by the default NCV biomass figure (0.015)
Purpose of data	Calculation of baseline scenario
Additional comment	-

**SDG 13**

Data/parameter	$EF_{p,i,CO_2}$
Unit	$tCO_2/t_{fuel}$
Description	CO <sub>2</sub> emission factor arising from use of fuel type <i>i</i> in project scenario

Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.5 - Default emission factors for stationary combustion in the residential and agriculture/forestry/fishing/fishing farms categories
Value(s) applied	Fuelwood: 1.68 tCO <sub>2</sub> /t <sub>fuel</sub>
Choice of data or Measurement methods and procedures	Mean value of the range of default IPCC values has been applied. The final value is calculated by multiplying the IPCC default emissions factor for biomass fuel (112 tCO <sub>2</sub> /TJ) by the default NCV biomass figure (0.015).
Purpose of data	Calculation of baseline scenario
Additional comment	-

### SDG 13

Data/parameter	EF <sub>p,i,nonCO2</sub>
Unit	tCO <sub>2</sub> /t <sub>fuel</sub>
Description	Non-CO <sub>2</sub> emission factor arising from use of fuel type <i>i</i> used in project scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.9 - Residential Source Emission Factors
Value(s) applied	Fuelwood: 0.5588 tCO <sub>2</sub> /t <sub>fuel</sub>
Choice of data or Measurement methods and procedures	Mean value of the range of default IPCC values has been applied and multiplied by the default NCVbiomass figure (0.015).
Purpose of data	Calculation of baseline scenario
Additional comment	-

### SDG 13

Data/parameter	NCV <sub>b,i</sub>
Unit	TJ/tonne
Description	Net calorific value of the fuel type <i>i</i> used in the baseline
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2 - Default net calorific values
Value(s) applied	Fuelwood: 0.015 TJ/tonnes
Choice of data or Measurement methods and procedures	Default IPCC values have been applied

Purpose of data	Calculation of baseline scenario
Additional comment	-

**SDG 13**

Data/parameter	$NCV_{p,i}$
Unit	TJ/tonne
Description	Net calorific value of the fuel type $i$ used in the project scenario
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1: Introduction, Table 1.2 - Default net calorific values
Value(s) applied	Fuelwood: 0.015 TJ/tonnes
Choice of data or Measurement methods and procedures	Default IPCC values for wood / wood waste are applied.
Purpose of data	Calculation of baseline scenario
Additional comment	If EF is in units of $tCO_2/t_{fuel}$ , remove NCV term from emission calculations.

**SDG 13**

Data/parameter	$f_{NRB,b,i,y}$
Unit	Fraction
Description	Fraction of biomass used in year $y$ for baseline scenario $b$ that can be established as non-renewable biomass
Source of data	$f_{NRB}$ assessment for Zimbabwe Prepared by Promethium Carbon, 14 June 2024
Value(s) applied	Fuelwood: 0.79
Choice of data or Measurement methods and procedures	N.A.
Purpose of data	Calculation of baseline scenario
Additional comment	-

**D.2 Data and parameters monitored**

**SDG 13**

Data / Parameter	$B_{p,y,i}$
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Unit	Tonnes per household per annum
Description	Quantity of fuel consumed in project scenario p during year y, in tonnes, and as derived from the statistical analysis conducted on the data collected during the project performance field tests
Source of data	Kitchen Performance Tests (KPTs)
Value(s) applied	0.8129 t (VPA 2) 0.8878 t (VPA 7)
Measurement methods and procedures	KPT Version 4.0 <sup>5</sup>
Monitoring frequency	Updated every two years
QA/QC procedures	The equipment used for testing, if any either will be externally calibrated or newly purchased on an annual basis so measurements are done with the necessary guarantees. Ryobi MM-210 2 in 1 moisture testers (5-50%/±2%) were used to determine the moisture content of the wood and ACCUD 75kg x 10g (0.01kg resolution) scales were used to record the weight of the wood. The equipment was newly purchased for the monitoring exercises and therefore did not require calibration.
Purpose of data	For emission reduction calculations
Additional comment	A 'Case of a Single Sample Test' shall be applied with a minimum sample size of 20 and the '90/10 rule' or '90% confidence rule' applied. KPT protocol shall be used for PFT (for e.g.: PCIA KPT protocol may be used)

Data / Parameter	$U_{p,y}$
Unit	Fraction (or %)
Description	Usage rate in project scenario p during year y determined on a sampling basis
Source of data	Habit Survey, cell F16 in Upy tab of ER sheet for each VPA
Value(s) applied	90% (VPA 2)

<sup>5</sup> <https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf>

	90% (VPA 7)
Measurement methods and procedures	<p>Sampling surveys (telephone/physical) may be conducted to record the continued operation of project devices.</p> <p>The usage rate shall be calculated for each age (simple random / stratified random sampling to be applied as applicable)</p>
Monitoring frequency	Annual
QA/QC procedures	CME provided guidance and training to enumerators to conduct surveys which met the specific requirements of the methodology.
Purpose of data	For emission reduction calculations
Additional comment	The monitored usage of stoves among project households was 90% for both VPAs. As the monitoring period ran longer than 365 days / 1 year, a second set of usage / habit surveys were completed to ensure the usage parameter is representative of the entire period. A value of 91% was obtained and it thus adjusted to 90% as only Good Practice Monitoring was applied. As the value is the same as the prior usage survey value, separate ER calculations were not completed for the periods to simplify the workbooks.

Data / Parameter	$N_{p,y}$
Unit	number
Description	Technologies in the Monitoring Database for project scenario p through year y
Source of data	Monitoring Database
Value(s) applied	79,000 (VPA 2) 39,672 (VPA 7)
Measurement methods and procedures	Number of stoves listed in the Monitoring Database
Monitoring frequency	Continuous
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	For emission reduction calculations
Additional comment	ICS included in the VPA are registered in the monitoring database via the data collection app

Data / Parameter	$LE_{p,y}$
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Unit	Tonnes of CO <sub>2</sub> equivalent per year
Description	Leakage in project scenario p during year y
Source of data	Leakage assessment
Value(s) applied	0
Measurement methods and procedures	Qualitative / quantitative assessment
Monitoring frequency	Aggregate leakage can be assessed for multiple project scenarios, if appropriate, every two years
QA/QC procedures	N.A.
Purpose of data	For leakage emissions
Additional comment	See Section E.3 for justification

### **SDG 1**

Data / Parameter	BSA / HHS
Unit	Number
Description	Proportion of population living in households with access to basic services
Source of data	1. Monitoring Database ICS distribution records 2. Ex-post Monitoring Survey Records
Value(s) applied	79,000 (VPA 2) ICS in use 39,672 (VPA 7) ICS in use
Measurement methods and procedures	1. Records of number of VPA ICS distributed in Monitoring Database 2. Ex-post monitoring survey to assess the proportion of population with ICS still in operation
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	SDG 1 contribution
Additional comment	-

### **SDG 3**

Data / Parameter	SPM <sub>HH</sub>
Unit	%
Description	Air Quality in project households
Source of data	Ex-post monitoring survey records
Value(s) applied	97% (VPA 2) 100% (VPA 7)

Measurement methods and procedures	Ex-post monitoring survey assessing on a sampled basis the percentage of VPA households reporting reduction in smoke/PM emissions/indoor air pollution while cooking on the project ICS vs. baseline
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	SDG 3 contribution
Additional comment	-

## **SDG 5**

Data / Parameter	HHTS
Unit	%
Description	% of households reporting time saving due to reduced cooking time whilst using ICS Hours saved daily from reduced cooking time
Source of data	Ex-post Monitoring Survey Records
Value(s) applied	96% (VPA 2) 100% (VPA 7)
Measurement methods and procedures	Ex-post monitoring survey assessing on a sampled basis the percentage of VPA households reporting reduced fuel collection need while cooking on the project ICS vs. baseline.
Monitoring frequency	Annual
QA/QC procedures	-
Purpose of data	SDG 5 contribution
Additional comment	-

## **SDG 7**

Data / Parameter	AACS <sub>HH</sub>
Unit	Number
Description	Number of households and institutions having access to affordable, reliable and modern energy services.
Source of data	ICS Monitoring Database
Value(s) applied	79,000 (VPA 2) 39,672 (VPA 7)
Measurement methods and procedures	Monitoring the number of ICS distributed under the project as an indicator of providing affordable, reliable and modern energy services.

Monitoring frequency	Continuous
QA/QC procedures	-
Purpose of data	SDG 7 contribution
Additional comment	-

### **SDG 8**

Data / Parameter	QE IG
Unit	Number
Description	Quantitative Employment and income generation
Source of data	Employment records
Value(s) applied	24 (Combined for both VPAs)
Measurement methods and procedures	Recording the number of employees (male / female) in the VPA for ICS distribution, logistics, monitoring & management
Monitoring frequency	Annually
QA/QC procedures	Legal employment contracts for project staff in Zimbabwe are provided to the VVB as evidence. Stove manufacturers will be required to show suitable, up-to-date OHS policy.
Purpose of data	SDG 8 contribution
Additional comment	

### **SDG 12**

Data / Parameter	$B_{y,savings}$
Unit	Tonnes/year
Description	Reduction in domestic fuel consumption
Source of data	KPT survey data
Value(s) applied	4.6752 tonnes (VPA 2) 4.6003 tonnes (VPA 7)
Measurement methods and procedures	Ex-post monitoring ( $B_{p,y,i}$ ) via KPTs to determine fuel savings
Monitoring frequency	Annually / biennially
QA/QC procedures	-
Purpose of data	SDG 12 contribution
Additional comment	

### **Safeguards Monitoring**

Data / Parameter	Principle 6.1 Labour Rights
Unit	n/a
Description	The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions
Source of data	Employment contracts and OHS/EHS policies of employers
Value(s) applied	n/a
Measurement methods and procedures	Employment contracts and OHS/EHS policies of employers
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Safeguard Reporting
Additional comment	

### D.3. Comparison of monitored parameters with last monitoring period

#### VPA 2

Monitored parameter	MP1	MP2	MP3	MP4	MP5
$B_{p,y,i}$	1.2872	1.1951	0.8633	0.8633	0.8129
$U_{p,y}$	90%	90%	90%	77%	90%
$LE_{p,y}$	0 tCO <sub>2</sub>	0 tCO <sub>2</sub>	0 tCO <sub>2</sub>	0 tCO <sub>2</sub>	0 tCO <sub>2</sub>
$N_{p,y}$	48,501	78,741	79,000	79,000	79,000
BSA / HHS	48,501	78,741	79,000	79,000	79,000
SPM <sub>HH</sub>	100%	98%	100%	95%	97%
HHTS	80%	94%	97%	96%	96%
AACS <sub>HH</sub>	48,300	78,741	79,000	79,000	79,000
QE IG	34	30	30	24	24
$B_{y,savings}$	4.2008	4.2929	4.6247	4.6247	4.6752

#### VPA 7

Monitored parameter	MP1	MP2
$B_{p,y,i}$	0.8633	0.8878
$U_{p,y}$	83%	90%
$LE_{p,y}$	0 t CO <sub>2</sub>	0 t CO <sub>2</sub>
$N_{p,y}$	39,672	39,672
BSA / HHS	39,672	39,672
SPM <sub>HH</sub>	99.03%	100%
HHTS	99%	100%
AACS <sub>HH</sub>	39,672	39,672
QE IG	22	24
$B_{y,savings}$	4.6247	4.6003

For both VPAs, the monitored KPT values as well as usage rates show minor variation compared to the previous MP, which is primarily attributable to seasonal cooking patterns, household mobility, and the timing of household surveys. Overall differences between monitoring periods are expected and reflect normal statistical variation arising from sampling different households, seasonal differences and natural variability in household practices over time.

### D.4. Implementation of sampling plan

All monitored parameters were assessed by using simple random sampling, at the required precision/confidence level. Usage habit surveys were conducted to establish usage and changes in conditions experienced since the implementation of the ICS project. The sample size was done according to the TPDDTEC Version 3.1 document, here it states that for a group size > 1000 a minimum sample size of 100 is needed for such a survey. Samples were selected on a random basis from the Monitoring Database using MS Excel's random selection formula. The habit surveys samples consisted of 140 randomly selected households spread throughout the project distribution areas to prevent bias to a certain region. The additional 40 samples above the minimum 100 were selected to practice oversampling in case households cannot be contacted for surveys or if data collection errors were discovered. Of the total selected number of samples, due to availability of beneficiaries, 102 beneficiaries were sampled in VPA 2 and 102 in VPA 7.

### **User Habit Surveys:**

#### **VPA 2:**

The habit survey reported that 100% of surveyed users were in possession of their ICS. 77% of households surveyed use the stove every day, 22% several times a week, 1% of households use their stoves less than weekly, and 0% of households do not use the stoves (column AZ<sup>6</sup>).

When asked how many days since the last stove usage (column AO), the average number of days since stove usage was recorded as 1.25. The number of beneficiaries who had used their stoves in the last 2 days (0-2 days) was 92 (90%), and the number of beneficiaries who had used their stove in 3 or more days was 10 (10%). Thus, the usage rate  $U_{p,y}$  is recorded as 90% (best practice monitoring). Since this monitoring period extends over a year in length, an additional round of habit surveys was conducted between 10/11/2025 and 30/11/2025 to ensure that the measured usage rate is applicable to the entire monitoring period. The second round of habit surveys also found

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<sup>6</sup> All column references are from the spreadsheet: "Zim\_Stove\_VPA7\_MRV2\_HabitSurvey\_v1.0"

a usage rate above 90%, ensuring that the value of 90% applied for the entire monitoring period is acceptable.

97% of participants indicated a reduction in smoke since implementation of the ICS (column DB), and 96% of the participants also indicated that they had more time since the ICS significantly reduced time cooking (column CH). 97% of all users who collect wood indicated that they save time collecting wood (column CF).

29 users reported saving money from the use of the ICS due to the reduction in fuel usage (column CD). The average amount saved was calculated as 13.83 USD (United States Dollars) per month (column CE), or 165.93 USD per year.

Cooking was predominantly done both indoors and outdoors, with 45.1% of households reporting this habit, meaning the portability of the stove is appreciated. Furthermore, 36.3% of users cooked indoors and 18.6% of households reported cooking took place outside (column AJ).

38% of users reported that they were still using an alternative stove, mostly 3-stone fires (85%), in addition to the ICS (column BJ & BK). However, taking the residual stove usage into account, users still experienced a net decrease in wood usage as seen in the KPT results. 88% of users did maintenance on the stove daily or weekly, including cleaning of ashes and cleaning the flute (column BI).

69% of firewood collectors are female with an average age of 35.18 years old (columns BZ & CA). 97% of the survey respondents indicated that smoke levels are better in the project scenario compared to the baseline scenario (column DB).

**VPA 7:**

The habit survey reported that 100% of surveyed users were in possession of their ICS. 82% of surveyed households use the stove every day, 17% several times a week, 1% of households use their stoves once a week, and 0% of households do not use the

stoves (column AZ<sup>7</sup>). As explained above, since this monitoring period extends over a year in length, an additional round of habit surveys was conducted between 10/11/2025 and 30/11/2025 to ensure that the measured usage rate is applicable to the entire monitoring period. The second round of habit surveys also found a usage rate above 90%, ensuring that the value of 90% applied for the entire monitoring period is acceptable.

When asked how many days since the last stove usage (column AO), the average number of days since stove usage was recorded as 0.83. The number of beneficiaries who had used their stoves in the last 2 days (0-2 days) was 95 (93%), and the number of beneficiaries who had used their stove in 3 or more days was 7 (7%). Thus, the usage rate  $U_{p,y}$  is recorded as 90% (best practice monitoring).

100% of participants indicated a reduction of smoke since implementation of the ICS (column DB), and all the participants (100%) also indicated that they had more time since the ICS significantly reduced time cooking (column CH). 100% of all users who collect wood indicated that they save time collecting wood (column CF).

31 users reported saving money from the use of the ICS due to the reduction in fuel usage (column CD), the average amount saved was calculated as 9.03 USD (United States Dollars) per month (column CE), or 108.39 USD per year.

Cooking was predominantly done indoors with 52.0% of households reporting this habit. Furthermore, 29.4% of users cooked both indoors and outdoors, meaning the portability of the stove is appreciated. 18.6% of households reported cooking took place outside (column AJ).

25% of users reported that they were still using an alternative stove, mostly 3-stone fires (77%), in addition to the ICS (column BJ & BK). However, taking the residual stove

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<sup>7</sup> All column references are from the spreadsheets: "Zim\_Stove\_VPA7\_MRV2\_HabitSurvey\_v1.0"

usage into account, users still experienced a net decrease in wood usage as seen in the KPT results. 80% of users did maintenance on the stove daily or weekly, including of ashes and cleaning the flute (column BI).

66% of firewood collectors are female with an average age of 33.21 years old (columns BZ & CA). 100% of the survey respondents indicated that smoke levels are better in the project scenario compared to the baseline scenario (column DB).

Common dislikes of the stoves across both VPAs were:

- It can only accommodate one pot at a time
- Not effective for space heating
- It is not suitable for cooking with a 3-legged pot
- Can't be used for baking (e.g. for baking bread)

Many positive comments were received about the stoves, including:

- It cooks faster
- Uses less wood and it is easier to collect small twigs compared to larger pieces of wood
- Stable
- Portable (inside and outside)
- User friendly/easy to operate and clean
- Produces less smoke

The precision levels were met adequately as 100% of respondents said they were using the stove in both VPA 2 and VPA 7. This gives a 99% confidence level or accuracy in the survey.

### **Project Kitchen Performance Tests (pKPT)**

For determining the fuel consumption in the project scenario, the pKPT sample size determination was based on the guidance given in the TPDDTEC Version 3.1 methodology and the CDM sample size calculator based on previous project experience. The CDM sample size calculator was used with the mean wood use value and standard

deviation from GS11145<sup>8</sup> and a population size of 80,000, this data is applicable as the end users are similar in that they use the same fuel and the same ICS device. The CDM sample size calculator suggested a sample size of 33. By using the CDM sample size as guidance and the table extracted from the methodology above, a Single-Sample KPT was used with 90/10 precision giving a sample size of 45 for each VPA as this is the closest valid sample size to the suggested 33.

To ensure completeness of the results, oversampling was practiced and a total of 65 KPTs were completed for VPA 2 between 17/06/2025 and 02/08/2025, and a total of 55 KPTs were completed for VPA 7 between 16/06/2025 and 04/07/2025. Upon receipt of the data, and after the exclusion of outliers, a total of 62 valid KPTs were used in VPA 2 and 55 valid KPTs in VPA 7 were used to calculate the project fuel use. Outliers and precision values were determined in the same manner as in the above baseline KPT section. This led to a precision of 9.35% in VPA 2 and 9.09% in VPA 7 being achieved, which falls within the 90/10 precision.

From the pKPTs it was established that project households use on average 2.23 kg of wood fuel per day in VPA 2 and 2.43 kg of wood fuel per day in VPA 7. This equates to an average annual household wood consumption of 0.8129 tonnes in VPA 2 and 0.8878 tonnes in VPA 7, which is a saving of 4.6752 tonnes in VPA 2 and 4.6003 tonnes in VPA 7 compared to the baseline (5.4480 tonnes).

All data and outlier calculations are provided in the VPA 2 MP 5 emissions reductions spreadsheet and VPA 7 MP2 emissions reductions spreadsheet.

### **Usage Rate Monitoring**

For Good Practice usage rate (up to 90%), it is required to do field team training, End-User training, follow-ups and do an awareness campaign. Before distribution in each village/area sensitisation meetings are held to explain how the stove works and together with stove distribution each participant receives a how-to guide. Together with this the

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<sup>8</sup> Gold Standard Project – TASC Clean Cooking PoA – VPA 1 (Zambia), GS ID: GS11145, 1<sup>st</sup> monitoring period, <https://registry.goldstandard.org/projects/details/3100>.

field team does ongoing monitoring activities in the field to ensure data quality is up to standard and this also helps to encourage users of the stoves to use the stoves and provides them with chance to raise queries about the stoves and project.

The Usage rate was determined via the User Habit Surveys and 90% of surveyed households were found to be using the stove. Two usage rate surveys were completed during the MP as the MP ran longer than 365 days. In both usage surveys, usage of 90% or higher was recorded. Thus, the overall usage during the MP was adjusted to 90% as per Good Practice Monitoring requirements.

**Usage Rate Monitoring**

According to the GS Usage Rate Monitoring Guideline, version 2.0, there are 3 levels of usage that can be claimed, each increasing in rigor and maximum claimable usage rates. The 3 levels of usage rates and requirements are presented in the table below.

Level	Applicability	Claimable Usage Rate	Requirements
Mandatory	Mandatory	Up to a maximum 75%	<ul style="list-style-type: none"> <li>Define use and non-use</li> <li>In person household usage survey</li> <li>Verification of accuracy of results</li> </ul>
Good Practice	Optional	Up to maximum 90%	<ul style="list-style-type: none"> <li>Field team training and supervision</li> <li>End-user training and follow up</li> <li>Awareness campaign</li> </ul>
Best Practice	Optional	Above 90%	<ul style="list-style-type: none"> <li>Continuous use monitoring</li> </ul>

**Mandatory Usage:**

The project adheres to the mandatory usage requirements set out as per Table 1 in the GS usage rate guidelines as follows.

1. Define use and nonuse

As of yet, usage has not formally been defined in the respective VPA-DD’s. This has occurred erroneously and was not picked up during validation and design review. Project device usage is defined as “Everyday” and “Several times a week” as determined through the habit survey. Non-usage is defined as “Once a week”, “Less Than Weekly”

and “Never” usage as determined through the habit survey. As the project utilizes KPT’s to measure/quantify fuel use, any residual baseline stove usage is also captured in the project wood use. Thus, a higher-than-expected project wood usage value is monitored.

2. In person household usage survey

In person household usage surveys are completed for each monitoring period. Please see “Zim\_Stove\_VPA2\_MRV5\_HabitSurvey\_v1.0” , “Zim\_Stove\_VPA7\_MRV2\_HabitSurvey\_v1.0” and “Zim\_Stove\_VPA2\_MP5\_VPA7\_MP2\_Second\_Period\_v1.0” for the usage and habit survey results.

3. Verification of accuracy of results

Household surveys were carried out by trained staff employed by My Trees Trust. One of the My Trees Trust staff members carried out the verification check to confirm stove usage details from a random subset of 10 habit/usage survey participants.

**Good Practice Monitoring:**

1. Field team training and supervision:

Monitoring teams are trained annually to conduct both Habit Surveys and KPTs. The initial training session occurred in 2021 followed by subsequent online and in person training throughout the project lifetime. During these training sessions the monitors/DCs are refreshed on how to conduct KPT’s, habit surveys and also on general knowledge around the project and the workings of the cookstoves. The last online refresher training was conducted on 20/05/2025 or both VPA 2 and VPA 7.

2. End-User training and follow-up visits:

Before distribution in each village/area sensitization meetings are held to explain to communities how the stove works and together with stove distribution each participant receives a how to guide. The field monitoring team then follows up with regular community and household visits throughout the year to encourage ICS adoption and respond to any feedback.

3. Awareness campaign:

My Trees Trust has a dedicated field team conducting ongoing monitoring activities in the field to ensure data quality is up to standard. This also helps to encourage users of the stoves to use the stoves and provides them with a chance to raise queries about the stoves and the project.

**Best Practice Monitoring:**

Best practice monitoring has not been applied during this monitoring period.

## SECTION E. CALCULATION OF SDG IMPACTS

### E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

#### SDG 1: No Poverty

$BSA_{Baseline}$  Number of ICS distributed in baseline  
= 0

$HHS_{Baseline}$  % HH reporting money saving due to reduced fuel consumption in baseline  
= 0

#### SDG 3: Good Health and Well Being

$SPM_{HH,Baseline}$  % HH reporting reduction in smoke/PM emissions while cooking on improved stove in baseline  
= 0

#### SDG 5: Gender Equality

$HHTS_{Baseline}$  % HH reporting time saving from fuel collection due to reduced fuel consumption in baseline  
= 0

#### SDG 7: Affordable and Clean Energy

$ACS_{Baseline}$  Access to affordable and clean energy (Number of operating ICS units under Baseline)  
= 0

#### SDG 8: Decent Work and Economic Growth

$QE\ IG_{Baseline}$  Quantitative Employment and income generation (Number of person (male and female) hired under Baseline)  
= 0

#### SDG 12: Responsible Consumption and Production

$B_{b,y,i}$  Fuel consumption for fuel type  $i$  used in baseline  $b$  in year  $y$  in tonnes, from baseline KPTs  
= 5.4880t (KPT value retrieved from Baseline KPT's)

#### SDG 13: Climate Action

$BE_{b,y}$  Baseline emissions for baseline scenario  $b$  in year  $y$  (tCO<sub>2</sub>e/yr)  
= 862,167(VPA 2)  
= 345,872 (VPA 7)

$$BE_{b,y} = \sum_{b,p} N_{p,y} * U_{p,y} * (ER_{b,p,y,CO_2} + ER_{b,p,y,nonCO_2}) - \sum LE_{p,y}$$

Where:

$\sum_{b,p}$	Sum over all relevant (baseline b) couples = 79,000 ICS (VPA 2) = 39,672 ICS (VPA 7)
$N_{p,y}$	Cumulative number of project technology-days included in the sales/distribution database for project scenario p against baseline scenario b in year y = 35,945,000 days (VPA 2) = 13,964,544 days (VPA 7)
$U_{p,y}$	Cumulative usage rate for technologies in baseline scenario p in year y, = 90% (VPA 2) = 90% (VPA 7)
$ER_{b,p,y,CO_2}$	Specific CO <sub>2</sub> emission savings for an individual technology of Baseline b in year y, in tCO <sub>2</sub> /day as derived from the statistical analysis of the data collected from the field tests = 7.28371 t per annum
$ER_{b,p,y,nonCO_2}$	Specific non-CO <sub>2</sub> emission savings for an individual technology of Baseline b in year y, in tCO <sub>2</sub> /day as derived from the statistical analysis of the data collected from the field tests = 2.42269 t per annum

$$ER_{b,p,y,CO_2} = \sum_i \{ f_{NRB,b,i,y} * B_{b,y,i} * NCV_{b,i} * EF_{b,i,CO_2} \}$$

Where:

$f_{NRB,b,i,y}$	Fraction of woody biomass used in year y for fuel type <i>i</i> that can be established as non-renewable biomass (fNRB) = 0.79
$B_{b,y,i}$	Fuel consumption for fuel type <i>i</i> used in baseline b in year y in tonnes, from baseline KPTs = 5.4880t
$NCV_{b,i}$	Net calorific value of the fuel type <i>i</i> used in baseline b (TJ/tonnes) = 0.015
$EF_{b,i,CO_2}$	CO <sub>2</sub> emission factor of the fuel type <i>i</i> used in the baseline

$$= (112 \text{ tCO}_2/\text{TJ} * 0.015 \text{ TJ/t})$$

$$= 1.68 \text{ tCO}_2/\text{tonne of wood}$$

*i* Fuel Type

$$ER_{b,p,y,\text{nonCO}_2} = \sum_i \{ B_{b,y,i} * NCV_{b,i} * EF_{b,i,\text{nonCO}_2} \} - \sum_i \{ B_{p,y,i} * NCV_{p,i} * EF_{p,i,\text{nonCO}_2} \}$$

Where:

$EF_{b,i,\text{nonCO}_2}$  non-CO<sub>2</sub> emission factor of the fuel type *i* used in the baseline

$$= (34.27 \text{ (CH}_4\text{)} + 2.98 \text{ (N}_2\text{O)}) \text{ tCO}_2/\text{TJ} * 0.015 \text{ TJ/t}$$

$$= 0.5588 \text{ tCO}_2/\text{tonne of wood}$$

## E.2. Calculation of project value or estimation of project situation of each SDG Impact

### SDG 1: No Poverty

Net Benefit (SDG 1) =  $BSA_{\text{Project}} - BSA_{\text{Baseline}}$

$$= 79,000 \text{ (VPA 7)}$$

$$= 39,672 \text{ (VPA 7)}$$

Where:

$BSA_{\text{Baseline}}$  Number of ICS distributed in baseline = 0

$BSA_{\text{Project}}$  Number of ICS distributed in Project = 79,000 (VPA 2)

$BSA_{\text{Project}}$  Number of ICS distributed in Project = 39,672 (VPA 7)

Net Benefit (SDG 1) =  $HHS_{\text{Project}} - HHS_{\text{Baseline}}$

$$= 97\% \text{ (VPA 2)}$$

$$= 100\% \text{ (VPA 7)}$$

Where:

$HHS_{\text{Baseline}}$  % HH reporting money saving due to reduced fuel consumption in baseline = 0

$HHS_{\text{Project}}$  % HH reporting money saving due to reduced fuel consumption in project = 97% (VPA 2)

$$= 100\% \text{ (VPA 7)}$$

Average fuel savings costs were calculated at 13.83 USD per month, or 165.93 USD per annum, for VPA 2 and 9.03 USD per month, or 108.39 USD per annum, for VPA 7 versus the 340.10 USD expected in the baseline calculation.

### SDG 3: Good Health and Well Being

$$\begin{aligned} \text{Net Benefit (SDG 3)} &= \text{SPM}_{\text{HH,Project}} - \text{SPM}_{\text{HH,Baseline}} \\ &= 97\% \text{ (VPA 2)} \\ &= 100\% \text{ (VPA 7)} \end{aligned}$$

Where:

$\text{SPM}_{\text{HH,Baseline}}$  % HH reporting reduction in smoke/PM emissions while cooking on improved stove in baseline  
= 0

$\text{SPM}_{\text{HH,Project}}$  % HH reporting reduction in smoke/PM emissions while cooking on improved stove in project  
= 97% (VPA 2)  
= 100% (VPA 7)

### SDG 5: Gender Equality

$$\begin{aligned} \text{Net Benefit (SDG 5)} &= \text{HHTS}_{\text{Project}} - \text{HHTS}_{\text{Baseline}} \\ &= 96\% \text{ (VPA 2)} \\ &= 100\% \text{ (VPA 7)} \end{aligned}$$

Where:

$\text{HHTS}_{\text{Baseline}}$  % HH reporting time saving from reduced cooking time in baseline  
= 0

$\text{HHTS}_{\text{Project}}$  % HH reporting time saving from reduced cooking time in baseline in project  
= 96% (VPA 2)  
= 100% (VPA 7)

### SDG 7: Affordable and Clean Energy

$$\begin{aligned} \text{Net Benefit (SDG 7)} &= \text{ACS}_{\text{Project}} - \text{ACS}_{\text{Baseline}} \\ &= 79,000 \text{ (VPA 2)} \\ &= 39,672 \text{ (VPA 7)} \end{aligned}$$

Where:

$\text{ACS}_{\text{Baseline}}$  Access to affordable and clean energy (Number of operating ICS units under Baseline)  
= 0

ACS<sub>Project</sub> Access to affordable and clean energy (Number of operating ICS units under Project)  
 = 79,000 (VPA 2)  
 = 39,672 (VPA 7)

**SDG 8: Decent Work and Economic Growth**

Net Benefit (SDG 8) = QE IG<sub>Project</sub> - QE IG<sub>Baseline</sub>  
 = 24 (Combined for both VPAs)Where:

QE IG<sub>Baseline</sub> Quantitative Employment and income generation (Number of persons hired under Baseline)  
 = 0

QE IG<sub>Project</sub> Quantitative Employment and income generation (Number of persons hired under Project)  
 = 24 (Combined for both VPAs)

**SDG 12: Responsible Consumption and Production**

$$B_{y,savings} = B_{b,y,i} - B_{p,y,i}$$

Where:

B<sub>y,savings</sub> Reduction in domestic fuel consumption (tonnes/year)  
 = 4.6752t (VPA 2)  
 = 4.6003t (VPA 7)

B<sub>b,y,i</sub> Fuel consumption for fuel type *i* used in baseline *b* in year *y* in tonnes, from baseline KPTs  
 = 5.4880t

B<sub>p,y,i</sub> Fuel consumption for fuel type *i* used in project *p* in year *y* in tonnes, as derived from the statistical analysis of the data collected from the field tests  
 = 0.8129t (VPA 2)  
 = 0.8878t (VPA 7)

**SDG 13: Climate Action**

For a complete overview of the ex-ante and ex-post CO<sub>2</sub> equivalent emissions reductions calculations, please refer to the VPA Emissions Reductions Calculation Sheet. GHG reductions achieved by the VPA are calculated as follows:

$$ER_y = \sum BE_{b,y} - \sum PE_{p,y} - \sum LE_{p,y}$$

Where:

$ER_y$	Emission reduction for total project activity in year y (tCO <sub>2</sub> e/yr) = 734,464 (VPA 2) = 289,923 (VPA 7)
$BE_{b,y}$	Baseline emissions for baseline scenario b in year y (tCO <sub>2</sub> e/yr) = 862,167 (VPA 2) = 345,872 (VPA 7)
$PE_{p,y}$	Project emissions for project scenario p in year y (tCO <sub>2</sub> e/yr) = 127,702 (VPA 2) = 55,949 (VPA 7)
$LE_{p,y}$	Leakage for project scenario p in year y (tCO <sub>2</sub> e/yr) = 0

As per the methodology the governing equation for the emission reduction calculations is as follows with  $(\sum BE_{b,y} - \sum PE_{p,y})$  is directly merged in to the following equation:

$$ER_y = \sum_{b,p} N_{p,y} * U_{p,y} * (ER_{b,p,y,CO2} + ER_{b,p,y,nonCO2}) - \sum LE_{p,y}$$

Where:

$\sum_{b,p}$	Sum over all relevant (baseline b/project p) couples = 79,000 ICS (VPA 2) = 39,672 ICS (VPA 7)
$N_{p,y}$	Cumulative number of project technology-days included in the sales/distribution database for project scenario p against baseline scenario b in year y = 79,000 * Total Technology days (VPA 2) = 35,945,000 days (VPA 2) = 39,672 * Total Technology days (VPA 7) = 13,964,544 days (VPA 7)
$U_{p,y}$	Cumulative usage rate for technologies in project scenario p in year y, based on cumulative adoption rate and drop off rate revealed by usage surveys (fraction) = 90% (VPA 2) = 90% (VPA 7)

- $ER_{b,p,y,CO_2}$  Specific CO<sub>2</sub> emission savings for an individual technology of Project against an individual technology of Baseline b in year y, in tCO<sub>2</sub>/day as derived from the statistical analysis of the data collected from the field tests  
 = 7.28371t per annum (see below)  
 = 0.01996 tCO<sub>2</sub>e/day
- $ER_{b,p,y,nonCO_2}$  Specific non-CO<sub>2</sub> emission savings for an individual technology of Project against an individual technology of Baseline b in year y, in tCO<sub>2</sub>/day as derived from the statistical analysis of the data collected from the field tests  
 = 2.42269t per annum (see below)  
 = 0.00664 tCO<sub>2</sub>e/day
- $LE_{p,y}$  Leakage for project scenario p in year y (See Section E.3)  
 = 0%  
 = 0 tCO<sub>2</sub>e/yr

$$ER_{b,p,y,CO_2} = \sum_i \{ f_{NRB,b,i,y} * B_{b,y,i} * NCV_{b,i} * EF_{b,i,CO_2} \} - \sum_i \{ f_{NRB,b,i,y} * B_{p,y,i} * NCV_{p,i} * EF_{p,i,CO_2} \}$$

Where:

- $f_{NRB,b,i,y}$  Fraction of woody biomass used in year y for fuel type i that can be established as non-renewable biomass (NRB)  
 = 0.79
- $B_{b,y,i}$  Fuel consumption for fuel type i used in baseline b in year y in tonnes, from baseline KPTs  
 = 5.4880t
- $B_{p,y,i}$  Fuel consumption for fuel type i used in project p in year y in tonnes, as derived from the statistical analysis of the data collected from the field tests  
 = 0.8129t (VPA 2)  
 = 0.8788t (VPA 7)
- $NCV_{b,i}$  Net calorific value of the fuel type i used in baseline b (TJ/tonnes)  
 = 0.015
- $EF_{b,i,CO_2}$  CO<sub>2</sub> emission factor of the fuel type i used in the baseline  
 = (112 tCO<sub>2</sub>/TJ \* 0.015 TJ/t)  
 = 1.68 tCO<sub>2</sub>/tonne of wood

*i* Fuel Type

$$ER_{b,p,y,nonCO2} = \sum_i \{ B_{b,y,i} * NCV_{b,i} * EF_{b,i,nonCO2} \} - \sum_i \{ B_{p,y,i} * NCV_{p,i} * EF_{p,i,nonCO2} \}$$

Where:

$EF_{b,i,nonCO2}$  non-CO<sub>2</sub> emission factor of the fuel type *i* used in the baseline  
 = (34.27 (CH<sub>4</sub>) + 2.98 (N<sub>2</sub>O) tCO<sub>2</sub>/TJ) \* 0.015 TJ/t  
 = 0.5588 tCO<sub>2</sub>/tonne of wood (VPA 7)

LE<sub>y</sub> Leakage for project scenario *p* in year *y*  
 = 0%

### E.3. Calculation of leakage

Justification:

<p><i>The displaced baseline technologies are reused outside the project boundary in place of lower emitting technology or in a manner suggesting more usage than would have occurred in the absence of the project.</i></p>	<p>The traditional stoves replaced are ‘three stone’ open fires. These are rudimentary devices, crafted locally and have no market value. Households outside the project boundary can set up their own 3-stone fires and hence there is no risk that the baseline devices from the project can move outside the boundary. This leakage source can therefore be discounted.</p>
<p><i>The non-renewable biomass or fossil fuels saved under the project activity are used by non-project users who previously used lower emitting energy sources.</i></p>	<p>There is no risk of this as non-renewable biomass is available in abundance within the project boundary and there is no scenario where the NRB saved from this VPA will be used by non-project users. This leakage source can therefore be discounted.</p>
<p><i>The project significantly impacts the NRB fraction within an area where other CDM or VER project activities account for NRB fraction in their baseline scenario.</i></p>	<p>Considering the size of the project boundary, rate of deforestation and the size of the VPA there is no risk that the VPA impacts the NRB of the project wood collection area. Furthermore, the fNRB will</p>

	be re-assessed at the start of the subsequent VPA crediting period.
<i>The project population compensates for loss of the space heating effect of inefficient technology by adopting some other form of heating or by retaining some use of inefficient technology.</i>	<p>The climate in Zimbabwe is temperate to hot. There is very little space heating by stoves in the population. No evidence exists that the project will result in increased fuel use for heating from inefficient stoves. Project KPTs cover all fuel use in the household and so ensure that any fuel usage, other than cooking, is also accounted for in the project scenario. As per the KPT protocol, the total amount of wood used daily by each sampled household is measured/weighed. The wood is not separated and weighed for different activities but rather all the wood collected and used on a daily basis is weighed/measured. This includes the use of wood for other practices such as heating and even wood used in other stove types (e.g., baseline 3 stone fires).</p> <p>Therefore, there is no possible leakage in this scenario.</p>
<i>By virtue of promotion and marketing of a new technology with high efficiency, the project stimulates substitution within households who commonly used a technology with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.</i>	<p>The baseline appliances, as documented in the PDD and established through the baseline surveys, are 3-stone, open fires. The use of these open fires is commonplace in rural Zimbabwe and is a more GHG intensive technology than the ICS distributed in the project scenario.</p>

**E.4. Calculation of net benefits or direct calculation for each SDG Impact**

SDG No.	SDG Impact	VPA	Baseline	Project	Net benefit
13	Tonnes CO <sub>2</sub> equivalent emissions	2	862,167	127,702	734,464
		7	345,872	55,949	289,923
1	Number of ICS distributed	2	0	79,000	79,000
		7	0	39,672	39,672
1	Financial savings (USD/month)	2	0	13.83	13.83
		7	0	9.03	9.03
3	% HH reported reduction in smoke/PM Emissions while cooking on ICS	2	0	97%	97%
		7	0	100%	100%
5	% HH reporting time saving from reduced cooking time whilst using ICS	2	0	96%	96%
		7	0	100%	100%
7	Access to affordable and clean energy (number of ICS distributed)	2	0	79,000	79,000
		7	0	39,672	39,672
8	Quantitative employment and income generation (Number of persons hired)	2	0	24	24
		7	0	24	24
12	Wood fuel savings while cooking on project ICS in tonnes per annum	2	5.4880	0.812980.88	4.6752
		7	5.4880	78	4.6003

**E.5. Comparison of actual SDG Impacts with estimates in approved PDD**

**VPA 2:**

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values <sup>9</sup> achieved during this monitoring period
13	809,834 (tCO <sub>2</sub> e), (Cell F33, "Ex-Ante" tab, ER calc sheet)	734,464 (tCO <sub>2</sub> e)
1	25,500 (Number of ICS distributed)	79,000 (Number of ICS distributed)

<sup>9</sup> Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

	340.10 (USD per annum (or 28.34 USD per month))	165.93 (USD per annum (or 13.83 USD per month))
3	100%	97%
5	100%	96%
7	25,500 (Number of ICS distributed)	79,000 (Number of ICS distributed)
8	25 (Number of persons hired)	24 (Number of persons hired)
12	4.17 (tonnes/year), (Cell E6, "Ex-Ante" tab, ER calc sheet)	4.6752 (tonnes/year)

**VPA 7:**

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values <sup>10</sup> achieved during this monitoring period
13	279,268 (tCO <sub>2</sub> e), (Cell F33, "Ex-Ante" tab, ER calc sheet)	289,923 (tCO <sub>2</sub> e)
	50,000 (Number of ICS distributed)	39,672 (Number of ICS distributed)
1	340.10 (USD per annum (or 28.34 USD per month))	108.39 (USD per annum (or 9.03 USD per month))
3	100%	100%
5	100%	100%
7	50,000 (Number of ICS distributed)	39,672 (Number of ICS distributed)
8	25 (Number of persons hired)	24 (Number of persons hired)

<sup>10</sup> Whenever emission reductions are capped, both the original and capped values used for calculations must be transparently reported. Use brackets to denote original values.

12	4.1688 (tonnes/year), (Cell E6, "Ex-Ante" tab, ER calc sheet)	4.6003 (tonnes/year)
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E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

For VPA2, the main cause of variation in the emissions reductions between ex-ante (809,834 tCO<sub>2</sub>e) and ex-post (734,464 tCO<sub>2</sub>e), was the fNRB which was estimated as 0.89 during ex-ante calculations but changed to 0.79 during design review, causing a decrease in ERs between ex-ante and ex-post.

For VPA7, the ex-ante emissions reductions (279,268 tCO<sub>2</sub>e) were lower than ex-post (289,923 tCO<sub>2</sub>e). This is because the project KPTs showed a higher By,savings compared to the ex-ante estimate, resulting in a higher total emissions reduction despite the lower fNRB. The reason behind the difference in fuel savings is explained below.

With regards to SDG12 as well as the differences noted above, for both VPAs, By,savings (SDG 12) was calculated ex-ante and based on assumed project fuel use values in VPA-DD whereas ex-post savings are monitored using project field KPTs which has shown a higher level of fuel savings per ICS than expected in the baseline.

**For VPA7, the difference in SDG 1 is because the VPA was planned with the intention of distributing 50,000 stoves, however, possible governmental restrictions were drafted at the time which caused a pause in distribution. Distribution is expected to continue in 2026. Similarly, for VPA2, the number of ICS for SDG2 is higher than ex-ante predictions as extended funding was obtained and more ICS were distributed.**

**E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD**

VPA 2 & VPA 7:

SDG 12: Ex-ante wood savings were estimated/calculated based on baseline fuel use values and the improved thermal efficiency of the project stove, the ex-post values were determined through KPT's by subtracting the actual project KPT value from the baseline KPT value and not estimated. This resulted in an increase in the SDG 12 impact

observed. As a result of this increased SDG 12 impact, the SDG impact is also slightly higher than the Ex-Ante value as there were more wood savings.

VPA 7:

SDG 13: Similar to SDG 12, the Ex-ante wood savings were estimated/calculated based on baseline fuel use values and the improved thermal efficiency of the project stove, the ex-post values were determined through KPT’s by subtracting the actual project KPT value from the baseline KPT value and not estimated. Therefore, this resulted in an increase in the ex-post net emissions.

## SECTION F. SAFEGUARDS REPORTING

Risk identified in PDD	Actions to Mitigate	Mitigated? (yes/no)
<p><b>Principle 6.1 Labour Rights:</b> The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions</p>	<p>Legal employment contracts for project staff in Zimbabwe are provided to the VVB as evidence. Stove manufacturers will be required to show suitable, up-to-date OHS policy.</p>	<p>Yes</p>
<p><b>Principle 6.1 Labour Rights:</b> Working agreements with all individual workers shall be documented and implemented and include:</p> <ul style="list-style-type: none"> <li>a. Working hours (must not exceed 48 hours per week on a regular basis), AND</li> <li>b. Duties and tasks, AND</li> <li>c. Remuneration (must include provision for payment of overtime), AND</li> <li>d. Modalities on health insurance, AND</li> </ul>	<p>Legal employment contracts for project staff in Zimbabwe are provided to the VVB as evidence.</p>	<p>Yes</p>

<p>e. Modalities on termination of the contract with provision for voluntary resignation by employee, AND</p> <p>f. Provision for annual leave of not less than 10 days per year, not including sick and casual leave.</p>		
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## SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

### **G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.**

There are no grievances reported in the grievance logbook over the 5<sup>th</sup> monitoring period for VPA 2 and for the 2<sup>nd</sup> monitoring period for VPA 7.

### **G.2. Report on any stakeholder mitigations that were agreed to be monitored.**

There are no stakeholder mitigations agreed in the monitoring period.

### **G.3. Provide details of any legal contest that has arisen with the project during the monitoring period**

There were no legal contests during the monitoring period.

### **Revision History**

Version	Date	Remarks
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1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an <a href="#">accompanying Guide</a> to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption

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