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for the Global Goals

TEMPLATE

MONITORING REPORT

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VERSION **v. 1.2**

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

This document contains the following Sections

Key Project Information

Section A - Description of project

Section B - Implementation of project

Section C - Description of monitoring system applied by the project

Section D - Data and parameters

Section E - Calculation of SDG Impacts

Section F - Safeguards Reporting

Section G - Stakeholder inputs and legal disputes

KEY PROJECT INFORMATION

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

GS ID of Programme	GS11009
Title of Programme	TASC Clean Cooking PoA
Version of POA-DD applicable to this monitoring report	5.0
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	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

GS ID (s) of Project (s)	GS11551
Title of the project (s) covered by monitoring report	TASC Clean Cooking PoA – VPA 2 (Zimbabwe)
Version number of the PDD/VPA-DD(s) applicable to this monitoring report	2.0
Version number of the monitoring report	2.1
Completion date of the monitoring report	02/12/2025
Date of project design certification	04/11/2022
Date of Last Annual Report	13/12/2024
Monitoring period number	4
Duration of this monitoring period	01/01/2024 – 31/08/2024 (inclusive)
Project Representative	The African Stove Company Ltd. (TASC)
Host Country	Zimbabwe

Activity Requirements applied	<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
Methodology (ies) applied and version number	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (TPDDTEC), version 3.1
Product Requirements applied	<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

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
1 No Poverty	Installation of ICS Financial savings for the monitoring period	79,000 12.96	ICS USD/month
3 Good Health and Well-Being	Households reporting reduction in smoke/ PM emissions while cooking on project ICS	95%	Households
5 Gender Equality	Female households reporting time saving due to reduced cooking time whilst using ICS	96%	Households
7 Affordable and Clean Energy	ICS installed that are in operation	79,000	ICS
8 Decent Work and Economic Growth	Number of persons (male and female) hired under Project	24	Contracted Staff
12 Responsible Consumption and Production	Wood fuel saving while cooking on project ICS	4.6247	Tonnes per stove per annum
13 Climate Action	Net emission reductions of CO ₂ for the monitoring period	334,563	tCO ₂ e

Table 2 – Product Vintages

		Amount Achieved
Start Dates	End Dates	VERs
01/01/2024	31/08/2024	334,563

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)¹ is the coordinating/managing entity (CME) of the PoA, Cicada Carbon Ltd. (Cicada) is a Project Participant and the MyTrees Trust (MyTrees) is the Implementer of the VPA (VPAI).

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. A total of 79,000 ICS devices have been distributed since the project start date. This monitoring report covers the 4th monitoring period (MP4).

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 traditional/baseline stoves, the ICS reduces the amount of non-renewable biomass fuel required for meeting similar thermal energy needs.

¹ <https://tasc.je/>

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.

A.2. Location of project

Host Country: Zimbabwe



Zimbabwe map and 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:

23/09/2021 – 22/09/2026

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)² 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 Activity (VPA) "TASC Clean Cooking PoA – VPA 2 (Zimbabwe)" has been implemented within the project boundary in line with the approved VPA design. The VPA 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

² <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 when the first ICS devices were distributed to families within Zimbabwe with a total number of 79,000 devices distributed under the VPA.

The monitoring period covered within this report is 01/01/2024 to 31/08/2024. In the table below, a summary of all field project activities is presented:

Date	Activity
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 st Project Habit Survey
30/08/2022 – 21/10/2022	1 st Project KPTs
15/05/2023 – 11/08/2023	2 nd Project Habit Survey
16/05/2023 – 22/07/2023	2 nd Project KPTs
24/10/2023 – 15/12/2023	3 rd Project Habit Survey
31/10/2023 – 15/12/2023	3 rd Project KPTs
24/05/2024 – 30/07/2024	4 th Project Habit Surveys
27/05/2024 – 23/08/2024	4 th Project KPTs

B.1.1 Forward Action Requests

During the design review the following Forward Action Requests (FAR) were raised. 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 1st 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 1st verification and performance review.

FAR 3: CME shall conduct baseline KPT to determine the value of B_b 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, 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

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

The fNRB value of 0.89 has been changed to 0.79 during this current 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 (KPT's).

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 regard 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 SurveyCTO³ application on DC's smartphones. Samples were drawn at random from the distribution database by using an MS Excel randomizer and the first 120 households were selected for sampling a 120 were selected to account for cases where beneficiaries are not available for interviews. Out of the sample of 120, 105 beneficiaries were interviewed.

³ <https://www.surveyccto.com/>

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 in to an excel spreadsheet for analysis.

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 105 User Habit Surveys were completed between 24/05/2024 – 30/07/2024.

Kitchen Performance Tests (KPTs)

KPT's were carried out on a random sample of project households according to the KPT Version 4.0 document⁴. As per section B.7. in the VPA DD, the monitoring frequency of parameter $B_{p,y,I}$ shall be updated every two years. The KPT's were implemented in monitoring period 3 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.

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

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 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 Survey CTO collect app on the DC’s phone with a specific webform created for the KPT data. The results were uploaded directly to TASC’s ONA cloud-based monitoring database and could then be exported in to an excel spreadsheet for analysis.

Project KPT was carried out in 54 households and done between 31/10/2023 to 15/12/2023.

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	5.4880 tonnes
Choice of data or Measurement methods and procedures	KPT Version 4.0 ⁵
Purpose of data	Calculation of baseline scenario
Additional comment	See Section E below

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

Section B.4. of the VPA-DD clearly states: *"To establish the quantum of baseline fuel use per household for parameter Bb,y (see Section B.6.2), baseline KPTs will be conducted during the first monitoring period and reported in the first monitoring report for VVB verification."*

At VPA-DD validation and registration, the baseline KPT's were not completed (Please see FAR 01 from validation). Bb,y in the VPA-DD was calculated using publicly available statistics and in-country census data.

Bb,y in the MR is the actual value obtained for household wood usage through the completion of KPT's on non-project wood burning households and was verified during the 1st verification and performance review.


The Bb,y value calculated from the baseline KPT's is also lower than the calculated value in the VPA-DD, thus it is seen as more conservative.

SDG 13

Data/parameter	EF_{b,i,CO_2}
Unit	tCO_2/t_{fuel}
Description	CO ₂ emission factor arising from use of fuel type 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_2/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 ₂ emission factor arising from use of fuel type i in baseline scenario

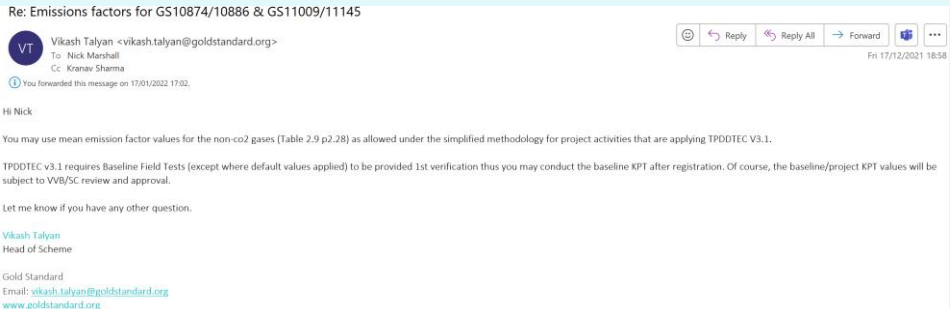
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2: Stationary Combustion, Table 2.9 - Residential Source Emission Factors, The Gold Standard Simplified Methodology for Efficient Cookstoves, February 2013, ER_Calculation_Tool_Cookstove_Meth_V2.00 Summary of the Methodology
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	<p>The values for EF_{b,i,nonCO₂} and EF_{p,i,nonCO₂} in the VPA-DD has been rounded up to 0.56 and the values for EF_{b,i,nonCO₂} and EF_{p,i,nonCO₂} in the MR has not been rounded and is set at 0.5588 tCO₂/t_{fuel}. Hence the difference in values.</p> <p>Clarification on using the mean value was sought from the Gold Standard and approved. Please see a screenshot of the email below:</p> 

SDG 13

Data/parameter	EF _{p,i,CO₂}
Unit	tCO ₂ /t _{fuel}
Description	CO ₂ 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 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 ₂ /TJ) by the default NCVbiomass figure (0.015).
Purpose of data	Calculation of baseline scenario
Additional comment	-

SDG 13

Data/parameter	EF _{p,i,nonCO₂}
Unit	tCO ₂ /t _{fuel}
Description	Non-CO ₂ 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, The Gold Standard Simplified Methodology for Efficient Cookstoves, February 2013, ER_Calculation_Tool_Cookstove_Meth_V2.00Summary of the Methodology
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 NCVbiomass figure (0.015).
Purpose of data	Calculation of baseline scenario
Additional comment	<p>The values for EF_{b,i,nonCO₂} and EF_{p,i,nonCO₂} in the VPA-DD has been rounded up to 0.56 and the values for EF_{b,i,nonCO₂} and EF_{p,i,nonCO₂} in the MR has not been rounded and is set at 0.5588 tCO₂/t_{fuel}. Hence the difference in values.</p> <p>Clarification on using the mean value was sought from the Gold Standard and approved. Please see a screenshot of the email below:</p> 

SDG 13

Data/parameter	$NCV_{b,i}$
Unit	TJ/tonne
Description	Net calorific value of the fuel type 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	fNRB assessment for Zimbabwe Prepared by Promethium Carbon, 14 June 2024
Value(s) applied	Fuelwood: 0.79 Renewable solid biomass fuels (Crop residues / cow dung): 0.0000

	Fossil fuels: 1
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	$B_{p,y,i}$
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	Field Performance Tests (FPTs)
Value(s) applied	0.8633
Measurement methods and procedures	KPT Version 4.0 ⁶
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 so not requiring calibration.
Purpose of data	For emission reduction calculations

⁶ <https://cleancooking.org/binary-data/DOCUMENT/file/000/000/604-1.pdf>

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)
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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	ER Calculation sheet, tab 'Upy', cell F16
Value(s) applied	77%
Measurement methods and procedures	Sampling surveys (telephone/physical) may be conducted to record the continued operation of project devices. The usage rate shall be calculated for each age (simple random / stratified random sampling to be applied as applicable)
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 77%.

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
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	$LE_{p,y}$
Unit	Tonnes of CO ₂ 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 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 _{HH}
Unit	%

Description	Air Quality in project households
Source of data	Ex-post monitoring survey records
Value(s) applied	95%
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%
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 _{HH}
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

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
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	4.6247 tonnes
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

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

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 were conducted on 120 randomly selected households spread throughout the project distribution areas to prevent bias to a certain region. The additional 20 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. From the total selected number of samples, due to availability of beneficiaries, only 105 beneficiaries were sampled.

User Habit Surveys:

The habit survey reported that 100% of surveyed users were in possession of their ICS. 79% of surveyed households use the stove every day, 20% several times a week and only 1% of households do not use the stoves (column AN⁷).

When asked how many days since the last stove usage (column AC), the average number of days since stove usage was recorded as 2.20. The number of beneficiaries who had used their stoves in the last 2 days (0-2 days) was 79 (77%), and the number of beneficiaries who had used their stove in 3 or more days was 23 (23%). Thus, the usage rate $U_{p,y}$ is recorded as 77%.

95% of participants indicated a reduction of smoke since implementation of the ICS (column CP), almost all the participants (96%) also indicated that they had more time since the ICS significantly reduced time cooking (column BV) and 94% of all users who collect wood indicated that they save time collecting wood (column BT).

28 users reported saving money from the use of the ICS due to the reduction in fuel usage (column BR), the average amount saved was calculated as 12.96 USD (United States Dollars) per month (column BS).

Cooking was predominantly done indoors with 47.6% of households reporting this habit. Furthermore, 21% of users cooked both indoors and outdoors, meaning the portability of the stove is appreciated. 31.4% of households reported cooking took place outside (column X).

56% of users reported that they were still using an alternative stove, mostly 3-stone fires, in addition to the ICS (column AX & AY). However, taking the residual stove usage in account, users still experienced a net decrease in wood usage as seen in the KPT results. 82% of users did maintenance on the stove daily or weekly (column AQ).

⁷ All column references are from the spreadsheet: "Zim_Stove_VPA2_MRV4_HabitSurvey_v1.0"

76% of firewood collectors are female with an average age of 37.65 years old (columns BO & BP). 95% of the survey respondents indicated that smoke levels are better in the project scenario compared to the baseline scenario (column CP).

Common dislikes of the stoves 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 on 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
- User friendly/easy to operate and clean
- Produces less smoke

The precision requirement for $U_{p,y}$ was met, as 99% of respondents reported using their stoves. With such a high and consistent response rate, the variance is minimal, and the calculated margin of error at the 90% confidence level is well below the required threshold (10%). With only one deviation from the mean, the standard deviation is near zero, which yields a very narrow confidence interval around the mean usage proportion.

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 GS11145⁸ 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 as this is the closest valid sample size to the suggested 33. To ensure for completeness of the results, oversampling was practiced and a total of 54 KPTs were completed between 31/10/2023 and 15/12/2023. Upon receipt of the data, and after the exclusion of outliers, a total of 51 valid KPT's 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 9.68% being achieved which falls within the 90/10 precision.

From the pKPT's it was established that project households use on average 2.37 kg of wood fuel per day, this adds up to an average annual household wood consumption of 0.8633 tonnes, which is a saving of 4.6247 tonnes compared to the baseline.

All data and outlier calculations are provided in the MP4 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 sensitization 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 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 on the stoves and project.

The Usage rate was determined via the User Habit Surveys and 99% of surveyed households were found to be using the stove.

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

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"> • Define use and non-use • In person household usage survey • Verification of accuracy of results
Good Practice	Optional	Up to maximum 90%	<ul style="list-style-type: none"> • Field team training and supervision • End-user training and follow up • Awareness campaign
Best Practice	Optional	Above 90%	<ul style="list-style-type: none"> • Continuous use monitoring

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_MRV4_HabitSurvey_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 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. In this monitoring period, the last online refresher training was conducted on 15/05/2024 (Figure 1)

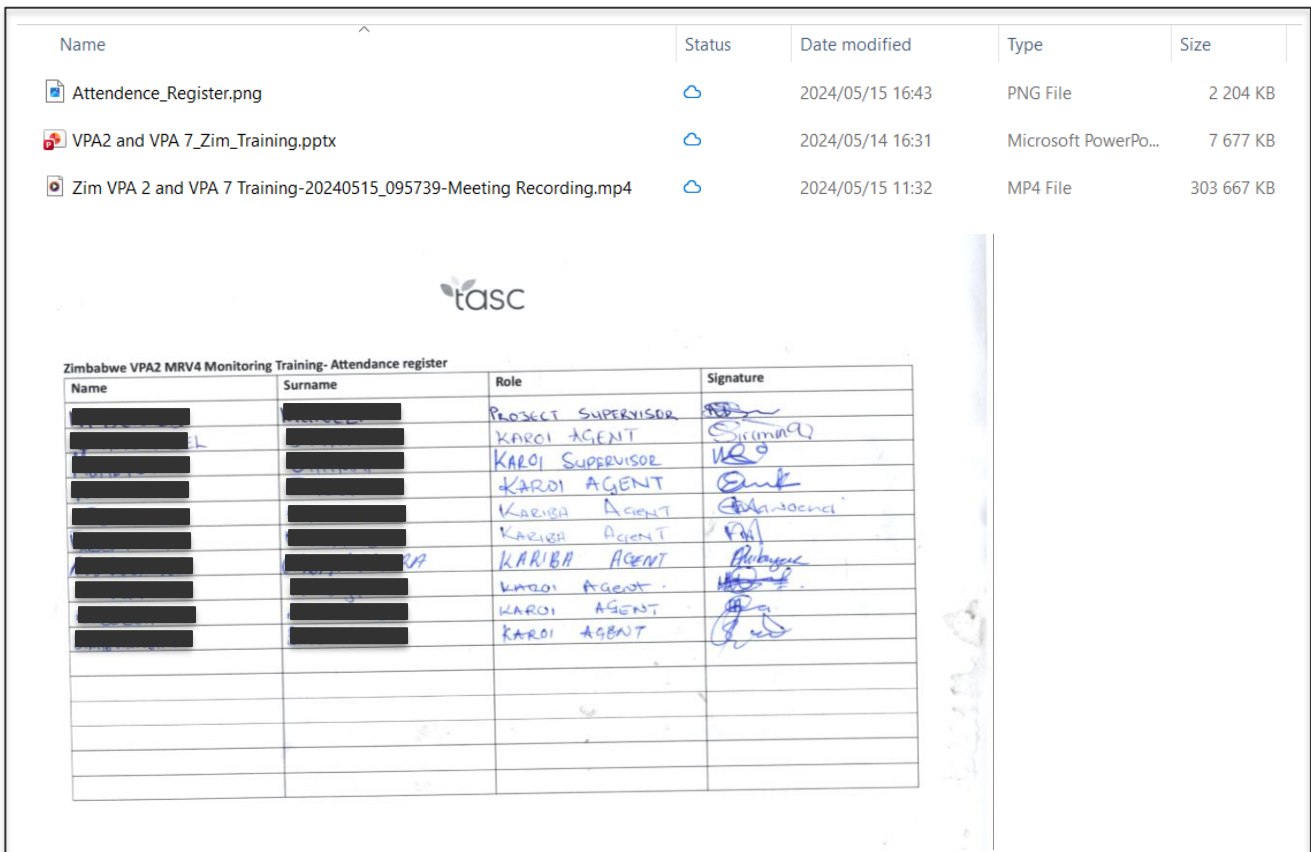


Figure 1: Field team training evidence from training event on 15/05/2024. Personal information has been redacted

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.

The screenshot below from SurveyCTO demonstrates the number of internal habit surveys conducted by the field monitoring team (Figure 3). During the duration of MP 4, 4,566 internal habit surveys were conducted across both VPA 2 (GS11551) and VPA 7 (GS12144). This can be seen in the red box, where 4,566 surveys were done between 1 January 2024 to 31 August 2024 (MP 4 duration).

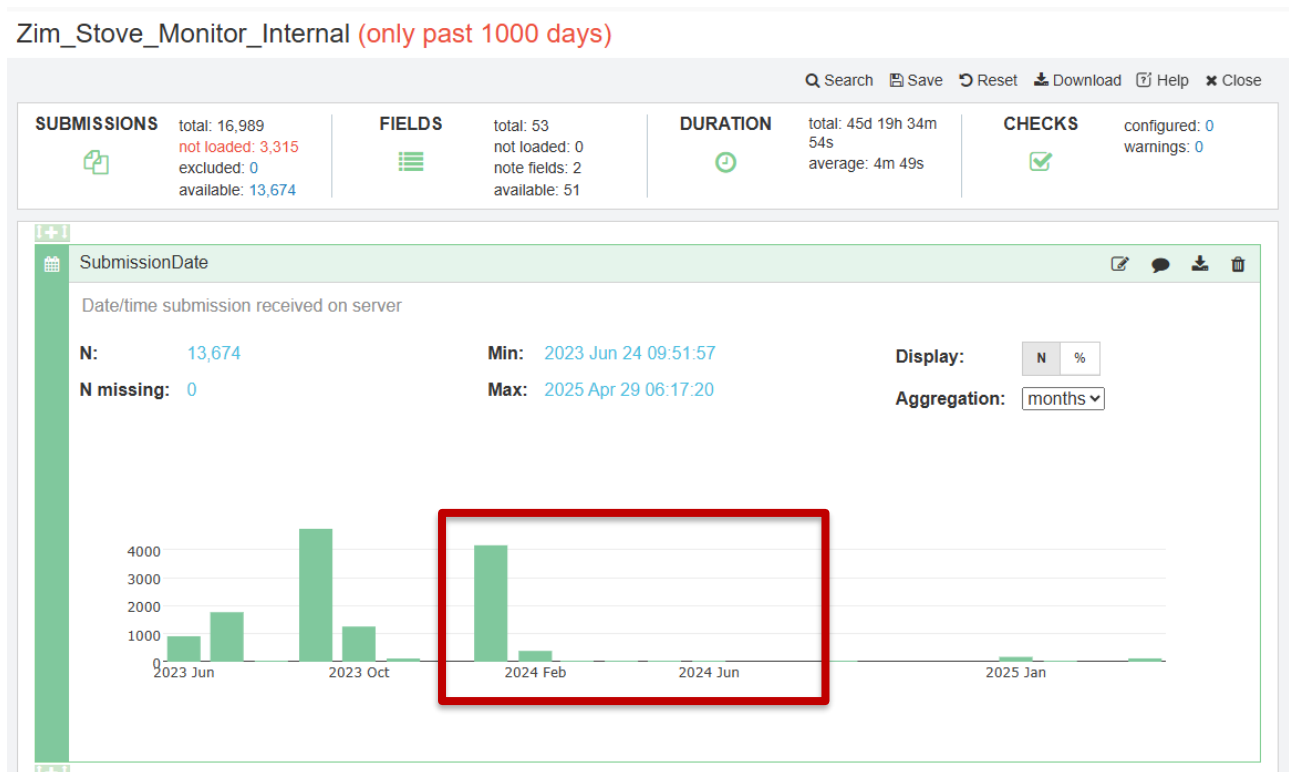


Figure 3: Screenshot of SurveyCTO dashboard demonstrating the number of internal habit surveys conducted.

The screenshot below from SurveyCTO demonstrates the number of internal KPTs conducted by the field monitoring team (Figure 4). During the duration of MP 4, 1,592 internal KPTs were conducted across both VPA 2 (GS11551) and VPA 7 (GS12144). This can be seen in the red box, where 1,592 KPTs were done between 1 January 2024 to 31 August 2024 (MP 4 duration).

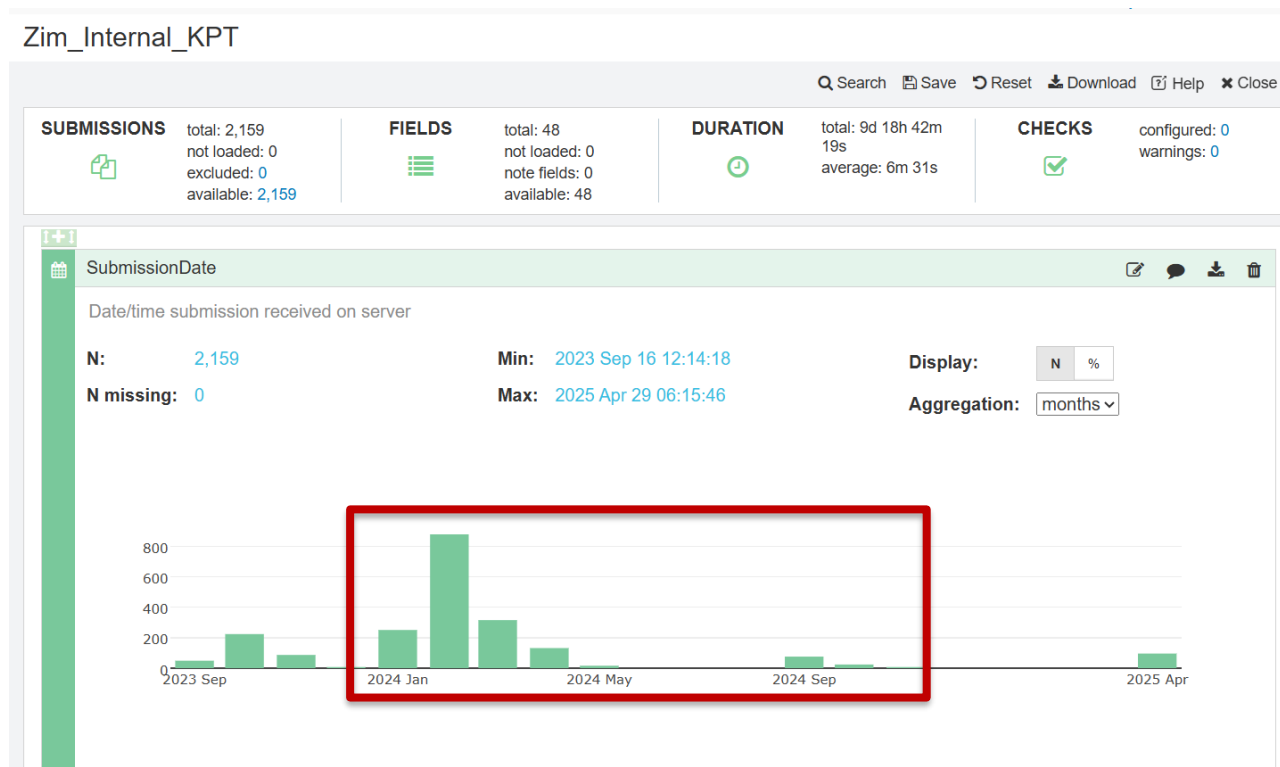


Figure 4: Screenshot of SurveyCTO dashboard demonstrating the number of internal KPTs conducted.

The field teams conduct internal habit surveys and internal KPTs solely for operational and performance-management purposes. This data is not used in the emissions reduction calculations. The internal surveys assist in identifying areas where stove usage may be lower so that targeted follow-up visits can be planned. They also provide general insights into household cooking habits, family sizes, and fuel use, which support project planning and ensure our field teams remain engaged with communities throughout the year.

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. The images below (Figure 5) demonstrate the various awareness campaigns, community meetings, stove demonstrations, internal habit surveys and KPTs, and sensitization events that occurred during the monitoring period across both VPA 2 (GS11551) and VPA 7 (GS12144).





Figure 5: Various awareness campaigns, community meetings, stove demonstrations, internal habit surveys and KPTs, and sensitization events that occurred during the monitoring period.

In addition, the Zimbabwean DNA visited the projects (both VPA 2 (GS11551) and VPA 7 (GS12144)) on the 12th of February 2024 (as evidenced in Figure 6 and Figure 7). During this time, households were engaged to show the DNA the effectiveness of the project.

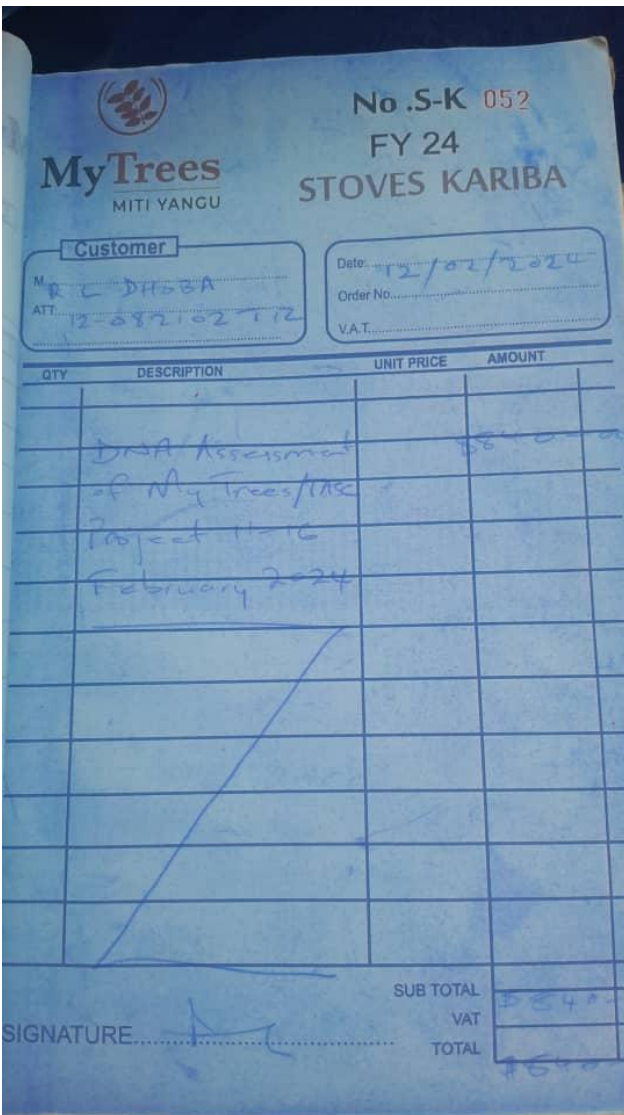


Figure 6: Receipt from DNA assessment of the VPA 2 (GS11551) and VPA 7 (GS12144) projects.



Figure 7: Photographs from the DNA assessment in February 2024.

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
= 5.488t (KPT value retrieved from Baseline KPT's)

SDG 13: Climate Action

$BE_{b,y}$ Baseline emissions for baseline scenario b in year y (tCO₂e/yr)
= 397,017

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

Where:

$\Sigma_{b,p}$	Sum over all relevant (baseline b) couples = 79,000 ICS
$N_{p,y}$	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 = 19,276,000 days
$U_{p,y}$	Cumulative usage rate for technologies in baseline scenario p in year y, = 77%
ER_{b,p,y,CO_2}	Specific CO ₂ emission savings for an individual technology of Baseline b in year y, in tCO ₂ /day as derived from the statistical analysis of the data collected from the field tests = 7.2837 t per annum
$ER_{b,p,y,nonCO_2}$	Specific non-CO ₂ emission savings for an individual technology of Baseline b in year y, in tCO ₂ /day as derived from the statistical analysis of the data collected from the field tests = 2.4227 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 (NRB) = 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 ₂ emission factor of the fuel type <i>i</i> used in the baseline = (112 tCO ₂ /TJ*0.015 TJ/t) = 1.68 tCO ₂ /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:

$$EF_{b,i,\text{nonCO}_2} \text{ non-CO}_2 \text{ emission factor of the fuel type } i \text{ used in the baseline}$$

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

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

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

SDG 1: No Poverty

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

$$= 79,000$$

Where:

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

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

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

$$= 100\%$$

Where:

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

$$= 0$$

$$HHS_{\text{Project}} \text{ \% HH reporting money saving due to reduced fuel consumption in project}$$

$$= 100\%$$

Average fuel savings costs were calculated at 12.96 USD per month, or 155.57 USD per annum, versus the 320.10 USD/annum expected in the baseline calculation.

SDG 3: Good Health and Well Being

$$\text{Net Benefit (SDG 3)} = SPM_{\text{HH,Project}} - SPM_{\text{HH,Baseline}}$$

$$= 95\%$$

Where:

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

$$= 0$$

SPM_{HH,Project} % HH reporting reduction in smoke/PM emissions while cooking on improved stove in project
 = 95%

SDG 5: Gender Equality

Net Benefit (SDG 5) = HHTS_{Project} - HHTS_{Baseline}
 = 96%

Where:

HHTS_{Baseline} % HH reporting time saving from reduced cooking time in baseline
 = 0

HHTS_{Project} % HH reporting time saving from reduced cooking time in baseline in project
 = 96%

SDG 7: Affordable and Clean Energy

Net Benefit (SDG 7) = ACS_{Project} - ACS_{Baseline}
 = 79,000

Where:

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

ACS_{Project} Access to affordable and clean energy (Number of operating ICS units under Project)
 = 79,000

SDG 8: Decent Work and Economic Growth

Net Benefit (SDG 8) = QE IG_{Project} - QE IG_{Baseline}
 = 24

Where:

QE IG_{Baseline} Quantitative Employment and income generation (Number of persons hired under Baseline)
 = 0

QE IG_{Project} Quantitative Employment and income generation (Number of persons hired under Project)
 = 24

SDG 12: Responsible Consumption and Production

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

Where:

$$B_{y,savings} \quad \text{Reduction in domestic fuel consumption (tonnes/year)} \\ = 4.6247t$$

$$B_{b,y,i} \quad \text{Fuel consumption for fuel type } i \text{ used in baseline } b \text{ in year } y \text{ in tonnes,} \\ \text{from baseline KPTs} \\ = 5.488t$$

$$B_{p,y,i} \quad \text{Fuel consumption for fuel type } i \text{ used in project } p \text{ in year } y \text{ in tonnes, as} \\ \text{derived from the statistical analysis of the data collected from the field} \\ \text{tests} \\ = 0.8633t$$

SDG 13: Climate Action

For a complete overview of the ex-ante and ex-post CO₂ 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:

$$ER_y \quad \text{Emission reduction for total project activity in year } y \text{ (tCO}_2\text{e/yr)} \\ = 334,563 \text{ (Round down)}$$

$$BE_{b,y} \quad \text{Baseline emissions for baseline scenario } b \text{ in year } y \text{ (tCO}_2\text{e/yr)} \\ = 397,017$$

$$PE_{p,y} \quad \text{Project emissions for project scenario } p \text{ in year } y \text{ (tCO}_2\text{e/yr)} \\ = 62,453$$

$$LE_{p,y} \quad \text{Leakage for project scenario } p \text{ in year } y \text{ (tCO}_2\text{e/yr)} \\ = 0$$

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:

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

Where:

$\Sigma_{b,p}$	Sum over all relevant (baseline b/project p) couples = 79,000 ICS
$N_{p,y}$	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 = 19,276,000 days
$U_{p,y}$	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) = 77%
ER_{b,p,y,CO_2}	Specific CO ₂ emission savings for an individual technology of Project against an individual technology of Baseline b in year y, in tCO ₂ /day as derived from the statistical analysis of the data collected from the field tests = 7.2837 t per annum (see below) = 0.0200 tCO ₂ e/day
$ER_{b,p,y,nonCO_2}$	Specific non-CO ₂ emission savings for an individual technology of Project against an individual technology of Baseline b in year y, in tCO ₂ /day as derived from the statistical analysis of the data collected from the field tests = 2.4227 t per annum (see below) = 0.0066 tCO ₂ e/day
$LE_{p,y}$	Leakage for project scenario p in year y (See Section E.3) = 0% = 0 tCO ₂ 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>i</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
 = 0.8633t

$NCV_{b,i}$ Net calorific value of the fuel type i used in baseline b (TJ/tonnes)
 = 0.015

EF_{b,i,CO_2} CO₂ emission factor of the fuel type i used in the baseline
 = (112 tCO₂/TJ * 0.015 TJ/t)
 = 1.68 tCO₂/tonne of wood

i Fuel Type

$$ER_{b,p,y,nonCO_2} = \sum_i \{ B_{b,y,i} * NCV_{b,i} * EF_{b,i,nonCO_2} \} - \sum_i \{ B_{p,y,i} * NCV_{p,i} * EF_{p,i,nonCO_2} \}$$

Where:

$EF_{b,i,nonCO_2}$ non-CO₂ emission factor of the fuel type i used in the baseline
 = (34.27 (CH₄) + 2.98 (N₂O) tCO₂/TJ) * 0.015 TJ/t
 = 0.5588 tCO₂/tonne of wood

LE_y 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</p>
--	---

	the boundary. This leakage source can therefore be discounted.
<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>	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.
<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>	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 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>	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).

	Therefore, there is no possible leakage in this scenario.
<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>	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.

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

SDG No.	SDG Impact	Baseline	Project	Net benefit
13	Tonnes CO ₂ equivalent emissions	397,017	62,453	334,563
1	Number of ICS distributed	0	79,000	79,000
1	Financial savings (USD/month)	0	12.96	12.96
3	% HH reported reduction in smoke/PM Emissions while cooking on ICS	0	95%	95%
5	% HH reporting time saving from reduced cooking time whilst using ICS	0	96%	96%
7	Access to affordable and clean energy (number of ICS distributed)	0	79,000	79,000
8	Quantitative employment and income generation (Number of persons hired)	0	24	24
12	Wood fuel savings while cooking on project ICS in tonnes per annum	0	4.6247	4.6247

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

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values ⁹ achieved during this monitoring period
13	434,284 (tCO ₂ e), (Cell F33, "Ex-Ante" tab, ER calc sheet)	334,563 (tCO ₂ e)
1	25,500 (Number of ICS distributed) 340.10 (USD per annum (or 28.34 USD per month))	79,000 (Number of ICS distributed) 155.57 (USD per annum (or 12.96 USD per month))
3	100%	95%
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)	4.6247 (tonnes/year)

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

Ex-ante values were based on the total number of days that the monitoring period lasts, assuming that all ICS were distributed on day 1.

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

By,savings (SDG 12) was calculated ex-ante and based on assumed project fuel use values in VPA-DD; 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.

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

SDG 1 & 7: more stoves were distributed than expected as more investment than was envisaged in the VPA was obtained by the Project Participants.

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 of 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.

SECTION F. SAFEGUARDS REPORTING

Risk identified in PDD	Actions to Mitigate	Mitigated? (yes/no)
<p>Principle 6.1 Labour Rights: 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>	Yes
<p>Principle 6.1 Labour Rights: Working agreements with all individual workers shall be documented and implemented and include: a. Working hours (must not exceed 48 hours per week on a regular basis), AND</p>	<p>Legal employment contracts for project staff in Zimbabwe are provided to the VVB as evidence.</p>	Yes

<ul style="list-style-type: none"> b. Duties and tasks, AND c. Remuneration (must include provision for payment of overtime), AND d. Modalities on health insurance, AND e. Modalities on termination of the contract with provision for voluntary resignation by employee, AND f. Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 		
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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.

Grievances can be logged through a dedicated email received during the distribution of the devices. Furthermore, grievances can also be logged directly with the field teams present in the areas. A dedicated grievance book is kept taking note of all grievances received and how they were addressed.

During this monitoring period, the grievance logbook demonstrates that the following was reported:

1. Two stolen stoves (Cottage Mafuriranwa (stove number ZM00037) and Violate Mavhuranhahsa)
2. Two damaged stoves (Owen Kapfupi (stove number ZM06164) and Chamunorwa Kamusaira (stove number ZM36071))
3. Stove doesn't produce enough heat to the full house
4. Stove is not suitable for 3-legged pot
5. Some pots are damaged by the stove
6. Stove can't take two pots
7. Stove isn't suitable for baking
8. Stove doesn't produce light for the full house.

For points 1 and 2, the stoves reported stolen and damaged were removed from the database. Violate Mavhuranhahsa was not found in either VPA 2 or VPA 7’s database.

For points 3 to 8, although the feedback listed above was recorded during monitoring or community feedback sessions, it is important to clarify that they do not constitute formal grievances. Rather, these are observational notes or general comments made by users regarding the functional characteristics and limitations of the stove. They do not indicate any failure or defect in the stove’s performance related to its intended use, namely, fuel-efficient and cleaner cooking. Such notes are part of broader user feedback that helps inform stove education and possible future design improvements, but they should not be interpreted as formal complaints or operational failures.

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
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 accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption