



**Verified Carbon
Standard**

RECIPE FOR CHANGE GROUPED PROJECT

wonderbag.

Document Prepared by Promethium Carbon on behalf of Wonderbag

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1 PROJECT DETAILS

1.1 Summary Description of the Project

Project description and location: This Recipe for Change Grouped Project consists of the adoption of the Wonderbag heat-retention cooking devices in kitchens throughout the Republic of South Africa.

The Grouped Project is managed by Wonderbag UK Limited. Wonderbag often outsources the distribution of bags to third parties. Wonderbag is also responsible for the production of the bags, which is undertaken either in-house or subcontracted.

The Grouped Project will comprise various Project Activity Instances, that will contain a maximum of 20,000 bags each.

The Wonderbags allow for slow-cooking of nutritious meals in an easy, safe and energy efficient manner. Wonderbags have health, social and environmental and climate benefits associated with reduced fuel consumption for cooking purposes. In particular, women and girls in South Africa are disproportionately burdened with the unpaid labour of collecting fuels and for the cooking of meals. Wonderbags save time, money and fuel when cooking, providing for the opportunity to use these resources in more productive ways such as pursuing education and employment opportunities.



Figure 1: Typical Wonderbag

Technology description: The Wonderbag is a thermally insulated material bag that is used to cook food in an energy efficient, safe manner. The bags are made from a combination of repurposed insulation foam, recycled polyester, poly-cotton and materials. The bags comprise a base which holds the pot of food, which is topped by a cushion-lid. The base and lid are drawn tightly together using a drawstring in the base, which is used to ensure that the pot is snugly insulated.

The process of cooking using a Wonderbag is initiated by bringing a pot of food to the boil using conventional cooking methods and fuels. The heated cooking pot is then transferred to and sealed in the Wonderbag where it continues to simmer and cook the food. Once the pot is inside the bag, the stove is no longer used to cook the dish. After some time in the bag, the dish is ready to eat.

Greenhouse gas emission reductions: South African households make use of several different fuels and methods for cooking purposes, which are typically emissions intensive. Households cooking with a Wonderbag reduce the quantity of fuels used for cooking purposes, resulting in greenhouse gas emission savings.

Baseline scenario and estimate of annual average emission reductions: The baseline scenarios before the implementation of this Grouped Project are the use of fossil fuels (electricity, gas, paraffin and coal) and/or non-renewable biomass for cooking in households throughout South Africa.

The first Project Activity Instance under the Recipe for Change Grouped Project (RFC PA 1) is estimated to generate an average of 20,679 tCO₂e emission reductions annually and a total of 144,755 tCO₂e emission reductions over the first crediting period of seven years (15 March 2019 to 14 March 2026).

1.2 Sectoral Scope and Project Type

Grouped Project and Project Activity Instances

Scope 3: Energy demand, specifically demand side energy efficiency.

Project type: energy efficient heat retention bags.

1.3 Project Eligibility

Grouped Project and Project Activity Instances

The Recipe for Change Group Project and respective project activities do not fall under the category of excluded projects in Table 1 of the VCS Standard, V4.0:

Table 1: Excluded Project Activities under the VCS

Excluded activity	Applicability
Activities that reduce hydrofluorocarbon-23 (HFC-23) emissions.	N/a. The Grouped Project and project activities reduce CO ₂ emissions associated with the combustion of cooking fuels.
Grid-connected electricity generation using hydro power plants/units.	N/a. The Grouped Project and project activities are energy efficiency measures and do not generate electricity from hydro power plants/units.
Grid-connected electricity generation using wind, geothermal, or solar power plants/units.	N/a. The Grouped Project and project activities are energy efficiency measures and do not generate electricity using wind, geothermal, or solar power plants/units.
Utilization of recovered waste heat for, inter alia, combined cycle electricity generation and the provision of heat for residential, commercial or industrial use	N/a. The Grouped Project and project activities are energy efficiency measures and do not utilise recovered waste heat for any purposes.
Generation of electricity and/or thermal energy using biomass. This does not include efficiency improvements in thermal applications (e.g., cook stoves).	N/a. The Grouped Project and project activities are energy efficiency measures that employ the use of Wonderbag heat retention bags (cookstoves).

Generation of electricity and/or thermal energy using fossil fuels, including activities that involve switching from a higher carbon content fuel to a lower carbon content fuel.	N/a. The Grouped Project and project activities are energy efficiency measures and do not generate electricity and or thermal energy.
Replacement of electric lighting with more energy efficient electric lighting, such as the replacement of incandescent electrical bulbs with CFLs or LEDs.	N/a. The Grouped Project and project activities are energy efficiency measures that employ the use of Wonderbag heat retention bags (cookstoves), not the replace of electric lighting.
Installation and/or replacement of electricity transmission lines and/or energy efficient transformers.	N/a. The Grouped Project and project activities are energy efficiency measures that employ the use of Wonderbag heat retention bags (cookstoves), not the installation and/or replacement of electricity transmission lines and/or energy efficient transformers.

The Recipe for Change Grouped Project and project activities are therefore eligible under the scope of the VCS Program v4.0.

1.4 Project Design

The project is a Grouped Project. New project activity instances can be introduced in phases.

Eligibility Criteria

The following table outlines the general eligibility criteria for the inclusion of new project activity instances, as required by Clause 3.5.15 of the VCS Standard, Version 4.

Table 2: Set of Eligibility Criteria for New Project Activity Instances

	Eligibility criteria	Method of Evaluation	Applicability to RFC PA 1 ¹
1.	Meet the applicability conditions set out in the methodology applied to the project.	Each new Project Activity Instance must demonstrate compliance with the applicability conditions set out in the employed methodologies: AMS-II.C. "Demand-side energy efficiency activities for specific	RFC PA 1 is compliant with the applicability conditions set out in both the applied methodologies, AMS-II.C. and AMS-II.G., as demonstrated in section 3.2 of this project description.

¹ Recipe for Change Project Activity 1.

		technologies” version 15.0 and/or AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass” version 11.1.	
2.	Use the technologies or measures specified in the project description.	Each new Project Activity Instance must comprise only Wonderbag heat retention bags.	RFC PA 1 comprises the use of only Wonderbag heat retention bags.
3.	Apply the technologies or measures in the same manner as specified in the project description.	Each new Project Activity Instance must confirm that the type of technology employed by the project activity are standard (also known as large) size Wonderbag heat retention bags. For example, provide declaration or other evidence.	The RFC PA 1 comprises the use of standard (also known as large) size Wonderbag heat retention bags.
4.	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	Each new Project Activity Instance must demonstrate that the baseline scenarios comprise one or more of the following cooking fuels in South Africa: 1.) Electricity; 2.) Coal; 3.) Paraffin; 4.) LPG; 5.) Biomass.	The baseline scenarios in RFC PA 1 include the following cooking fuels in South Africa: 1.) Electricity; 2.) Coal; 3.) Paraffin; 4.) LPG; 5.) Biomass. These baseline fuels were identified during the course of the Baseline Survey, undertaken by an independent third party. The baseline scenario is outlined further in section 3.4 of this project description.
5.	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic	Each new Project Activity Instance must demonstrate additionality, as per paragraph 10(a) of the CDM’s TOOL21:	RFC PA 1 meets the additionality requirement because the provision of Wonderbags to end users is reliant on the carbon

	area. For example, the new project activity instances have financial, technical and/or other parameters (such as the size/scale of the instances) consistent with the initial instances, or face the same investment, technological and/or other barriers as the initial instances.	“Demonstration of additionality of small-scale project activities”, version 13.1. Paragraph 10(a) requires the evidence that in the absence of the VCS grouped project, the project activity instances (i.e. each distributed Wonderbag) would not have occurred due to prevailing investment barriers. Furthermore, each new Project Activity Instance will comprise a maximum of 20,000 Wonderbags.	credit revenues derived from the bags. Additionality is demonstrated further in section 3.5 of this project description. Furthermore, RFC PA 1 contains a maximum of 20,000 distributed Wonderbags.
6.	Where grouped projects include multiple baseline scenarios or demonstrations of additionality, such projects will require at least one set of eligibility criteria for each combination of baseline scenario and demonstration of additionality specified in the project description.	Each new Project Activity Instance must demonstrate which of the following baseline scenarios, i.e. cooking fuels, are applied: 1.) Electricity; 2.) Coal; 3.) Paraffin; 4.) LPG; 5.) Biomass. At least one of the baseline scenarios must be utilised in the project activity instance, which must further demonstrate compliance with all the set of eligibility criteria for the inclusion of new project activities instances as outlined in this table.	RFC PA 1 contains a combination of all five baseline cooking fuel scenarios: 1.) Electricity; 2.) Coal; 3.) Paraffin; 4.) LPG; 5.) Biomass. The baseline cooking fuels were identified during the course of the Baseline Survey, undertaken by an independent third party. As demonstrated in this table and in the following table, RFC PA 1 complies with the set of applicable eligibility criteria for the inclusion of new project activities instances, as required by clauses 3.5.15 and 3.5.16 of the VCS Standard, Version 4.

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The following table outlines the eligibility criteria for the inclusion of new project activity instances, as per clause 3.5.16 of the VCS Standard, Version 4.

Table 3: Eligibility Criteria for the Inclusion of new Project Activity Instances

	Eligibility criteria for the inclusion of new project activity instances	Method of Evaluation	Applicability to RFC PA 1
1.	Geographical boundaries: all new project activity instances must be located within the boundary of the Republic of South Africa.	Demonstrate that the Wonderbags in new Project Activity Instances are distributed within the boundaries of the Republic of South Africa. For example, provide database records.	Wonderbags in RFC PA 1 have been distributed in the Republic of South Africa, as per the database records.
2.	Comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial compliance with multiple sets of eligibility criteria is insufficient.	New Project Activity Instances must comply with the full set of eligibility criteria for the inclusion of new project activity instances in this table.	RFC PA 1 complies with the full set of applicable eligibility criteria for the inclusion of new project activity instances in this table and in the table above.
3.	Be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body.	New Project Activity Instances must comprise monitoring plans that outline the technical, financial, geographic and other relevant information to enable sampling by the validation/verification body.	RFC PA 1 comprises a monitoring plan that outlines the technical, financial, geographic and other relevant information to enable sampling by the validation/ verification body.
4.	Be validated at the time of verification against the applicable set of eligibility criteria.	New Project Activity Instances must be validated at the time of verification against the applicable set of eligibility criteria.	RFC PA 1 will be validated at the time of verification against the applicable set of eligibility criteria.

5.	Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).	New Project Activity Instances must demonstrate ownership by the project participant, from the start date of the project activity instance.	RFC PA 1 is owned by Wonderbag UK Limited. Wonderbags are trade-marked devices. Ownership is outlined further in section 1.7 of this project description.
6.	Have a start date that is the same as or later than the grouped project start date: 15 March 2019.	New Project Activity Instances must provide evidence that only bags distributed into the field after the Group Project start date are accounted for. For example, provide database records of distributed bags.	The bags employed in RFC PA 1 have all been distributed into the field from the Group Project start date of 15 March 2019, as per the section 1.8 of this Project Description.
7.	Be eligible for crediting from the start date of the instance through to the end of the project crediting period (only).	New Project Activity Instances must be eligible for crediting from the start date of the instance through to the end of the project crediting period (only).	RFC PA 1 is eligible for crediting from the start date of the instance, 15 March 2019 through to the end of the project crediting period (only), 14 March 2026. Evidence of this is the database records that indicate that the first Wonderbags under RFC PA 1 were distributed on 15 March 2019.
7.	Where inclusion of a new project activity instance necessitates the addition of a new project proponent to the project, such instances shall be included in the grouped project within two years of the project activity instance start date	The addition of a new project proponent to Project Activity Instances shall be included in the grouped project within two years of the project activity instance start date.	Not applicable to RFC PA 1 as the only project proponent in Wonderbag UK Limited.

1.5 Project Proponent

Grouped Project and Project Activity Instances

Organization name	Wonderbag UK Limited
Contact person	Sarah Collins
Title	Chief Executive Officer
Address	Estuary House, Sea Wall, Whitstable, England, CT5 1BX
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1.6 Other Entities Involved in the Project

Organization name	Promethium Carbon
Role in the project	Development of VCS documentation; assistance in registration.
Contact person	Robbie Louw
Title	Director
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1.7 Ownership

Grouped Project

The Wonderbag is trade-marked in various countries, including South Africa. Wonderbag UK is the legal owner of the grouped project and each project activity instance under the grouped project, unless otherwise stated. Every project activity instance to be added to this Grouped Project is required to provide evidence of project ownership.

RFC PA 1

All Wonderbags are distributed to end users for free, or at a heavily-discounted rates. However, Wonderbag UK Limited is the owner of the all the Project Activity Instances, unless otherwise stated. The greenhouse gas emission reductions are unconditionally, undisputedly and unencumberedly claimed by the project. Right of use is supported by equipping each Wonderbag with a unique ID

(barcoded serial number) which is sewn into the bellyband of the bag and a declaration is also provided in the accompanying cookbook which all bag recipients receive.

The barcoded serial number sewn into the bags supports Wonderbag's proof of ownership of the credits because bags users are informed, typically on receipt of the bag, that the unique ID is necessary to prove that the bags are part of a carbon programme. Bag users are informed that the receipt of the bags for free, or at a heavily discounted rate, is due to the subsidizing of the bags through carbon funding. Bag users are informed that receipt of the bag is on the basis that any accruing carbon credits belong to Wonderbag,

Confirmation of Wonderbag's ownership of the any accruing carbon credits is recorded either manually in the completed distribution questionnaire or electronically in the Wonderbag app, which is completed for each distributed bag.

The cookbooks also support Wonderbag's proof of ownership of the credits, through the following declaration: "By using the Wonderbag, the owner acknowledges the funding and distribution of the bag by Wonderbag companies, and that all impacts and carbon credits generated and issued against this bag will belong to the Wonderbag organisation."

1.8 Project Start Date

Grouped Project and RFC PA 1 (first Project Activity Instance)

15 March 2019. This is the date in 2019 on which Wonderbag undertook a series of activations.

1.9 Project Crediting Period

Grouped Project and RFC PA 1 (first Project Activity Instance)

Crediting period: renewable.

Total number of years: 7 years, renewable twice.

Start and end date of first crediting period: 15 March 2019 to 14 March 2026 (total 7 years).

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

Project Activity Instances

Project Scale	
Project	X
Large project	

The estimated greenhouse gas emission reductions for the first Project Activity Instance (RFC PA 1) are summarised in the following table.

RFC PA 1

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
2019	20,679
2020	20,679
2021	20,679
2022	20,679
2023	20,679
2024	20,679
2025	20,679
Total estimated ERs	144,755
Total number of crediting years	7
Average annual ERs	20,369

1.11 Description of the Project Activity

The Grouped Project allows for the implementation of heat retention bags in Project Activity Instances in South Africa. The bags are manufactured by Wonderbag. Greenhouse gas reductions are achieved through the energy efficiencies that result through the use of the heat retaining Wonderbags.

Manufacturing and distribution: The heat retaining Wonderbags are manufactured in KwaZulu Natal, South Africa. The bags are made from materials (typically polycotton or polyester) which are sewn according to a prescribed pattern. Each bag is filled with heat retaining materials, such as recycled foam. The heat retaining materials are chipped or shredded ensuring effective heat or coolth retention. The finished bags are packaged in bales or vacuum sealed prior to distribution.

Each Wonderbag is provided to a user with a:

- Label with serial number (unique Wonderbag ID).
- Instruction and cookbook with a carbon waiver and recipes to cook with a Wonderbag.
- Self-registration and warranty leaflet.

The main means of distribution for Wonderbags to end users are:

- Retail stores where distribution campaigns are organized around productions.

- Other outlets like: Governmental, municipal or NGO run distribution channels.
- Distribution hubs for direct sales to users.

Serial numbers are recorded per Wonderbag leaving the warehouse. Transport is usually undertaken by truck. Each Wonderbag user provides their identification and contact details, as well as the serial number of the receive bag, for record keeping purposes.

Type and capacity of Wonderbags in the Grouped Project: The eligible type of Wonderbags under this Grouped Project and respective project activity instances is the large/standard size. The dimensions include the following:

- Weight: approximately 1.5 - 1.8 kgs.
- In use dimension: 47cm x 47cm x 22cm
- Size: Up to 2 - 10L pot size.

This large/standard size Wonderbag is suitable for preparing meals for single to 12 person households.

Baseline equipment and levels of service: The equipment in the baseline of this Grouped Project include electric, gas, paraffin, coal and biomass stoves, used for cooking in households throughout South Africa.

Wonderbags are used in conjunction with conventional stove top equipment because the Wonderbag utilises the latent energy of the conventional cooking method. In other words, the use of a Wonderbag relies on the heating of the pot via the same (baseline) equipment used in the household prior to the receipt of the Wonderbag. Once the pot comes to the boil on the conventional stove then the pot is transferred to the Wonderbag for further, slow-cooking that does not require any additional energy. The use of the Wonderbag therefore reduces the amount of time, and therefore energy, required to cook meals on a stove top. Reduced energy used for cooking purposes therefore contributes to reduced greenhouse gas emissions.

The Wonderbags keep food hot or cold. They are light, easily portable and compact for easy stow away. Wonderbags are also safer and more convenient to operate than conventional cooking methods, which typically require ongoing supervision to ensure that the food being cooked does not burn or cause a hazard (such as fire risk) if left unattended. Wonderbags also double as cooler bags that keep food and drinks chilled.

Warranty and expected lifetime: Users who register their Wonderbag with full registration details will receive a warranty that covers the replacement of the bag if a defect occurs through no fault of the user. The warranty applies during the first 3 years of use for fully registered users. The expected lifetime of a Wonderbag is minimum of 10 years if properly cared for.

1.12 Project Location

The Grouped Project location is the Republic of South Africa as shown in Figure 2. The project boundary for each Project Activity Instance is the physical, geographical location of the Wonderbags in that Project Activity Instance in the Republic of South Africa.



Figure 2 Grouped Project location

1.13 Conditions Prior to Project Initiation

The baseline scenario is the same as the conditions existing prior to the Grouped Project initiation. Refer to Section 3.4 (Baseline Scenario).

The Grouped Project has not been implemented to generate greenhouse gas emissions for the purpose of their subsequent reduction, removal or destruction. The Wonderbags have been developed to provide humanitarian services in underdeveloped communities and as such are often distributed by NGOs and other aid agencies.

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

Grouped Project

Wonderbag complies with applicable local laws and regulatory frameworks related to the manufacturing of the heat retention bags.

Under South African law and regulation, none of the activities or processes relating to the manufacture or distribution of Wonderbags require Environmental Impact Assessments. The relevant law and

regulations are found in section 53(1) of the National Environmental Management: Biodiversity Act (No. 10) 2004, and in sections 24 and 24D of the National Environmental Management Act (1998); specifically, notices No. R. 386 and R. 387 (2006). The 25 activities (under Notice 386) and 10 activities (under Notice 387) that require environmental impact assessments do not include any activities related to Wonderbag.

The only applicable laws are those related to the running of a business in South Africa. The project owner complies with relevant laws, statutes and regulatory frameworks of South Africa.

RFC PA 1

Not applicable as this is demonstrated at a Group Project level.

1.15 Participation under Other GHG Programs

1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

Grouped Project

Every additional project activity instance to be added to this Grouped Project is required to demonstrate whether the project has been registered, or is seeking registration, under any other greenhouse gas programme. Where the project activity instance has been registered under any other greenhouse gas programme, the registration number and details will be provided.

RFC PA 1

The Wonderbags under RFC PA 1 have not been registered under any other greenhouse gas programme and are not seeking registration under any other greenhouse gas programme.

1.15.2 Projects Rejected by Other GHG Programs

Grouped Project

The CDM PoA 5174² was provisionally rejected³ in 2012 due to various deficiencies related to the determination of the baseline emissions and the monitoring plan design.

CDM reasons for the rejection:

The new Recipe for Change grouped project has applied learnings from the findings by the CDM-EB related to the rejection of the Wonderbag CDM PoA 5174, as per the following table.

Table 4: CDM findings and learnings applied to Recipe for Change

² Available at: https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/MUFTXDO7WK510PSRLY3IGH4NZ286CJ/view

³ The CDM noted that “with appropriate revisions, this programme of activity may be resubmitted for validation and registration provided it meets the requirements for validation and registration, in accordance with paragraph 42 of the CDM Modalities and Procedures (Decision 3/CMP.1)”.

CDM-EB findings related to rejection of PoA	Learning applied to the Recipe for Change grouped project
AMS II.C version 13, paragraph 6 states that “If the energy displaced is electricity, the emission baseline is determined using one of the two following options: - Option 2: The specific energy consumption of the system in the baseline times the output in project year y times the emission factor for the electricity displaced. EER, Specific Energy consumption in the baseline (MWh/unit). EER is calculated as total annual electricity consumed in the baseline divided by total quantity of annual output in the baseline. Data from at least 3 years prior to project implementation shall be used in the calculations, e.g., water supply from a pumping station (records of output can be used in lieu of actually monitored baseline data). For facilities that are less than 3 years old, all historical data shall be available (a minimum of one year data would be required)”	The CDM’s standardized baseline, ASB0040-2018, version 1 has been applied with respect to the electricity baseline. This Grouped Project makes use of version 15 of AMS II.C. in which the Option 2 referred to in version 13 has become Option 3. In this Grouped Project we make use of Option 1 for constant load equipment. Electric stoves are considered as electric resistance heating and are therefore applicable based on para 21 of AMS II.C. version 15. Furthermore, the baselines emissions for the other cooking fuels (LPG, paraffin, coal and biomass) are determined as per the respective methodologies employed in the grouped project. See sections 3.4, 4.1 and 4.4.2 respectively.
EB50, Annex 30, paragraph 33 states that “PDDs for projects that rely on sampling for parameter value determination should include complete sampling plans. These plans should include: - Sampling Objective. - Field Measurement Objectives and Data to be collected. The plan should clearly describe the variables and data to be collected, the scope and method of the survey or field measurements, their frequency, and how the data will be used. - Target Population and Sampling Frame. - Sample Method. - Desired Precision/Expected Variance and Sample Size. The plan should present and justify the target number of completed surveys or field measurements (the sample size). That justification should include a prediction of the variance of the parameters of interest and basis for that prediction. The plan must include	The comprehensive sampling plan in section 5.3.5 contains the required details. Of note is the development of an electronic Wonderbag app, which will facilitate the capturing, recording and archiving of data related to distribution of bags and subsequent surveys. - The sampling objective has been stated under section 5.3.5 under the Sampling Design section of the sampling plan. - The sampling plan under section 5.3.5 outlines the variables and data to be collected as well as their methods. - The target population has been provided in section 5.3.5 - The desired precision is outlined in section 5.3.5. A precision of 10% is desired in this Grouped

formulas for calculating confidence and precision of determined parameter value. - Procedures for Administering Data Collection and Minimizing Non-Sampling Errors. - Implementation”.	Project. The sample size required will be determined based on the number of Wonderbags distributed, the CDM Sampling Standard and Guidelines or the KPT Guidance. The CDM’s calculator may be used for the calculations. The standard deviation of the parameters was estimated using the range rule and assuming a normal distribution. The data collection and QA/QC measures are provided in section 5.3.5 under the heading <i>(ii) Quality Assurance/Quality Control</i> - The implementation of the sampling plan is discussed in section 5.3
The DOE (TÜV-SÜD) failed to substantiate: (i) the compliance of determining the baseline emissions with AMC II.C version 13, paragraph 6; (ii) the completeness of the sampling plan in accordance with EB 50, annex 30, paragraph 33; and (iii) the compliance of the monitoring plan with AMC II.C version 13 as required by validation and verification manual (VVM) version 1.2, paragraph 123 (a).	(i) Discussed above. Option 1 of AMS II.C. version 15 has been applied. The standardized baseline for SAPP has been applied in calculated electricity use baseline emissions. (ii) Discussed above. The sampling plan outlined in section 5.3.5 meets the necessary requirements. (iii) Discussed below.
VVM version 1.2, paragraph 123 (a) states that ““The DOE shall apply a two-step process to assessing compliance with this requirement, as follows: (a) Compliance of the monitoring plan with the approved methodology. The DOE shall: (i) By means of document review, identify the list of parameters required by the selected approved methodology; (ii) Confirm that the monitoring plan contains all necessary parameters, that they	(i) The parameters required by the selected methodologies can be seen in sections 5.1 and 5.2 (ii) The monitoring plan contains all necessary parameters from the methodologies along with the means of monitoring these parameters.

are clearly described and that the means of monitoring described in the plan complies with the requirements of the methodology "".	
The DOE failed to substantiate the applicability of the option 2 in determining the baseline emission of electricity consumption given that the DOE has not explained whether the facilities (households) are less than three years old to use one year historical data in determining the specific energy consumption in the baseline.	As discussed above. Option 1 of version 15 of AMS II.C. has been applied for constant load equipment. Electric stoves are considered as electric resistance heating and are therefore applicable based on para 21 of AMS II.C. version 15.
The DOE failed to substantiate the completeness of the sampling plan as the DOE has not : (i) provided the data to be collected; (ii) explained the method of survey; (iii) explained whether the sampling method is simple random sampling or two stage sampling as the DOE has explained either can be used; (iv) explained whether sample size of 300 is at CPA level or PoA level; and (v) explained the value of the prediction of variance and how the suitability of this value has been validated.	(i) Section 5.2 outlines the parameters to be monitored. Section 5.3 outlines the data that will be collected during surveys (ii) Section 5.3.5 outlines the methods of surveys to be conducted (iii) Section 5.3.5 states the sampling method to be used. Simple random sampling may be used. (iv) The sample size will be at a Grouped Project level. The confidence level has been set at 95% in accordance with the CDM Sampling Standard to account for the (v) Section 5.3.5 contains an estimate of the variance expected. The standard deviation has been estimated using the range rule and assuming a normal distribution
The DOE failed to substantiate how the difference of the household energy consumption between the project group and baseline group, which will be monitored and used to calculate the emission reduction, is attributable to the heat-retention device of the project activity.	A baseline survey has been conducted to obtain the baseline energy consumption of households before the introduction of heat-retention devices. Periodic surveys will be conducted for verifications which will monitor the energy consumption once using the Wonderbag. Any reductions in energy consumption can be

	attributed primarily to the heat-retention device as the consumption without the device is compared to the consumption with it. Only households who are cooking with the heat-retention device will be considered when conducting the monitoring.
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Eligibility under the VCS Program:

The new Recipe for Change grouped project has applied the learnings from the CDM's findings related to the rejection of the PoA 5174, as demonstrated in the table above.

Moreover, the new Recipe for Change grouped project meets the requirements of the eligibility criteria under the VCS Program, as outlined in section 1.4 below, as well as the requirements of the respective methodologies and tools, as outlined in section 3.2 below.

The successful registration of grouped project under the VCS, Saving the Planet, One Stew at a Time⁴, demonstrates the project proponent's capabilities to successfully register and implement carbon credit projects where the learnings from the CDM rejection of the PoA 5174 were successfully demonstrated.

The VCS Grouped Project in question, Saving the Planet, One Stew at a Time entails the use of Wonderbags under the same methodology (AMS-II.C.) proposed for use in the failed PoA registration. Further, the VCS grouped project has had numerous successful verifications under the VCS, demonstrating a keen and proficient understanding of the requirements to develop and implement a successful monitoring plan that meets the requirements of independent auditors and the VCS rules. In addition, Wonderbag has also subsequently registered a CDM PoA, Heat Retention Cooking in Less Developed Countries (9596), with the first CPA located in Rwanda. While PoA 9596 uses a different methodology (AMS-II.G. version 3) compared to the rejected Wonderbag PoA 5174, its successful registration further proves that the Wonderbag team has overcome concerns related to the development of appropriate monitoring plans related to the monitoring of these distributed units.

This new VCS Grouped Project, Recipe for Change, comprises the latest versions of both methodologies (AMS-II.C. and AMS-II.G.) used in Wonderbag's successfully registered carbon project activities. This will allow for emission reductions to be generated from the use of the bags in South African households that utilise both fossil fuels and biomass for cooking.

⁴ Available at: <https://registry.verra.org/app/projectDetail/VCS/935>

RFC PA 1

The Wonderbags under RFC PA 1 have not been rejected by any other greenhouse gas programme. The project activity instances are made up of the new distributed units that have been placed in the field from the start date of the grouped project.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

Grouped Project

Every additional Project Activity Instance to be added to this Grouped Project is required, when applicable, to demonstrate that net greenhouse gas emission reductions generated by the project will not be used for compliance with an emissions trading programme or to meet binding limits on greenhouse gas emissions.

RFC PA 1

The South African Carbon Tax system contains an offset trading option. However, the South African Carbon tax system does not have binding limits on emissions. Therefore, carbon credits from the project activity instances will not be used to meet any binding limits or to ensure compliance with an emissions trading programme.

1.16.2 Other Forms of Environmental Credit

Grouped Project

Every project activity instance to be added to this Grouped Project will demonstrate that it has neither sought nor received any other form of greenhouse gas -related environmental credit, including renewable energy certificates.

RFC PA 1

The Wonderbags under RFC PA 1 do not intend to generate any other form of greenhouse gas-related environmental credit other than those claimed under this VCS project.

1.17 Additional Information Relevant to the Project

1.17.1 Leakage Management

Grouped Project

Every project activity instance to be added to this Grouped Project will demonstrate that it has applied the leakage management conditions required by the respective methodologies, if these are relevant to the project activity instance. If leakage is not relevant to the project activity instance, this shall be justified in the project description.

RFC PA 1

With respect to the AMS-II.C methodology: the introduction of the Wonderbag does not replace the stove of the household or institution. Households use the same cooking equipment before and after receipt of a Wonderbag. Therefore, there is no risk of leakage due to old discarded stoves being used elsewhere outside the project boundary or new stoves being used due to the introduction of the Wonderbag.

Under the AMS-II.G. methodology, leakage is considered by applying a default factor to the emission reductions. This leakage occurs due to the fact that the biomass saved by the use of a Wonderbag may be used by someone else not cooking with a Wonderbag.

1.17.2 Commercially Sensitive Information

All information in this Grouped Project Description is public.

1.17.3 Sustainable Development

Apart from fuel and emissions savings the Wonderbag has many other benefits for the household, the community and the world at large. It contributes to sustainable development in South Africa through:

- Reducing deforestation due to efficient fuel usage that occurs when using the Wonderbag.
- Increase in disposable income due to reduced spending on fuels.
- It helps stimulate economic empowerment by creating jobs and entrepreneurs in manufacturing and selling of Wonderbags.
- Time savings for the person cooking: this is a highly valued benefit for the household as cooks now add productive time to their working day. This facilitates schooling for girls, who are often made responsible for cooking activities.
- Gender balance: as the persons cooking in the household are mainly women, their earning potential, confidence and general position strengthens. In addition, reduced time spent by women collecting firewood has been shown to lower the incidence of rape.
- Improved health: cooking with a Wonderbag reduces indoor air pollution and helps reduce burn injuries and death, especially those caused by paraffin cookstoves.
- Improved food utilization: cooking in a Wonderbag prevents food being burnt meaning reduced food wastage.

1.17.4 Further Information

There are no further additional relevant legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and/or temporal information that may have a bearing on the eligibility of the project, the net greenhouse gas emission reductions or removals, or the quantification of the project's net greenhouse gas emission reductions or removals.

2 SAFEGUARDS

2.1 No Net Harm

Grouped Project

Under South African law and regulation, none of the activities or processes relating to the manufacture or distribution of Wonderbags require Environmental Impact Assessments. The relevant law and regulations are found in section 53(1) of the National Environmental Management: Biodiversity Act (No. 10) 2004, and in sections 24 and 24D of the National Environmental Management Act (1998); specifically, notices No. R. 386 and R. 387 (2006). The 25 activities (under Notice 386) and 10 activities (under Notice 387) that require environmental impact assessments do not include any activities related to Wonderbag.

The lack of regulation requiring Wonderbag to undertake environmental impact assessments supports the assertion that there are no potential negative environmental impacts related to the manufacture or use of a Wonderbag. Wonderbags are manufactured using recycled materials, further supporting the statement that their use contributes to resource efficiencies and a circular economy, which benefit the environment. The use of Wonderbags to reduce the use of cooking fuels, particularly biomass, is well established⁵. Reducing the use of non-renewable biomass for cooking is particularly important for preserving biodiversity and for reducing greenhouse gas emissions resulting from the combustion of biomass.

Furthermore, there are no negative socio-economic impacts related to the use of a Wonderbag. Rather, the use of Wonderbags has positive social-economic impacts. These positive impacts include improved levels of indoor air pollution that are linked to respiratory illness; increased disposable income from reduced cooking fuel costs and reduced time spent preparing meals, typically the responsibility of girls and women. Such household members may defer their monetary and time saving to other activities, such as education or livelihoods. These are particularly important development impacts for lower income and historically disadvantaged communities in South Africa. Hence, the manufacture and use of Wonderbags results in no net harm to the environment or the communities in which they are used.

RFC PA 1

Not applicable as proven at Grouped Project level.

⁵ Statement issued by the International Federation of the Red Cross:
<https://twitter.com/IFRCAfrica/status/1338483539625586689>.

2.2 Local Stakeholder Consultation

Local stakeholder consultations have been undertaken at the Grouped Project level.

Ongoing, local stakeholder consultations are key components of the Wonderbag operations. Local stakeholder consultations are undertaken prior to the distribution of bags in an area. As a first step, Wonderbag engages with local community members, including municipal ward councilors and community leaders, to identify appropriate end-users and develop the required distribution plans for the community rollout of Wonderbags.

Wonderbag and distribution partners (on behalf of Wonderbag) then undertake interactive training and activation (demonstration) sessions with community members who receive the Wonderbags. These sessions provide information on how to use and care for the Wonderbags as well as to engage with end users regarding queries that they may have in relation to the use of the Wonderbags.

- The procedures or methods used for engaging local stakeholders:

Dates of recent training sessions and bag activations	Reports for these consultations have been provided in Appendix 2 containing several attendance registers of those who attended. Photographic evidence has been provided in Appendix 2. 1. Planting Hope Foundation: Location: Pietermaritzburg, KwaZulu Natal. Date: 28 July 2020. 2. Sizasimeni Creche: Location: Snathing Location, KwaZulu Natal. Date: 28 August 2020. 3. Letcee: Location: Greytown, KwaZulu Natal. Date: 6 August 2020. 4. Cancer Support Group: Location: Overport Durban, KwaZulu Natal. Date: 6 August 2020. 5. Thandanani Children's Foundation Location: Pietermaritzburg, KwaZulu Natal. Date: 29 June 2020. 6. Kalinka: Location: Pietermaritzburg, KwaZulu Natal. Date: 1 July 2020. 7. Open Door Crisis Centre: Location: Pinetown, KwaZulu Natal. Date: 31 July 2020. 8. Molweni Zime Centre: Location: Molweni Valley 1000 Hills, KwaZulu Natal. Date: 27 August 2020.
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	9. Red Cross Pietermaritzburg: Location: Pietermaritzburg, KwaZulu Natal. Date: 12 August 2020. 10. Dlalanathi: Location: Pietermaritzburg, KwaZulu Natal. Date: 7 July 2020. 11. Constantia CAN: Location: Constantia and Khayelitsha site B, Western Cape. Date: 13 May 2020 and 28 May 2020. 12. Kommetjie CAN/Ocean View: Location: Living Hope, Capri and Ocean View, Western Cape. Date: 14 May 2020 and 26 May 2020. 13. Living Hope: Location: Living Hope, Capri, Western Cape. Date: 12 activations over May & June 2020. 14. Clovelly CAN: Location: Living Hope, Capri, Western Cape. Date: 28 April 2020. 15. PayGas – WC: Location: Delft, Western Cape. Date: 28 May 2020. 16. Pure Good: Location: Windfield Military Air Base, Western Cape. Date: 1 June 2020. 17. This is Progress: Location: Salt River, Western Cape. Date: 14 August 2020. 18. Ward 67 – Gerry: Location: Pelikan heights, Western Cape. Date: 18 August 2020. 19. Ladles of Love/ Den Anker: Location: Den Anker, Waterfront, Western Cape. Date: 11 September 2020. 20. Do More Foundation: Location: Worcester, Western Cape. Date: 12 August 2020. 21. Uphawu Community / Philippi: Location: Grounds Farm, Philippi, Western Cape. Date: 10 August 2020.
Communication media	Wonderbag uses different communication media to engage with end-users. This includes verbal mediums such as meetings or

	events. These are effective means of communicating with the end-users of the bags because Wonderbag recipients typically come from impoverished or low-income communities, where literacy levels are often poor. The contents of these physical engagements typically cover the benefits of the Wonderbag usage, including time saving on the cooking process, the money that would be saved on cooking fuels due to reduced cooking times, the positive environmental impact of using the Wonderbag, especially regarding water saving and energy savings which in turn would reduce greenhouse gas emissions, as well as the health benefits due to reduced indoor air pollution and finally the empowerment of women. The engagements also cover practical issues, such as the different options and ideas of how food can be cooked. The recipe book is typically discussed and users are encouraged to ask questions about the bag and cooking practicalities. Furthermore, Wonderbag and distribution partners also use social media, such as Facebook, where events and Wonderbag distribution points are communicated. This communication medium is particularly important because the vast majority of South African have access to smartphones, regardless of their socio-economic levels⁶. Additionally, all Wonderbag recipients are provided with a hard copy recipe book which invites Wonderbag users to engage with Wonderbag and provides contact details to do so. In future, Wonderbag is also considering options to communicate with end users via a smart phone app.
How stakeholders are identified	Wonderbag identifies distribution partners through the company's extensive aid and development networks, which have been developed over the past decade through Wonderbag's involvement in South Africa's socio-economic development. Wonderbag's distribution partners, typically NGOs and other aid agencies, are typically responsible for identifying communities in

⁶ South Africa's smartphone penetration increased from 81.7% in 2018 to 91.2% in 2019: http://www.connectingafrica.com/author.asp?section_id=761&doc_id=761473#:~:text=South%20Africa's%20smartphone%20penetration%20increased,of%20the%20ICT%20Sector%20report.

	which the Wonderbags are distributed. These communities are characterised by low-income and development levels that require humanitarian assistance.
Mechanisms for on-going communication with local stakeholders	Each Wonderbag includes a recipe booklet which contains contact information whereby stakeholders are invited to contact Wonderbag via provided contact details. Ongoing engagements are also channeled through Wonderbag's distribution network, largely comprising NGOs and other social development institutions, which typically have ongoing access to, or representatives in, the communities in which Wonderbags are distributed. Wonderbag plans to appoint community representatives (Wonderbag Champions) who will regularly engage with Wonderbag users within the communities that they are based. Wonderbag Champions will also be able to assist in rolling out the different types of ongoing engagements that Wonderbag is considering. These include: - Wonder meal events – releasing new recipes for users to try. - Social media posts on benefits of using the bag – e.g. cooking before work in a Wonderbag allows users to come home to a warm cooked meal. - Running Wonderbag cooking competitions in certain areas - can be virtual or face to face. The virtual competition can be based on likes of cooking posts. Prizes can create participation. - Wonderbag community events using service providers related early childhood development, churches and schools in selected areas. - Promotions through distributing NGOs – e.g. arranging Wonderbag picnics, motivations to send in pictures of fun family occasions using Wonderbags, etc. Wonderbag is also investigating opportunities to engage with users through a smart phone app.
Procedures for documenting the outcomes of stakeholder consultations	The Wonderbag training and activation teams recognise the importance of ensuring that typical questions raised at stakeholder consultations are addressed. As a procedure in this regard, the Wonderbag team documents major engagements and saves such records in the company's archives. A Stakeholder Engagement

	Report has been compiled in this regard, which details the methods of stakeholder engagements (typically physical meetings related to training of distribution partners and/or end-user activation/demonstration sessions), ongoing mechanisms for engagement and outcomes of stakeholder consultations (the latter is contained in Annexure B of the report). The documented outcomes of the engagements include details such as the participating organisation, the location and date of the engagement, a description of the engagement and a list of the attendees.
How due account is taken of all and any input received during the consultations	The typical questions raised at stakeholder consultations and the answers provided include. See Appendix 2 for supporting report. Q: Why is the Wonderbag provided for free or at such a discounted rate? - A: the bags provided under this grouped project are subsidized by carbon funding. This mechanism allows Wonderbag to provide the bags for free, or at a heavily discounted rate, to end users. Wonderbag therefore maintains the right to any carbon credits that accrue due to the use of the bags. Q: What is the Wonderbag filled with? - A: approximately 1.5 kg of repurposed insulation foam or other recycled materials. Q: How long will the bag last? - A minimum of 15 years assuming it is properly cared for. Q: Is it possible to wash the Wonderbag? - A: Yes it is, both by hand and in the washing machine. Wonderbag ensures that the teams engaging with communities are prepared for such questions by engaging in train-the-trainer sessions. The questions received above are related to the operation or maintenance of the bags and therefore do not require the project design to be updated or amended. Should further comments be received in the ongoing stakeholder consultations, these will be considered in terms of amending the project design where necessary.

2.3 Environmental Impact

South Africa does not require that a detailed environmental impact assessment should be undertaken for the distribution of Wonderbags. Therefore, no regulatory environmental impact assessments are required at the Grouped Project level nor at the project activity instance level.

This is because the use of Wonderbags do not result in negative environmental impacts but result in positive environmental impacts through reduced use of cooking fuels. In addition, the insulation materials of the Wonderbags are made of recycled materials such as recycled chip-foam waste from various sources and manufacturers. The use of Wonderbags therefore reduces waste and pollution, and contributes to the circular economy.

If a Wonderbag is defective and within the warranty period, the bag can be sent to the head office. Wonderbag will dispose the defect Wonderbag in an environmentally friendly way at one of the national recycling locations.

2.4 Public Comments

This Grouped Project was available for public comment during the period 03/02/2021 to 05/03/2021. No comments were received during this period.

2.5 AFOLU-Specific Safeguards

This Grouped Project does not allow for AFOLU project activity instances and therefore this section is not applicable.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

Grouped Project

The Grouped Project provides for projects that use one or both of the following two UNFCCC approved small-scale methodologies:

- AMS-II.C. “Demand-side energy efficiency activities for specific technologies” (Version 15.0)⁷
- AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 11.1)⁸

All prior and preceding references to AMS-II.C. and AMS-II.G. in this project description refer to the respective versions of the methodologies stated above.

⁷ Available at: <https://cdm.unfccc.int/methodologies/DB/7Y44EN2RTD02AJ78JVWCGARE8W64KP>.

⁸ Available at: <https://cdm.unfccc.int/methodologies/DB/10PELMPDW951SVSW1B2NRCQEBAX96C>.

The associated tools and guideline documents in the Grouped Project include:

- CDM TOOL01 “Tool for the demonstration and assessment of additionality” Version 07.0.0⁹;
- CDM TOOL21 “Demonstration of additionality of small-scale project activities” Version 13.1¹⁰;
- CDM TOOL30 “Calculation of the fraction of non-renewable biomass” Version 03.0¹¹;
- CDM Guideline “Sampling and surveys of CDM project activities and programmes of activities” version 04.0¹²;
- CDM Standard “Sampling and surveys for CDM project activities and programmes of activities” version 08.0¹³.

All prior and preceding references to the tools in this project description refer to the respective versions of the documents stated above.

The Group Project also provides for the use of the following standardized baseline:

- ASB0040-2018 Standardized baseline: Grid emission factor for Southern African Power Pool, Version 01.0¹⁴.

All prior and preceding references to the standardized baseline in this project description refer to the version of the standardized baseline stated above.

RFC PA 1

The first Project Activity Instance uses both of the following two UNFCCC approved small-scale methodologies:

- AMS-II.C. “Demand-side energy efficiency activities for specific technologies” (Version 15.0)¹⁵
- AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass” (Version 11.1)¹⁶

The first Project Activity Instance also used the associated tools and guideline documents:

- CDM TOOL21 “Demonstration of additionality of small-scale project activities” Version 13.1¹⁷;
- CDM TOOL30 “Calculation of the fraction of non-renewable biomass” Version 03.0¹⁸;

⁹ Available at: <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>.

¹⁰ Available at: <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-21-v13.1.pdf>.

¹¹ Available at: <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf>.

¹² Available at: https://cdm.unfccc.int/filestorage/e/x/t/extfile-20151023152925164-Meth_GC48_-ver04.0-.pdf/Meth_GC48_%28ver04.0%29?t=dXp8cXBLODImfDAoZWl3jtPK-YHhzn-s1Q9I.

¹³ Available at: https://cdm.unfccc.int/filestorage/e/x/t/extfile-20191129115244333-Meth_stan05.pdf/Meth_stan05.pdf?t=SEZ8cXBLOGM1fDCBptKtanuMrwWQpUVsX2bm.

¹⁴ Available at: https://cdm.unfccc.int/methodologies/standard_base/2015/sb131.html.

¹⁵ Available at: <https://cdm.unfccc.int/methodologies/DB/7Y44EN2RTD02AJ78JVVCGARE8W64KP>.

¹⁶ Available at: <https://cdm.unfccc.int/methodologies/DB/10PELMPDW951SVSW1B2NRCQEBAX96C>.

¹⁷ Available at: <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-21-v13.1.pdf>.

¹⁸ Available at: <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf>.

- CDM Guideline “Sampling and surveys of CDM project activities and programmes of activities” version 04.0¹⁹;
- CDM Standard “Sampling and surveys for CDM project activities and programmes of activities” version 08.0²⁰;
- ASB0040-2018 Standardized baseline: Grid emission factor for Southern African Power Pool, Version 01.0²¹.

3.2 Applicability of Methodology

The applicability criteria of the methodologies and tools used apply at the project activity level, as reflected in the following tables in this section.

Methodology AMS-II.C. “Demand-side energy efficiency activities for specific technologies” has several applicability conditions that need to be fulfilled in order to apply the methodology. The applicability criteria and compliance are presented in Table 1.

Table 5 Fulfillment of AMS-II.C applicability criteria

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
1	This methodology is only applicable if the service level (e.g. rated capacity or output) of the installed, project energy-efficient equipment is between 90% and 150% of the service level of the baseline equipment. Examples of service levels are light output for lighting equipment, water output and temperature for water heating systems, and rated thermal output capacity of air conditioners. The relationship of the service level of the project energy-efficient equipment to the baseline equipment can be one to one replacement (e.g. replacement of inefficient refrigerator with new and efficient refrigerator) or many-to-one (e.g. replacement of small multiple chillers with a central chiller plant). In the latter case, the service level of the project and	Complies. The service levels of both the Wonderbags and stoves are the cooking of food. The service levels of the installed heat-retaining Wonderbags is 100% of the service level of the stoves used to cook a household’s food (i.e. baseline equipment). The relationship of the service level of the Wonderbags to the stoves can be a one to one replacement, for example where a Wonderbag replaces the use of a single stove plate. An example of this scenario is the typical paraffin or LPG burners used to cook food, which consists of a single plate, upon which a pot/pan is used to cook food. The relationship of the service level of the Wonderbags to the stoves can also be many-to-one, for example where multiple Wonderbags are

¹⁹ Available at: https://cdm.unfccc.int/filestorage/e/x/t/extfile-20151023152925164-Meth_GC48_-ver04.0-.pdf/Meth_GC48_%28ver04.0%29?t=dXp8cXBLODImfDAoZWl3jtPK-YHhzn-s1Q9I.

²⁰ Available at: https://cdm.unfccc.int/filestorage/e/x/t/extfile-20191129115244333-Meth_stan05.pdf/Meth_stan05.pdf?t=SEZ8cXBLOGM1fDCBptKtanuMrwWQpUVsX2bm._

²¹ Available at: https://cdm.unfccc.int/methodologies/standard_base/2015/sb131.html.

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
	baseline can be compared on an aggregate basis.	installed. In the latter case, the service level of the project and baseline is compared on an aggregate basis.
2	In the event that project output in year y is greater than the average historical output (average of the three most recent years prior to the project implementation ²²) and the demonstration of the baseline for the incremental capacity is not undertaken, the value of the output in year y is capped at the value of the historical average output level.	Complies. The output (use of the Wonderbags to cook food) will not increase because the meals per adult equivalent will not increase due to the project activities and therefore the fuels used to cook said meals will not increase.
3	If the energy-efficient equipment contains refrigerants, then the refrigerant used in the project case shall have no ozone depleting potential (ODP).	Not applicable: the Wonderbag does not make use of any refrigerants.
4	This methodology credits emission reductions only due to the reduction in electricity and/or fossil fuel consumption from use of more efficient equipment. However, the calculation of project emissions shall include any incremental emissions, as compared to the baseline, associated with refrigerants used in the project equipment.	Not applicable: the Wonderbag does not make use of any refrigerants.
5	The aggregate energy savings by a single project may not exceed the equivalent of 60GWh per year for electricity end-use energy efficiency technologies. For fossil fuel end-use energy efficiency technologies, the limit is 180 GWh thermal per year in fuel input.	Complies. A single Wonderbag is estimated to save approximately 0.001TJ, 0.0001TJ and 0.00013TJ for coal, LPG and paraffin respectively. A single project activity instance of 20,000 Wonderbags would therefore save 20TJ, 2TJ and 2.6TJ respectively. All of these fall below the threshold of 180GWh thermal converted to 648TJ. In the case of electricity, a single Wonderbag is estimated to save 0.0002GWh. A single project activity instance of 20,000 Wonderbags

²² A maximum of +10% variation is permitted.

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
		therefore saves 4GWh which falls below the threshold of 60GWh

Methodology AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass” has several applicability conditions that need to be fulfilled in order to apply the methodology. The applicability criteria and the way the project complies with the conditions is presented in the following table.

Table 6 Fulfillment of AMS-II.G applicability criteria

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
1	The aggregated energy savings of a single project activity shall not exceed the equivalent of 60GWh per year or 180GWh thermal per year in fuel input.	Complies. Each project activity instance will be limited to a maximum of 20,000 Wonderbags in order to remain below this threshold. A single Wonderbag is estimated to save 0.020TJ and the 180GWh thermal is equivalent to 648TJ. A single project activity instance of 20,000 Wonderbags would therefore save approximately 400TJ.
2	Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.	Complies. The annual trend for natural forest in South Africa shows a decrease since 1990.
3	For cases where the biomass is sourced from renewable sources, the project participants should use a corresponding Type I methodology.	Not applicable. Only non-renewable biomass is considered in this project.
4	If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period.	Complies. The Wonderbag does not require a specific fuel. It is used in conjunction with the existing cooking system. The consumption of the fuel used will be monitored through surveys during the crediting period.
5	The project description shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations.	Complies. The method of distribution of Wonderbags is described in Section 1.11. Each Wonderbag is issued with a unique ID which avoids double counting.

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
6.	The project description shall explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.	Wonderbag UK Ltd is the only manufacturer of the Wonderbag and keeps records of all manufactured Wonderbags using a unique ID for each bag. A distribution agreement is signed by all distribution partners stating that they will not claim any emission reductions from the distributed Wonderbags.

Table 7 Fulfillment of TOOL21 “Demonstration of additionality of small-scale project activities” applicability criteria

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
1	The use of the “Demonstration of additionality of small-scale project activities” is not mandatory for project participants when proposing new methodologies. Project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board. They may also submit revisions to approved methodologies using the additionality tool.	Not applicable. The project does not propose a new methodology.
2	Project participants and coordinating/managing entities may also apply “TOOL19: Demonstration of additionality of microscale project activities” as applicable.	Not applicable. Additionality is proven using the investment barrier analysis as per paragraph 10(a) of the TOOL21. The assessment is undertaken in the following section 3.5 of this project description.

Table 8 Fulfillment of TOOL30 “Calculation of the fraction of non-renewable biomass” applicability criteria

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
1	This tool may be used by: (a) DNAs to submit region/country-specific default fNRB values, following the procedures for development, revision, clarification and update of standardized baselines (SB procedures); or (b) (b) project proponents to calculate project or PoA-specific fNRB values.	Complies. This tool was used by the project participants to calculate a project specific value for fNRB under option (b) of applicability condition 1.

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
2	For project or PoA specific fNRB values, project proponents shall assess the area where biomass is sourced and justify the selection of the area in CDM project design documents.	Complies. The area for the calculated value was selected to coincide with the Grouped Project's project boundary.

Table 9 Fulfillment of ASB0040-2018 “Standardized baseline: Grid emission factor for Southern African Power Pool” applicability criteria

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
1	Clean development mechanism (CDM) project activities and programmes of activities (hereinafter referred as project activities) can apply this standardized baseline under the following conditions: (a) The project activity is implemented in any one of following countries, which are the SAPP member countries, and is connected to the SAPP; (i) Republic of Botswana; (ii) Democratic Republic of Congo; (iii) Kingdom of Lesotho; (iv) Republic of Mozambique; (v) Republic of Namibia; (vi) Republic of South Africa; (vii) Kingdom of Swaziland; (viii) Republic of Zambia, and (ix) Republic of Zimbabwe. (b) The CDM approved methodology that is applied to the project activity requires the determination of CO2 emission factor(s) through the application of the grid tool; (c) The project activity uses the ex-ante options for both the operating margin and build margin grid emissions factors, as described in the grid tool, and therefore no monitoring or recalculation of the emission factor during the crediting period is required.	Complies. The project activity falls within the Republic of South Africa. The methodology requires the use of the grid tool to determine the CO2 emission factor. The ex-ante options are used in the grid tool therefore no recalculation is required for the emission factor during the crediting period.

No.	Relevant applicability condition	Compliance at RFC PA 1 Level
2	The latest approved and valid values of this standardized baseline are the only values of the CO ₂ emission factor(s) that shall be applied for the project electricity system in the SAPP member countries listed under sub-para 3(a) above.	Complies. The project activity only applies the value from the approved standardized baseline.

3.3 Project Boundary

Grouped Project and RFC PA 1

The Grouped Project boundary is defined as per AMS-II.C. “Demand-side energy efficiency activities for specific technologies” and AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass”. Each Project Activity Instances will define the boundary of emission sources.

The emissions sources for RFC PA 1 are outlined in the following table.

Source		Gas	Included?	Justification/Explanation
Baseline	Source 1 (Electricity)	CO ₂	Yes	Main source of emissions
		CH ₄	No	Excluded for simplification. Minor source of emissions. Conservative
		N ₂ O	No	Excluded for simplification. Minor source of emissions. Conservative
		Other	No	Not relevant
	Source 2 (Fossil Fuel)	CO ₂	Yes	Main source of emissions
		CH ₄	No	Excluded for simplification. Minor source of emissions. Conservative
		N ₂ O	No	Excluded for simplification. Minor source of emissions. Conservative
		Other	No	Not relevant
	Source 3 (Biomass)	CO ₂	Yes	Main source of emissions
		CH ₄	No	Excluded as per AMS-II.G.
		N ₂ O	No	Excluded as per AMS-II.G.
		Other	No	Not relevant
Project	Source 1 (Electricity)	CO ₂	Yes	Main source of emissions
		CH ₄	No	Excluded for simplification. Minor source of emissions. Conservative

Source		Gas	Included?	Justification/Explanation
		N ₂ O	No	Excluded for simplification. Minor source of emissions. Conservative
		Other	No	Not relevant
	Source 2 (Fossil Fuel)	CO ₂	Yes	Main source of emissions
		CH ₄	No	Excluded for simplification. Minor source of emissions. Conservative
		N ₂ O	No	Excluded for simplification. Minor source of emissions. Conservative
		Other	No	Not relevant
	Source (Biomass)	CO ₂	Yes	Main source of emissions
		CH ₄	No	Excluded as per AMS-II.G.
		N ₂ O	No	Excluded as per AMS-II.G.
		Other	No	Not relevant

The project boundary for the Grouped Project consists of the physical, geographical locations of the distributed Wonderbags limited to within the Republic of South Africa. This includes:

- The Southern Africa Power Pool electricity grid the project cooking system is connected to,
- The fossil fuels used by the project cooking system,
- The biomass used by the project cooking system.

The boundary of emissions sources for RFC PA 1 include all three bullet points listed above, because both fossil fuels and biomass are identified as baseline and project fuels.

The boundaries are shown in the following diagrams for the different fuel and cooking systems.

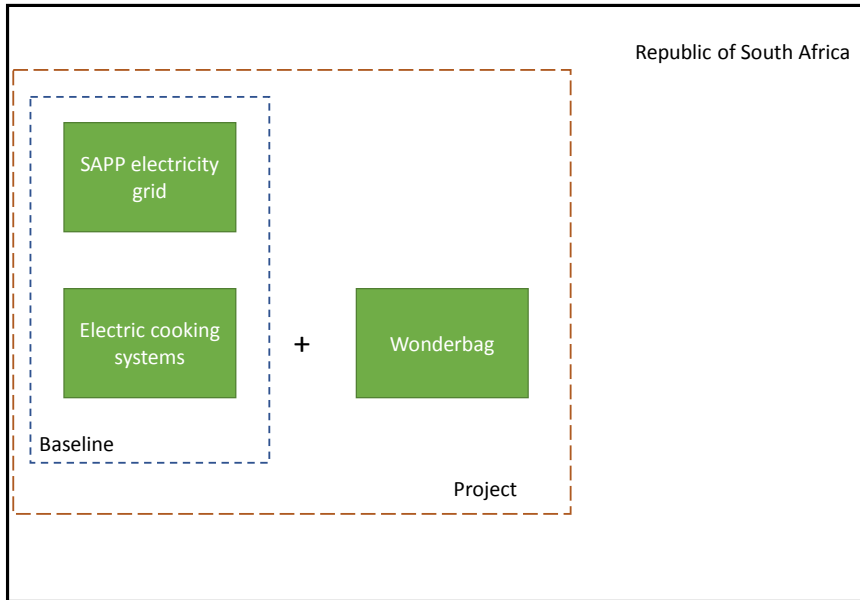


Figure 3 Project boundary: Electric cooking systems

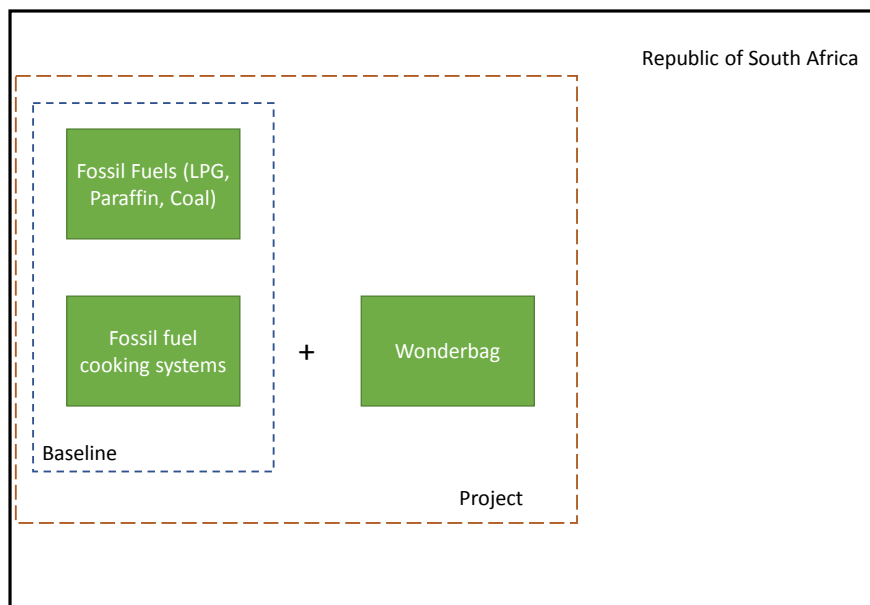


Figure 4 Project boundary: Fossil fuel cooking systems

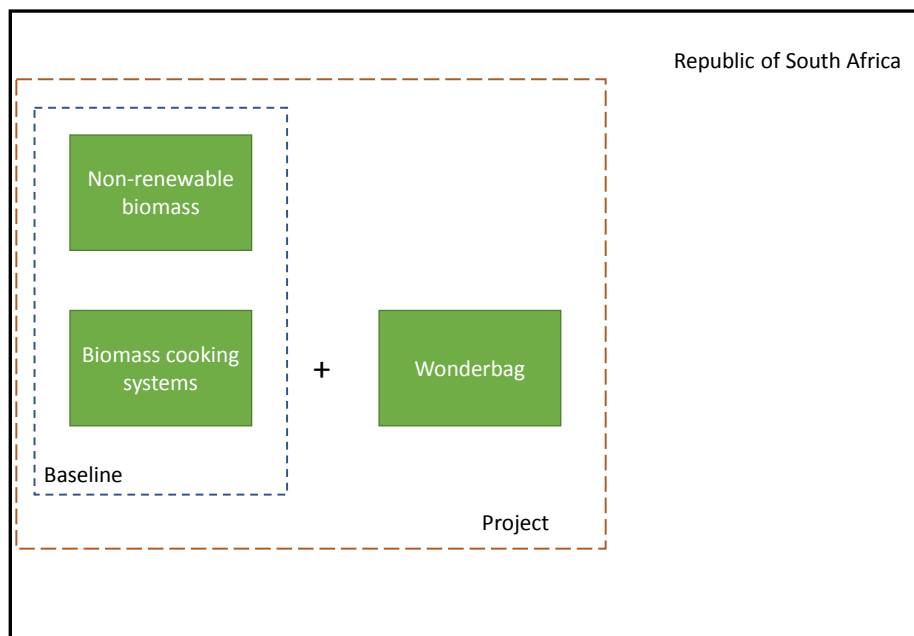


Figure 5 Project boundary: Biomass cooking systems

3.4 Baseline Scenario

Grouped Project

The baseline scenario has been identified as the continuation of the current practice of the preparation of meals, using conventional stove applications, without the additional use of a Wonderbag. In the baseline scenario, the greenhouse gas emissions are therefore determined based on the amount of energy used by the cooking fuel used in the conventional stove application. The typical cooking fuels in Southern Africa and in this Grouped Project include electricity from the South African grid, fossil fuels such as gas, paraffin and coal, and non-renewable biomass.

The respective baselines in Project Activity Instances will be determined using one or both of the following applied methodologies:

- AMS-II.C. “Demand-side energy efficiency activities for specific technologies”²³ and/or
- AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass”²⁴.

In the case where AMS-II.C. is applied, the baseline scenario will be grid based electricity derived from the Southern African Power Pool. The mandatory standardized baseline ASB0040-2018 “Grid emission factor for Southern African Power Pool”²⁵ will be applied. In the case that fossil fuels are used, the baseline scenario assumes that the fossil fuel use will meet similar thermal energy needs provided before the project activity.

²³ Available at: <https://cdm.unfccc.int/methodologies/DB/7Y44EN2RTD02AJ78JVWCGARE8W64KP>.

²⁴ Available at: <https://cdm.unfccc.int/methodologies/DB/10PELMPDW951SVSW1B2NRCQEBAX96C>.

²⁵ Available at: https://cdm.unfccc.int/methodologies/standard_base/2015/sb131.html.

Baseline emission factors for the fossil fuels, other than electricity, used in the Grouped Project and the Project Activity Instances are:

- Paraffin: 71.90 tCO₂/TJ;
- LPG: 63.10 tCO₂/TJ;
- Coal: 96.10 tCO₂/TJ;

In the case where AMS-II.G. is applied, the baseline scenario will be identified by applying the procedures stipulated in TOOL30 “Calculation of the fraction of non-renewable biomass”²⁶. It is assumed that in the absence of the project activity, the baseline scenario would be the project use of fossil fuels to meet similar thermal energy needs as those provided by the project devices.

RFC PA 1

The first Project Activity Instance uses both of the following applied methodologies:

- AMS-II.C. “Demand-side energy efficiency activities for specific technologies”²⁷ and
- AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass”²⁸.

AMS-II.C.: The baseline scenario is grid based electricity derived from the Southern African Power Pool. The mandatory standardized baseline ASB0040-2018 “Grid emission factor for Southern African Power Pool”²⁹ is applied. The baseline scenario assumes that the fossil fuel use will meet similar thermal energy needs provided before the project activity.

Baseline emission factors for the fossil fuels, other than electricity, are:

- Paraffin: 71.90 tCO₂/TJ;
- LPG: 63.10 tCO₂/TJ;
- Coal: 96.10 tCO₂/TJ;

AMS-II.G.: The baseline scenario has been identified by applying the procedures stipulated in TOOL30 “Calculation of the fraction of non-renewable biomass”³⁰. See Appendix 1 for further details.

It is assumed that in the absence of the project activity, the baseline scenario would be the project use of fossil fuels to meet similar thermal energy needs as those provided by the project devices.

3.5 Additionality

The Project Activity Instances in this grouped project meet the requirements for additionality, as per paragraph 10(a) of the CDM’s TOOL21: “Demonstration of additionality of small-scale project activities”. Paragraph 10(a) requires the evidence that in the absence of the VCS grouped project, the project activity instances (i.e. each distributed Wonderbag) would not have occurred due to prevailing

²⁶ Available at: <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf>.

²⁷ Available at: <https://cdm.unfccc.int/methodologies/DB/7Y44EN2RTD02AJ78JVWCGARE8W64KP>.

²⁸ Available at: <https://cdm.unfccc.int/methodologies/DB/10PELMPDW951SVSW1B2NRCQEBAX96C>.

²⁹ Available at: https://cdm.unfccc.int/methodologies/standard_base/2015/sb131.html.

³⁰ Available at: <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-30-v3.0.pdf>.

investment barriers. Each distributed Wonderbag under the Grouped Project meets this requirement because the status quo, cooking without a Wonderbag, is a financially more viable alternative to the project activity that would have led to higher emissions.

Furthermore, the provision of Wonderbags to end users in this Grouped Project is reliant on the carbon credit revenues derived from the bags.

Accordingly, additionality is demonstrated as per the Investment Analysis requirements of the CDM's TOOL21, Paragraph 10(a), as well as the CDM's TOOL01 "Tool for the demonstration and assessment of additionality".

Paragraph 32 of TOOL01 states: *"Determine whether to apply simple cost analysis, investment comparison analysis or benchmark analysis... If the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income, then apply the simple cost analysis."*

Application: The project activities, the distribution of the heat efficient Wonderbags, generate no financial or economic benefits other than carbon related income. Therefore, the simple cost analysis approach is applied to determine additionality.

Application: The following cost analysis was undertaken pertaining to the typical cost of production of each bag.

Typical costings per bag	Cost
Total components	R90.38
Labour cost	R42.00
Distribution and activation	R29.44
Company marketing cost incl TV, Radio, advertising	R123.35
Business running cost	R53.54
Total cost per bag	<u>R338,71</u>

Furthermore, additionality of the Group Project is proven by applying paragraph 33 of TOOL01 which states: *"Document the costs associated with the CDM project activity and the alternatives identified in Step 1 and demonstrate that there is at least one alternative which is less costly than the project activity."*

Application: Wonderbag provides the bags in this Grouped Project either for free, or at a discounted rate, to NGOs and other aid agencies. This is aligned with Wonderbag's business model, which has been developed to provide humanitarian services in underdeveloped communities. Hence, Wonderbag relies on carbon revenues to manufacture bags for distribution at zero, or a discounted, cost to the end-

user in this grouped project. Therefore, no revenue is generated either when the Wonderbags are distributed free of cost or provided at a subsidized rate.

Therefore, in the absence of the carbon revenues, the continuation of the status quo, i.e. cooking without the use of an energy efficient Wonderbag, would prevail. Cooking without the Wonderbag is less costly because the bags have a cost associated with their production. Donations and carbon funding are required to manufacture the bags because the intended end-users do not have the financial means to purchase the heat retaining bags at cost or retail prices.

This proves that the project activity, distribution of heat retaining Wonderbags, is more costly than the status quo where end-users cook without the use of a Wonderbag. Furthermore, cooking without a Wonderbag would have led to higher emissions.

Accordingly, the cost analysis above demonstrates additionality at the grouped project level, meaning that each project activity instance, including RFC PA 1, is also additional.

Therefore, the grouped project and each project activity instance are considered additional in accordance with both TOOL01 “Tool for the demonstration and assessment of additionality” and TOOL21: “Demonstration of additionality of small-scale project activities”.

3.6 Methodology Deviations

Not applicable.

- The Grouped Project and Project Activity Instances comply with the stated methodologies.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

The baseline emissions are determined by the electricity consumption and/or fossil fuel consumption and/or biomass consumption. The baseline emission are determined separately for the biomass methodology in Section 4.4.2 below.

$$BE_y = BE_{ELEC,y} + BE_{FOSSIL,y}$$

Where:

BE_y Baseline emissions in year y (tCO₂e)

$BE_{ELEC,y}$	Baseline emissions from electricity consumption in year y (tCO _{2e} /y)
$BE_{FOSSIL,y}$	Baseline emissions from fossil fuel combustion in year y (tCO _{2e} /y)

4.1.1 Baseline electricity consumption

The baseline emissions from electricity-based cooking systems are calculated as follows in accordance with Option 1 – Constant load equipment in AMS-II.C (section 5.4.1.1):

$$BE_y = E_{BL,y} \times EF_{CO2,ELEC,y} + Q_{ref,BL} \times GWP_{ref,BL}$$

(Equation 1, AMS-II.C.)

This equation is modified as follows to distinguish between the use of electricity or fossil fuels in the baseline.

$$BE_{ELEC,y} = E_{BL,y} \times EF_{CO2,ELEC,y} + Q_{ref,BL} \times GWP_{ref,BL}$$

(Equation 1, AMS-II.C., modified for electricity baseline)

Where:

$BE_{ELEC,y}$	Baseline emissions from electricity consumption in year y (tCO _{2e} /y)
$E_{BL,y}$	Energy consumption for the baseline in year y (kWh)
$EF_{CO2,ELEC,y}$	Electricity emission factor. If electricity displaced is grid, the emission factor in year y shall be calculated in accordance with the provisions in ASB0040 version 01.0. If electricity displaced is captive electricity, the emission factor in year y shall be calculated in accordance with the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”

E_{BL} is calculated as follows:

$$E_{BL,y} = \sum_i (n_i \times \rho_i \times o_{i,BL} / (1 - l_y))$$

(Equation 2 AMS-II.C.)

Where:

n_i	Number of pieces of equipment of the group i baseline equipment retrofitted or that would have been retrofitted
ρ_i	Electrical power demand (kW) of the group i baseline equipment.

In the case of a retrofit activity, electrical power demand is the weighted average of the rated power (kW) of group i baseline equipment. The baseline equipment for this

grouped project consists of different electrical stoves. The power ratings of these electrical stoves can be fixed ex ante.

$O_{i,BL}$ Average annual operating hours of the group of i baseline equipment.

The operating hours of the baseline equipment in year y can be determined using surveys by measurement of usage hours of baseline equipment. For a large population of baseline equipment : (a) Use a representative sample (sampling determined by a minimum 95% confidence interval and 10% maximum error margin); and (c) Ensure that sampling is statistically robust and relevant, i.e. the selection of the equipment to be analysed for operating hours has a random distribution and is representative of target population (size, location).

l_y Average annual technical grid losses (transmission and distribution) during year y for the grid serving the locations where the devices are installed, expressed as a fraction. This value shall not include non-technical losses such as commercial losses (e.g. theft). The average annual technical grid losses shall be determined using recent, accurate and reliable data available for the host country. This value can be determined from recent data published either by a national utility or an official governmental body. The reliability of the data used (e.g. appropriateness, accuracy/uncertainty, especially exclusion of non-technical grid loss) shall be established and documented by the project participant. A default value of 0.1 shall be used for average annual technical grid losses, if no recent data are available or the data cannot be regarded accurate and reliable.

The number of Wonderbags in use (n_i) can be calculated as follows:

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{ELEC,w} \times t_w$$

Where:

N_w	The number of Wonderbags of type w distributed
u_w	Share of users actually cooking with a Wonderbag of type w (%)
$u_{ELEC,w}$	Share of users cooking on an electric stove with a Wonderbag of type w (%)
$f_{rate,w}$	Failure rate of the Wonderbags (%)
t_w	Active time in the monitoring period for the full population of Wonderbags type w (%)

4.1.2 Baseline fossil fuel consumption

The baseline emissions from fossil fuel consumption in cooking systems can be calculated as follows in accordance with paragraph 32 of AMS-II.C:

$$BE_{FOSSIL,y} = E_{BL,FOSSIL,i,y} \times EF_{CO2,i,y} \times n_i$$

(Paragraph 32 of AMS-II.C)

Where:

$BE_{FOSSIL,y}$	Baseline emissions from fossil fuel combustion in year y (tCO ₂ e/y)
$E_{BL,FOSSIL,i,y}$	Baseline energy consumption of fossil fuel i in year y (TJ)
$EF_{CO2,i,y}$	Emission factor for fossil fuel i in year y (tCO ₂ /TJ)
n_i	Number of pieces of equipment of the group i baseline equipment retrofitted or that would have been retrofitted

The number of Wonderbags in use (n_i) can be calculated as follows:

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{FOSSIL,i,w} \times t_w$$

Where:

N_w	The number of Wonderbags of type w distributed
u_w	Share of users actually cooking with a Wonderbag of type w (%)
$u_{FOSSIL,w}$	Share of users cooking using fossil fuel i with a Wonderbag of type w (%)
$f_{rate,w}$	Failure rate of the Wonderbags (%)
t_w	Active time in the monitoring period for the full population of Wonderbags type w (%)

The baseline energy consumption can be calculated as follows:

$$E_{BL,FOSSIL,i,y} = FC_i \times NCV_{FOSSIL FUEL i}$$

Where:

FC_i	Baseline consumption of fossil fuel i (unit of consumption/year)
$NCV_{FOSSIL FUEL i}$	Net calorific value of fossil fuel i (TJ/unit of consumption)

4.1.3 Baseline biomass consumption

The emission reductions are determined separately for the biomass methodology in the emission reduction section (Section 4.4.2). The AMS.II.G. methodology does not separate the calculation between baseline and project emissions and only provides the equation for calculation the emission reductions.

4.2 Project Emissions

The project emissions are determined by the electricity and/or fossil fuel and/or biomass consumption during the project activity. The emission reductions are determined separately for the biomass methodology in the emission reduction section (Section 4.4.2).

$$PE_y = PE_{ELEC,y} + PE_{FOSSIL,y}$$

Where:

PE_y	Project emissions in year y (tCO ₂ e)
$PE_{ELEC,y}$	Project emissions from electricity consumption in year y (tCO ₂ e/y)
$PE_{FOSSIL,y}$	Project emissions from fossil fuel combustion in year y (tCO ₂ e/y)

4.2.1 Project emissions from electricity-based cooking systems

The use of the Wonderbags for cooking purposes reduces the amount of fuel used, compared to the business as usual scenario.

The project emissions from electricity-based cooking systems are calculated as follows in accordance with AMS-II.C.:

$$PE_y = E_{PJ,y} \times EF_{CO2,y} + PE_{ref,y}$$

(Equation 7, AMS-II.C.)

Where:

PE_y	Project emissions in year y (tCO ₂ e)
$E_{PJ,y}$	Energy consumption for the project activity in year y (kWh)
$EF_{CO2,y}$	Electricity emission factor. If electricity displaced is grid, the emission factor in year y shall be calculated in accordance with the provisions in ASB0040 version 01.0. If electricity displaced is captive electricity, the emission factor in year y shall be calculated in accordance with the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”
$PE_{ref,y}$	Project emissions from physical leakage of physical refrigerant from the project equipment in year y (tCO ₂ e/y)

This equation is modified for this Grouped Project as follows:

$$PE_{ELEC,y} = E_{PJ,y} \times EF_{CO2,ELEC,y}$$

(Equation 7, AMS-II.C., modified for electricity consumption)

Where:

$E_{PJ,y}$	Energy consumption for the project activity in year y (kWh)
$EF_{CO2,ELEC,y}$	Electricity emission factor. If electricity displaced is grid, the emission factor in year y shall be calculated in accordance with the provisions in ASB0040 version 01.0. If electricity displaced is captive electricity, the emission factor in year y shall be calculated in accordance with the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”

$E_{PJ,y}$ is calculated as follows:

$$E_{PJ,y} = \sum_t \sum_i (n_i \times p_i \times o_i / (1 - l_y))$$

(Equation 8 AMS-II.C.)

Where:

n_i	Number of pieces of equipment of the group i baseline equipment retrofitted or that would have been retrofitted.
p_i	Electrical power demand (kW) of the group i project devices measured during the time interval t in year y .
O_i	Operating hours of group of i project devices in the time interval t in year y Note that p_i and O_i may be determined separately or in combination, i.e. as energy consumption.
l_y	Average annual technical grid losses (transmission and distribution) during year y for the grid serving the locations where the devices are installed, expressed as a fraction. This value shall not include non-technical losses such as commercial losses (e.g. theft). The average annual technical grid losses shall be determined using recent, accurate and reliable data available for the host country. This value can be determined from recent data published either by a national utility or an official governmental body. The reliability of the data used (e.g. appropriateness, accuracy/uncertainty, especially exclusion of non-technical grid loss) shall be established and documented by the project participant. A default value of 0.1 shall be used for average annual technical grid losses, if no recent data are available or the data cannot be regarded accurate and reliable.

The number of Wonderbags in use (n_i) can be calculated as follows:

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{ELEC,w} \times t_w$$

Where:

N_w	The number of Wonderbags of type w distributed
U_w	Share of users cooking with a Wonderbag of type w (%)
$UELEC,w$	Share of users cooking on an electric stove with a Wonderbag of type w (%)
$f_{rate,w}$	Failure rate of the Wonderbags (%)
t_w	Active time in the monitoring period for the full population of Wonderbags type w (%)

4.2.2 Project emissions from fossil-fuel-based cooking systems

The use of the Wonderbags for cooking purposes reduces the amount of fuel used, compared to the business as usual scenario.

The project emissions from fossil fuel consumption in cooking systems can be calculated as follows in accordance with AMS-II.C.:

$$PE_y = E_{PJ,y} \times EF_{CO2,y} + PE_{ref,y}$$

(Equation 7, AMS-II.C.)

Where:

PE_y	Project emissions in year y (tCO ₂ e)
$E_{PJ,y}$	Energy consumption for the project activity in year y (kWh)
$EF_{CO2,y}$	Electricity emission factor. If electricity displaced is grid, the emission factor in year y shall be calculated in accordance with the provisions in ASB0040 version 01.0. If electricity displaced is captive electricity, the emission factor in year y shall be calculated in accordance with the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”
$PE_{ref,y}$	Project emissions from physical leakage of physical refrigerant from the project equipment in year y (tCO ₂ e/y)

The equation above is modified for fossil fuel consumption as follows:

$$PE_{FOSSIL,y} = E_{PJ,FOSSIL,i,y} \times EF_{CO2,i,y} \times n_i$$

(Equation 7, AMS-II.C., modified for fossil fuel consumption)

Where:

$E_{PJ,FOSSIL,i,y}$	Project activity energy consumption of fossil fuel i in year y (TJ)
$EF_{CO2,i,y}$	Emission factor for fossil fuel i in year y (tCO ₂ /TJ)

n_i Number of pieces of equipment of the group i baseline equipment retrofitted or that would have been retrofitted

The number of Wonderbags in use (n_i) can be calculated as follows:

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{FOSSIL,i,w} \times t_w$$

Where:

N_w The number of Wonderbags of type w distributed

u_w Share of users actually cooking with a Wonderbag of type w (%)

$u_{FOSSIL,i,w}$ Share of users cooking using fossil fuel i with a Wonderbag of type w (%)

$f_{rate,w}$ Failure rate of the Wonderbags (%)

t_w Active time in the monitoring period for the full population of Wonderbags type w (%)

The project activity energy consumption can be calculated as follows:

$$E_{PJ,FOSSIL,i,y} = FC_{PJ,i} \times NCV_{FOSSIL FUEL i}$$

Where:

$FC_{PJ,i}$ Project activity consumption of fossil fuel i (unit of consumption/year)

$NCV_{FOSSIL FUEL i}$ Net calorific value of fossil fuel i (TJ/unit of consumption)

4.2.3 Project emissions from biomass-based cooking systems

The use of the Wonderbags for cooking purposes reduces the amount of fuel used, compared to the business as usual scenario. The emission reductions are determined separately for the biomass methodology in the emission reduction section (Section 4.4). The AMS.II.G. methodology does not separate the calculation between baseline and project emissions and only provides the equation for calculation the emission reductions.

4.3 Leakage

Under AMS-II.C. leakage is not considered however it is considered under AMS-II.G. Leakage has therefore been taken into account in the calculation of emission reductions from reducing consumption of non-renewable biomass.

Leakage related to non-renewable biomass use is considered by multiplying the parameter $B_{y,savings,i,j}$ by a factor 0.95 in accordance with paragraph 39 of AMS-II.G.

4.4 Net GHG Emission Reductions and Removals

The Grouped Project provides for emission reductions from one or both of the eligible methodologies:

- AMS-II.C. “Demand-side energy efficiency activities for specific technologies”.
- AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass”.

Where a project activity applies both methodologies, the total value of emission reductions is therefore the sum of the emission reductions, calculated in accordance with each methodology.

$$ER_y = ER_{AMS-II.C.,y} + ER_{AMS-II.G.,y}$$

Where:

ER_y Total emission reductions of the project in year y (tCO₂e)

$ER_{AMS-II.C.,y}$ Emission reductions calculated using the equations in AMS-II.C. in year y (tCO₂e)

$ER_{AMS-II.G.,y}$ Emission reductions calculated using the equations in AMS-II.G. in year y (tCO₂e)

Based on the formula above, the total emission reductions for RFC PA 1 (1st Project Activity Instance) are summarised in the following table:

Table 10: Total Emissions Reductions for RFC PA 1

RFC PA 1	Total Emission Reductions	Reductions under AMS-II.C.	Reductions under AMS-II.G.
	tCO ₂ e	tCO ₂ e	tCO ₂ e
Year 1	20 679	14 463	6 217
Year 2	20 679	14 463	6 217
Year 3	20 679	14 463	6 217
Year 4	20 679	14 463	6 217
Year 5	20 679	14 463	6 217
Year 6	20 679	14 463	6 217
Year 7	20 679	14 463	6 217
Total	144 755	101 239	43 516
Annual Average	20 679	14 463	6 217

The emission reductions for RFC PA 1, broken down per AMS-II.C. and AMS-II.G., follow.

4.4.1 Electricity and fossil fuel emission reductions as per AMS-II.C ($ER_{AMS-II.C.,y}$)

AMS-II.C. specifies the calculation of emission reductions as follows:

$$ER_y = (BE_y - PE_y) - LE_y$$

(Equation 10, AMS-II.C.)

Table 11: AMS-II.C. Emissions Reductions for RFC PA 1

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
Year 1	17,355	2,893	-	14,463
Year 2	17,355	2,893	-	14,463
Year 3	17,355	2,893	-	14,463
Year 4	17,355	2,893	-	14,463
Year 5	17,355	2,893	-	14,463
Year 6	17,355	2,893	-	14,463
Year 7	17,355	2,893	-	14,463
Total	121,487	20,248	-	101,239

4.4.2 Biomass emission reductions as per AMS-II.G ($ER_{AMS-II.G.,y}$)

The biomass emission reductions were calculated as follows:

$$ER_{y,i,j} = B_{y,savings,i,j} \times 0.95 \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil_fuel}$$

(Equation 2, AMS-II.G.)

Where:

$ER_{y,i,j}$	Emission reductions by project device type i and batch j during year y in tCO ₂ e
$B_{y,savings,i,j}$	Quantity of woody biomass that is saved in tonnes per cookstove device type i and batch j during year y
$N_{y,i,j}$	Number of project devices of type i and batch j operating during year y
μ_y	Adjustment to account for any continued use of pre-project devices during the year y when applying equations 7 and 8 (fraction). Use 1.0 in other cases.
$f_{NRB,y}$	Fraction of woody biomass that can be established as non-renewable biomass
$NCV_{biomass}$	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried'.

$EF_{\text{projected_fossil_fuel}}$ Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers

The quantity of woody biomass that is saved due to the project activity is calculated as follows in accordance with option 2 of the AMS-II.G. methodology:

$$B_{y,\text{savings},i,j} = B_{\text{old},i,j} - B_{\text{new,KPT},i,j}$$

(Equation 6, AMS-II.G.)

Where:

$B_{\text{old},i,j}$ Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type i and batch j

$B_{\text{new,KPT},i,j}$ Annual quantity of woody biomass used in tonnes per project device of type i and batch j , measured as per the Kitchen Performance Test (KPT) protocol. The KPT shall be carried out in accordance with national standards (if available) or international standards or guidelines. (e.g. the KPT Protocol listed by Clean Cooking Alliance)

Year	ER from AMS-II.G
	tCO ₂ e
Year 1	6,217
Year 2	6,217
Year 3	6,217
Year 4	6,217
Year 5	6,217
Year 6	6,217
Year 7	6,217
Total	43,516

4.4.3 Sample Calculations

The procedures to calculate the emission reductions for the first project instance, RFC PA 1, are shown below. The year 1 is used as the reference for the calculation of emission reductions.

Baseline Emissions

The baseline emissions for RFC PA 1, as per AMS-II.C. are as follows:

$$BE_y = BE_{ELEC,y} + BE_{FOSSIL,y}$$

Year	BE_y	$BE_{ELEC,y}$	$BE_{FOSSIL,y}$
Year 1	17,355	8,891	8,464

The baseline emissions for electricity consumption for RFC PA 1, as per AMS-II.C., are calculated as follows:

$$BE_{ELEC,y} = E_{BL,y} \times EF_{CO2,ELEC,y} + Q_{ref,BL} \times GWP_{ref,BL}$$

(Equation 1, AMS-II.C., modified for electricity baseline)

Year	$BE_{ELEC,y}$	$E_{BL,y}$	$EF_{CO2,ELEC,y}$	$Q_{ref,BL}$	$GWP_{ref,BL}$
Year 1	8,891	9,377,567	0.9481	-	-

The energy consumption for RFC PA 1, as per AMS-II.C., is calculated as follows:

$$E_{BL,y} = \sum_i (n_i \times \rho_i \times o_{i,BL} / (1 - l_y))$$

(Equation 2 AMS-II.C.)

Year	$E_{BL,y}$	n_i	ρ_i	$o_{i,BL}$	l_y
Year 1	9,377,567	9,100	1.5	619	0.099

The number of Wonderbags used with electricity for RFC PA 1, as per AMS-II.C., is calculated as follows:

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{ELEC,w} \times t_w$$

Year	n_i	N_w	u_w	$u_{ELEC,w}$	$f_{rate,w}$	t_w
Year 1	9,100	20,000	0.89	0.52	0.02	1

The baseline emissions from fossil fuel i consumption for RFC PA 1, as per AMS-II.C., is calculated as follows:

$$BE_{FOSSIL,y} = E_{BL,FOSSIL,i,y} \times EF_{CO2,i,y} \times n_i$$

(Paragraphs 32 and 33 of AMS-II.C)

Year	$BE_{FOSSIL,y}$	$E_{BL,FOSSIL,i,y}$	$EF_{CO2,i,y}$	n_i
Total Year 1	8,464			
Year 1 - Paraffin	1,763	24.5	71.9	4,822
Year 1 - LPG	1,473	23.3	63.1	10,609
Year 1 - Coal	5,229	54.4	96.1	2,893

The number of Wonderbags used with fossil fuel i for RFC PA 1, as per AMS-II.C., is calculated as follows:

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{FOSSIL,i,w} \times t_w$$

Year	n_i	N_w	u_w	$u_{FOSSIL,i,w}$	$f_{rate,w}$	t_w
Year 1	3,325					
Year 1 - Paraffin	875	20,000	0.89	0.05	0.02	1
Year 1 - LPG	1,925	20,000	0.89	0.11	0.02	1
Year 1 - Coal	525	20,000	0.89	0.03	0.02	1

Project Emissions

The project emissions for RFC PA 1, as per AMS-II.C., are calculated as follows.

$$PE_y = PE_{ELEC,y} + PE_{FOSSIL,y}$$

Year	PE_y	$PE_{ELEC,y}$	$PE_{FOSSIL,y}$
Year 1	2,893	1,482	1,411

The project emissions from electricity consumption for RFC PA 1, as per AMS-II.C., are as follows:

$$PE_{ELEC,y} = E_{PJ,y} \times EF_{CO2,ELEC,y}$$

(Equation 7, AMS-II.C., modified for electricity consumption)

Year	$PE_{ELEC,y}$	$E_{PJ,y}$	$EF_{CO2,ELEC,y}$
Year 1	1,482	1,562,928	0.9481

The electricity consumption for RFC PA 1, as per AMS-II.C., is calculated as follows.

$$E_{PJ,y} = \sum_t \sum_i (n_i \times \rho_i \times o_i / (1 - l_y))$$

(Equation 8 AMS-II.C.)

Year	$E_{PJ,y}$	n_i	ρ_i	o_i	l_y
Year 1	1,562,928	9,100	1.5	103.16	0.099

The number of Wonderbags in use with electricity in RFC PA 1, as per AMS-II.C., is calculated as follows.

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{ELEC,w} \times t_w$$

Year	n_i	N_w	u_w	$u_{ELEC,w}$	$f_{rate,w}$	t_w
Year 1	9,100	20,000	0.89	0.52	0.02	1

The project emissions from fossil fuel i consumption for RFC PA 1, as per AMS-II.C., is calculated as follows.

$$PE_{FOSSIL,y} = E_{PJ,FOSSIL,i,y} \times EF_{CO2,i,y} \times n_i$$

(Equation 7, AMS-II.C., modified for fossil fuel consumption)

Year	$PE_{FOSSIL,y}$	$E_{PJ,FOSSIL,i,y}$	$EF_{CO2,i,y}$	n_i
Year 1	1,411			
Year 1 - Paraffin	294	4.1	71.9	875
Year 1 - LPG	246	3.9	63.1	1,925
Year 1 - Coal	871	9.1	96.1	525

The number of Wonderbags in use with fossil fuel i in RFC PA 1, as per AMS-II.C., is calculated as follows.

$$n_i = N_w \times (u_w - f_{rate,w}) \times u_{FOSSIL,i,w} \times t_w$$

Year	n_i	N_w	u_w	$u_{FOSSIL,i,w}$	$f_{rate,w}$	t_w
Year 1	3,325					
Year 1 - Paraffin	875	20,000	0.89	0.05	0.02	1
Year 1 - LPG	1,925	20,000	0.89	0.12	0.02	1
Year 1 - Coal	525	20,000	0.89	0.03	0.02	1

The emission reductions for RFC PA 1, as per AMS-II.G., are calculated as follows:

$$ER_{y,i,j} = B_{y,savings,i,j} \times 0.95 \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossil_fuel}$$

(Equation 2, AMS-II.G.)

Year	$ER_{y,i,j}$	$B_{y,savings,i,j}$	Constant	$N_{y,i,j}$	μ_y	$f_{NRB,y}$	$NCV_{biomass}$	$EF_{projected_fossil_fuel}$
Year 1	6,217	1.28	0.95	6,000	1.00	0.71	0.0156	73.2

The savings in woody biomass for RFC PA 1, as per AMS-II.G., is calculated as follows:

$$B_{y,savings,i,j} = B_{old,i,j} - B_{new,KPT,i,j}$$

(Equation 6, AMS-II.G.)

Year	$B_{y,savings,i,j}$	$B_{old,i,j}$	$B_{new,KPT,i,j}$
Year 1	1.28	3.04	1.76

5 MONITORING

5.1 Data and Parameters Available at Validation

5.1.1 Fixed parameters specific to AMS-II.C

Data / Parameter	$EF_{CO_2,ELEC,y}$
Data unit	tCO ₂ /MWh
Description	Emission factor for the Southern African Power Pool grid.
Source of data	ASB0040-2018 Standardized baseline: “Grid emission factor for Southern African Power Pool”.
Value applied	0.9481
Justification of choice of data or description of measurement methods and procedures applied	The latest standardized baseline is applied.
Purpose of Data	Calculation of baseline emissions.
Comments	-

Data / Parameter	$EF_{CO_2,i,y}$
Data unit	kgCO ₂ /TJ
Description	Emission factor for the fossil fuel displaced.
Source of data	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2: energy, stationary combustion.
Value applied	Paraffin: 71,900 kgCO ₂ /TJ LPG: 63,100 kgCO ₂ /TJ Coal: 96,100 kgCO ₂ /TJ.
Justification of choice of data or description of measurement methods and procedures applied	Default values from the 2006 IPCC Guidelines have been used in accordance with paragraph 32 of AMS-II.C.
Purpose of Data	Calculation of baseline emissions.

Comments	-
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Data / Parameter	$NCV_{FOSSIL FUEL i}$
Data unit	TJ/Unit of measurement
Description	Net calorific value for the fossil fuel displaced.
Source of data	South African Technical Guidelines for Monitoring, Reporting and Verification of Greenhouse Gas Emissions by Industry
Value applied	Paraffin: 0.000038 TJ/litre LPG: 0.000046 TJ/kg Coal: 0.024300 TJ/tonne
Justification of choice of data or description of measurement methods and procedures applied	South African specific values were obtained from the South African Technical Guidelines. These values provide a more accurate indication of the NCV of fuels used in South Africa.
Purpose of Data	Calculation of baseline emissions.
Comments	-

Data / Parameter	FC_i								
Data unit	Unit of consumption								
Description	Baseline consumption of fossil fuel i in year y.								
Source of data	Baseline survey.								
Value applied	<table border="1"> <thead> <tr> <th>Fossil Fuel i</th><th>Baseline consumption</th></tr> </thead> <tbody> <tr> <td>Paraffin</td><td>224.6 litres/year/adult equivalent</td></tr> <tr> <td>LPG</td><td>74.5 kg/year/adult equivalent</td></tr> <tr> <td>Coal</td><td>1.3 tonnes/year/adult equivalent</td></tr> </tbody> </table>	Fossil Fuel i	Baseline consumption	Paraffin	224.6 litres/year/adult equivalent	LPG	74.5 kg/year/adult equivalent	Coal	1.3 tonnes/year/adult equivalent
Fossil Fuel i	Baseline consumption								
Paraffin	224.6 litres/year/adult equivalent								
LPG	74.5 kg/year/adult equivalent								
Coal	1.3 tonnes/year/adult equivalent								
Justification of choice of data or description of measurement methods and procedures applied	The baseline consumption is used in accordance with paragraph 32 of AMS-II.C. The values are based on surveys conducted in accordance with the CDM sampling guidance.								

Purpose of Data	Calculation of baseline emissions
Comments	During the survey to establish the baseline consumption, the required precision of 10% was not met. Therefore, the lower bound value was used in accordance with paragraph 46 of AMS-II.G.

Data / Parameter	ρ_i
Data unit	kW
Description	Power rating of an electric stove
Source of data	Baseline survey.
Value applied	1.5
Justification of choice of data or description of measurement methods and procedures applied	The baseline consumption is used in accordance with AMS-II.C. The values are based upon the specifications of an electric stove.
Purpose of Data	Calculation of baseline emissions.
Comments	-

Data / Parameter	$O_{i,BL}$
Data unit	Hours/adult equivalent
Description	Cooking time on an electric stove without a Wonderbag in year y.
Source of data	Baseline survey.
Value applied	159
Justification of choice of data or description of measurement methods and procedures applied	The baseline cooking time is used in accordance with AMS-II.C. The values are based on surveys conducted in accordance with the CDM sampling guidance.
Purpose of Data	Calculation of baseline emissions.
Comments	-

5.1.2 Fixed parameters specific to AMS-II.G

Data / Parameter	$f_{NRB,y}$
Data unit	Fraction
Description	Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass.
Source of data	Official statistics and historical data sets
Value applied	0.71
Justification of choice of data or description of measurement methods and procedures applied	The source of data to determine the total annual consumption of wood (parameter H in AMS-II.G) in the absence of the project activity in the country are the official statistics from the latest Energy Balance for South Africa (2017), published by the Department of Mineral Resources and Energy. The biomass fraction in the energy balance was converted to tonnes/year using the officially approved NCV value for wood, as per the 2017 South African Technical Guidelines (Table A1), published by the Department of Environment, Forestry and Fisheries. The source of the mean annual increment of woody biomass growth per hectare of forest areas is the subtropical dry forest value for Africa, as per the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 4, Chapter 4_(Table 4.9). The sources of data to determine the natural forest cover in the country were derived from historical data sets in the Global Forest Watch datasets from Global Land Analysis & Discovery. The sources of data to determine the proportion of protected natural forest cover in the country were derived from historical data sets in the country profile for South Africa on the Protected Planet website. See Appendix 1 for more detailed information.
Purpose of Data	Calculation of baseline emissions.
Comments	-

Data / Parameter	$MAI_{forest,I}$, $MAI_{other,I}$
Data unit	t/ha/yr

Description	Mean Annual Increment of woody biomass growth per hectare in sub-category i of forest areas. Mean Annual Increment of woody biomass growth per hectare		
Source of data	The following data source may be used: a) Global Forest Resources Assessment 2000 by the FAO for “Distribution of total forest area by ecological zone” (Table 14): and/or b) 2006 IPCC Guidelines for National Greenhouse Gas Inventories for “Above-ground biomass growth rates (t/ha-yr) for different ecological zones” (Chapter 4, Table 4.9). Use a weighted average based on the forest area of two different age categories (i.e. above and below 20 years), if such data is available. Otherwise, use a simple average of the two age categories. c) National studies or government data or official statistics. The most recent available data shall be used. However, the vintage of the above data shall not be before year 2000		
Value applied		MAI _{forest,i}	MAI _{other,i}
	Value	2.2	0
Justification of choice of data or description of measurement methods and procedures applied	The source of the mean annual increment of woody biomass growth per hectare of forest areas is the subtropical dry forest value for Africa, as per the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 4, Chapter 4_(Table 4.9). See Appendix 1 for details		
Purpose of Data	Calculation of the fraction of non-renewable biomass		
Comments	-		

Data / Parameter	F _{forest,i} , F _{other,i} ,
Data unit	ha
Description	Extent of forest in sub-category i Extent of other wooded land in sub-category i
Source of data	The following data source may be used: a) Global Forest Resources Assessment 2015 by the Food and Agriculture Organization of the United Nations (FAO);

	b) Official statistics; c) Project-specific survey data If the value of fNRB is calculated for a project area for the year “y”, and during this year a decrease in the forest area is projected to occur, the extent of the forest area available to provide woody biomass to the users can correspond to the forest area (hectares) at the beginning of the year “y”, or the average of the values of the forest area at the beginning and at the end of the year “y”.							
Value applied	<table><tr><td></td><td>F_{forest,l}</td><td>F_{other,l}</td></tr><tr><td>Value</td><td>3,923,142</td><td>0</td></tr></table>			F _{forest,l}	F _{other,l}	Value	3,923,142	0
	F _{forest,l}	F _{other,l}						
Value	3,923,142	0						
Justification of choice of data or description of measurement methods and procedures applied	The sources of data to determine the natural forest cover in the country were derived from historical data sets in the Global Forest Watch datasets from Global Land Analysis & Discovery. See Appendix 1 for details							
Purpose of Data	Calculation of the fraction of non-renewable biomass							
Comments	-							

Data / Parameter	P _{forest} , P _{other}		
Data unit	Ha		
Description	Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas. Extent of non-accessible area (e.g. projected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas.		
Source of data	The following data source may be used for the data on protected area: a) Global Forest Resources Assessment 2015 by the Food and Agriculture Organization of the United Nations (FAO) b) National studies or government data or official statistics. The most recent available data shall be used.		
Value applied		P _{forest}	P _{other}

	Value	346,160	0
Justification of choice of data or description of measurement methods and procedures applied	The sources of data to determine the proportion of protected natural forest cover in the country were derived from historical data sets in the country profile for South Africa on the Protected Planet website. See Appendix 1 for details		
Purpose of Data	Calculation of the fraction of non-renewable biomass		
Comments	-		

Data / Parameter	EF _{projected_fossil_fuel}
Data unit	tCO ₂ e/TJ
Description	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers.
Source of data	AMS-II.G: Table 2, Sub-Saharan African default value.
Value applied	73.2
Justification of choice of data or description of measurement methods and procedures applied	The default value was selected in accordance with paragraph 25 of AMS-II.G.
Purpose of Data	Calculation of baseline emissions.
Comments	-

Data / Parameter	μ_y
Data unit	-
Description	Adjustment to account for any continued use of pre-project devices during the year y.
Source of data	AMS-II.G.
Value applied	1
Justification of choice of data or description of	AMS-II.G requires the use of a default adjustment factor of 1.0 in project activities that apply any equations in the methodology other than equations 7 and 9.

measurement methods and procedures applied	
Purpose of Data	Calculation of baseline emissions.
Comments	-

Data / Parameter	NCV _{biomass}
Data unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass that is substituted.
Source of data	IPCC default for wood fuel, as per AMS-II.G.
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	AMS-II.G allows for the use of a default wood fuel value of 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried'.
Purpose of Data	Calculation of baseline emissions.
Comments	-

Data / Parameter	$B_{old,i,j}$
Data unit	Tonnes/year/adult equivalent
Description	Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device.
Source of data	Baseline survey.
Value applied	0.87
Justification of choice of data or description of measurement methods and procedures applied	The baseline survey was conducted in accordance with the CDM sampling guidance and the internationally Recognized Kitchen Performance Test Protocol provided by the Clean Cooking Alliance. The survey followed the requirements set out by the CDM sampling guidance.
Purpose of Data	Calculation of baseline emissions.

Comments	-
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5.2 Data and Parameters Monitored

5.2.1 Monitored parameters required by AMS-II.C

Data / Parameter	$E_{BL,y}$
Data unit	kWh
Description	Energy (specifically electricity) consumption for the baseline in year y.
Source of data	User Habit Surveys.
Description of measurement methods and procedures to be applied	Calculated based on sample data sets. The samples will be carried out in accordance with the CDM's sampling standard and guidance. Energy consumption for the project activity is calculated by determining the electrical power demand (ρ_i) of the electric stoves upon which operational Wonderbags are used (n_i), multiplied by the average number of hours that are used to cook food, using a Wonderbag. The calculation also considers the grid transmission and distribution losses (l_y).
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a as this parameter is calculated and not monitored.
Purpose of data	Calculation of project emissions.
Calculation method	$E_{BL,y} = \sum_i (n_i \times \rho_i \times o_{i,BL} / (1 - l_y))$
Comments	-

Data / Parameter	$E_{PJ,y}$
Data unit	kWh
Description	Energy (specifically electricity) consumption for the project activity in year y.
Source of data	User Habit Surveys.
Description of measurement methods and procedures to be applied	Calculated based on sample data sets. The samples will be carried out in accordance with the CDM's sampling standard and guidance. Energy consumption for the project activity is calculated by determining the electrical power demand (ρ_i) of the electric stoves upon which operational Wonderbags are used (n_i), multiplied by the average number of hours that are used to cook food, using a Wonderbag. The calculation also considers the grid transmission and distribution losses (l_y).
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a as this parameter is calculated and not monitored.
Purpose of data	Calculation of project emissions.
Calculation method	$E_{PJ,y} = \sum_i (n_i \times \rho_i \times o_i / (1 - l_y))$
Comments	-

Data / Parameter	n_i
Data unit	Wonderbags
Description	Number of pieces of equipment of the group i baseline equipment retrofitted or that would have been retrofitted.
Source of data	Monitored in a database.
Description of measurement methods and procedures to be applied	Calculated based on a representative sample. Sampling standard shall be used for determining the sample size to achieve 95/10 confidence precision. A discount shall be applied based on the percentage of devices operational as determined

	by the sample survey, e.g. if surveys shows that 10% of the devices is non-operating, an adjustment factor of 0.9 shall be applied to number of project devices commissioned in a particular batch.
Frequency of monitoring/recording	Periodic sampling. Data sets are recorded on an ongoing basis and aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.
Calculation method	The number of electrical and other fossil fuel stoves is calculated based on the proportion of users cooking on such stoves, with a Wonderbag, derived from sample surveys. The numbers of operational electrical stoves and other fossil fuel stoves are calculated using two different formulas: - The number of electrical stoves in use is calculated as follows: $n_i = N_w \times u_w \times u_{ELEC,w} (1 - f_{rate,w}) * t_w$ - The number of other fossil fuel stoves in use is calculated as follows: $n_i = N_w \times u_w \times u_{FOSSIL,i,w} \times (1 - f_{rate,w}) * t_w$
Comments	The n_i parameter is used to determine the number of both electrical and other fossil stoves.

Data / Parameter	N_w
Data unit	Wonderbags
Description	The number of Wonderbags of type w distributed.
Source of data	Monitored in a database.
Description of measurement methods and procedures to be applied	Each Wonderbag that is distributed into the field is recorded in a database. The database records include the serial numbers of the bags, the distributing entity (for example, particular NGOs),

	contact details of the people that receive the bags and the dates that the bags are distributed to users.
Frequency of monitoring/recording	Continuous.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	Central database.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.
Calculation method	n/a as this is a monitored parameter.
Comments	-

Data / Parameter	o_i
Data unit	Hours
Description	Operating hours (i.e. cooking time using a Wonderbag) of group of i project devices (i.e. electrical stoves) in the time interval t in year y
Source of data	User Habit Surveys
Description of measurement methods and procedures to be applied	The cooking time, using a Wonderbag, will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.
Calculation method	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.

Comments	-
Data / Parameter	l_y
Data unit	%
Description	Average annual grid loss of the national South African grid including transmission and distribution.
Source of data	Eskom Annual Reports.
Description of measurement methods and procedures to be applied	The Methodology states that “This value shall not include non-technical losses such as commercial losses (e.g. theft/pilferage). The average annual technical grid losses shall be determined using recent, accurate and reliable data available for the host country. This value can be determined from recent data published either by a national utility or an official governmental body. Reliability of the data used (e.g. appropriateness, accuracy/uncertainty, especially exclusion of non technical grid losses) shall be established and documented by the project participant. A default value of 0.1 shall be used for average annual technical grid losses, if no recent data are available or the data cannot be regarded accurate and reliable. As recent data is available from the Eskom (The national power utility), the values provided by Eskom will be used.
Frequency of monitoring/recording	Annual.
Value applied	0.097 for first year.
Monitoring equipment	n/a as this value is determined using the Eskom Annual Reports.
QA/QC procedures to be applied	n/a as this value is determined using the Eskom Annual Reports.
Purpose of data	Calculation of project emissions.
Calculation method	n/a as this value is determined using the Eskom Annual Reports.
Comments	-

Data / Parameter	u_w
Data unit	%
Description	Share of users cooking with a Wonderbag in year y.

Source of data	User Habit Surveys.
Description of measurement methods and procedures to be applied	The share of users cooking with a Wonderbag will be established through sampling. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.
Calculation method	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
Comments	-

Data / Parameter	$u_{ELEC,w}$
Data unit	%
Description	Share of users cooking with electric stoves with a Wonderbag in year y.
Source of data	User Habit Surveys
Description of measurement methods and procedures to be applied	The share of users cooking with electric stoves will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a.

Purpose of data	Calculation of project emissions.
Calculation method	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
Comments	-

Data / Parameter	$E_{BL,FOSSIL,i,y}$									
Data unit	TJ									
Description	Baseline energy consumption of fossil fuel i in year y.									
Source of data	User Habit Surveys.									
Description of measurement methods and procedures to be applied	The baseline consumption of the different fossil fuels will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.									
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.									
Value applied	<table><tr><td>Fossil Fuel i</td><td>Project activity consumption (TJ)/year</td></tr><tr><td>Paraffin</td><td>n/a this is monitored ex-post.</td></tr><tr><td>LPG</td><td>n/a this is monitored ex-post.</td></tr><tr><td>Coal</td><td>n/a this is monitored ex-post.</td></tr></table>		Fossil Fuel i	Project activity consumption (TJ)/year	Paraffin	n/a this is monitored ex-post.	LPG	n/a this is monitored ex-post.	Coal	n/a this is monitored ex-post.
Fossil Fuel i	Project activity consumption (TJ)/year									
Paraffin	n/a this is monitored ex-post.									
LPG	n/a this is monitored ex-post.									
Coal	n/a this is monitored ex-post.									
Monitoring equipment	The monitoring equipment used to measure fossil fuel consumption includes the use of hand-held scales, foot scales and measuring jugs. The monitoring equipment is typically used in residential or household applications and therefore do not have accuracy ranges or serial numbers associated with meters or equipment utilised in industrial applications.									
QA/QC procedures to be applied	n/a.									
Purpose of data	Calculation of baseline emissions.									
Calculation method	$E_{BL,FOSSIL,i,y} = FC_i \times NCV_{FOSSIL\ FUEL\ i}$									
Comments	-									

Data / Parameter	FC_i								
Data unit	Unit of consumption								
Description	Project activity energy consumption of fossil fuel i in year y.								
Source of data	User Habit Surveys.								
Description of measurement methods and procedures to be applied	The project activity consumption of the different fossil fuels will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.								
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.								
Value applied	<table border="1"> <tr> <td>Fossil Fuel i</td><td>Project activity consumption</td></tr> <tr> <td>Paraffin</td><td>n/a this is monitored ex-post.</td></tr> <tr> <td>LPG</td><td>n/a this is monitored ex-post.</td></tr> <tr> <td>Coal</td><td>n/a this is monitored ex-post.</td></tr> </table>	Fossil Fuel i	Project activity consumption	Paraffin	n/a this is monitored ex-post.	LPG	n/a this is monitored ex-post.	Coal	n/a this is monitored ex-post.
Fossil Fuel i	Project activity consumption								
Paraffin	n/a this is monitored ex-post.								
LPG	n/a this is monitored ex-post.								
Coal	n/a this is monitored ex-post.								
Monitoring equipment	The monitoring equipment used to measure fossil fuel consumption includes the use of hand-held scales, foot scales and measuring jugs. The monitoring equipment is typically used in residential or household applications and therefore do not have accuracy ranges or serial numbers associated with meters or equipment utilised in industrial applications.								
QA/QC procedures to be applied	n/a.								
Purpose of data	Calculation of project emissions.								
Calculation method	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.								
Comments	-								

Data / Parameter	$E_{PJ,FOSSIL,i,y}$
Data unit	TJ
Description	Project activity energy consumption of fossil fuel i in year y.
Source of data	User Habit Surveys.

Description of measurement methods and procedures to be applied	The project activity consumption of the different fossil fuels will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.		
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.		
Value applied	Fossil Fuel i	Project activity consumption (TJ)/year	
	Paraffin	n/a this is monitored ex-post.	
	LPG	n/a this is monitored ex-post.	
	Coal	n/a this is monitored ex-post.	
Monitoring equipment	The monitoring equipment used to measure fossil fuel consumption includes the use of hand-held scales, foot scales and measuring jugs. The monitoring equipment is typically used in residential or household applications and therefore do not have accuracy ranges or serial numbers associated with meters or equipment utilised in industrial applications.		
QA/QC procedures to be applied	n/a.		
Purpose of data	Calculation of project emissions.		
Calculation method	$E_{PJ,FOSSIL,i,y} = FC_{PJ,i} \times NCV_{FOSSIL FUEL i}$		
Comments	-		

Data / Parameter	$\mu_{FOSSIL,i,w}$
Data unit	%
Description	Share of users cooking with fossil fuel i in year y
Source of data	User Habit Surveys
Description of measurement methods and procedures to be applied	The share of users cooking with each fossil fuel will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.

Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions
Calculation method	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
Comments	-

Data / Parameter	$f_{rate,w}$
Data unit	%
Description	Failure rate of Wonderbags.
Source of data	User Habit Surveys.
Description of measurement methods and procedures to be applied	The failure rate will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.
Calculation method	n/a as monitoring is undertaken on a sample basis of distributed Wonderbags.
Comments	-

Data / Parameter	t_w
Data unit	%

Description	Active time in the monitoring period for the full population of Wonderbags type w.
Source of data	User Habit Surveys.
Description of measurement methods and procedures to be applied	The active time will be established using survey samples. The surveys will be carried out in accordance with the CDM's sampling standard and guidance.
Frequency of monitoring/recording	Periodic sampling. Recording of data is aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.
Calculation method	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
Comments	-

5.2.2 Monitored parameters required by AMS-II.G

Data / Parameter	$N_{y,i,j}$
Data unit	Wonderbags
Description	Number of project devices of type i (specifically biomass stoves) and batch j operating during year y.
Source of data	Monitored in a database.
Description of measurement methods and procedures to be applied	Calculated based on a representative sample. Sampling standard shall be used for determining the sample size to achieve 95/10 confidence precision. A discount shall be applied based on the percentage of devices operational as determined by the sample survey, e.g. if surveys shows that 10% of the devices is non-operating, an adjustment factor of 0.9 shall be applied to number of project devices commissioned in a particular batch.

Frequency of monitoring/recording	Periodic sampling. Data sets are recorded on an ongoing basis and aggregated on an annual basis.
Value applied	n/a this is monitored ex-post.
Monitoring equipment	n/a as monitoring is undertaken on a sample basis of distributed Wonderbags.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.
Calculation method	The number of biomass stoves is calculated based on the proportion of users cooking on biomass stoves, with a Wonderbag, derived from sample surveys.
Comments	-

Data / Parameter	$B_{\text{new,KPT},i,j}$
Data unit	Tonnes
Description	Annual quantity of woody biomass used in tonnes per project device of type i
Source of data	User Habit Surveys
Description of measurement methods and procedures to be applied	Measured as per the KPT protocol. The KPT shall be carried out in accordance with the KPT Protocol guidelines listed by Clean Cooking Alliance.
Frequency of monitoring/recording	Periodic sampling and recorded on an annual basis
Value applied	n/a this is monitored ex-post.
Monitoring equipment	The monitoring equipment used to measure biomass consumption includes the use of hand-held and foot scales. The monitoring equipment is typically used in residential or household applications and therefore do not have accuracy ranges or serial numbers associated with meters or equipment utilised in industrial applications.
QA/QC procedures to be applied	n/a.
Purpose of data	Calculation of project emissions.

Calculation method	n/a as monitoring is undertaken on a sample basis of distributed, operational Wonderbags.
Comments	The value for Bnew will not be affected by seasonal changes. Therefore, the surveys do not need to be conducted on days that take seasonal changes into account.

5.3 Monitoring Plan

5.3.1 Data collection and management methods

The methods for measuring, recording, storing, aggregating, collating and reporting data and parameters are described below.

Each completed Wonderbag is equipped with a label stating the unique barcoded serial number which is used for references and monitoring. The information contained in the barcode includes:

- Date on which the bag was manufactured;
- The serial number of the bag;
- The date on which the bag is scheduled for distributed, i.e. scheduled to leave the factory premises;
- The details of the entity responsible for distributing the bag (e.g. various NGOs and other entities);
- The anticipated province/ town/ community in which the bags is expected to be distributed.

The unique barcoded serial numbers provides for the basis of monitoring activities and prevent instances of double-counting.

Each barcode on a manufactured Wonderbag is scanned using an electronic device, such as a smartphone or tablet, prior to leaving the factory for distribution purposes. The barcode, and related information, is thus stored in an electronic database. In instances where the bags are baled (i.e. multiple bags are packed in plastic containers) for bulk distribution, the bales have their own unique barcodes which include the following information:

- The serial numbers of all bags included in the bale;
- The date on which the bag is scheduled for distributed, i.e. scheduled to leave the factory premises;
- The details of the entity responsible for distributing the bag (e.g. various NGOs).

The Wonderbags are transported to distributing entities around the country, largely by road. The Wonderbags are distributed to users by distributing entities.

Wonderbag's data collection and management process has a strong technological focus which includes the secure, cloud-based storage of data. Wonderbag is developing an app, which will enable the collection of data on a much larger scale. The app will also provide Wonderbag current information on Wonderbag stock location, activity of distribution partners and data sets that have been collected.

The envisaged Wonderbag app flow is described in the following figure:

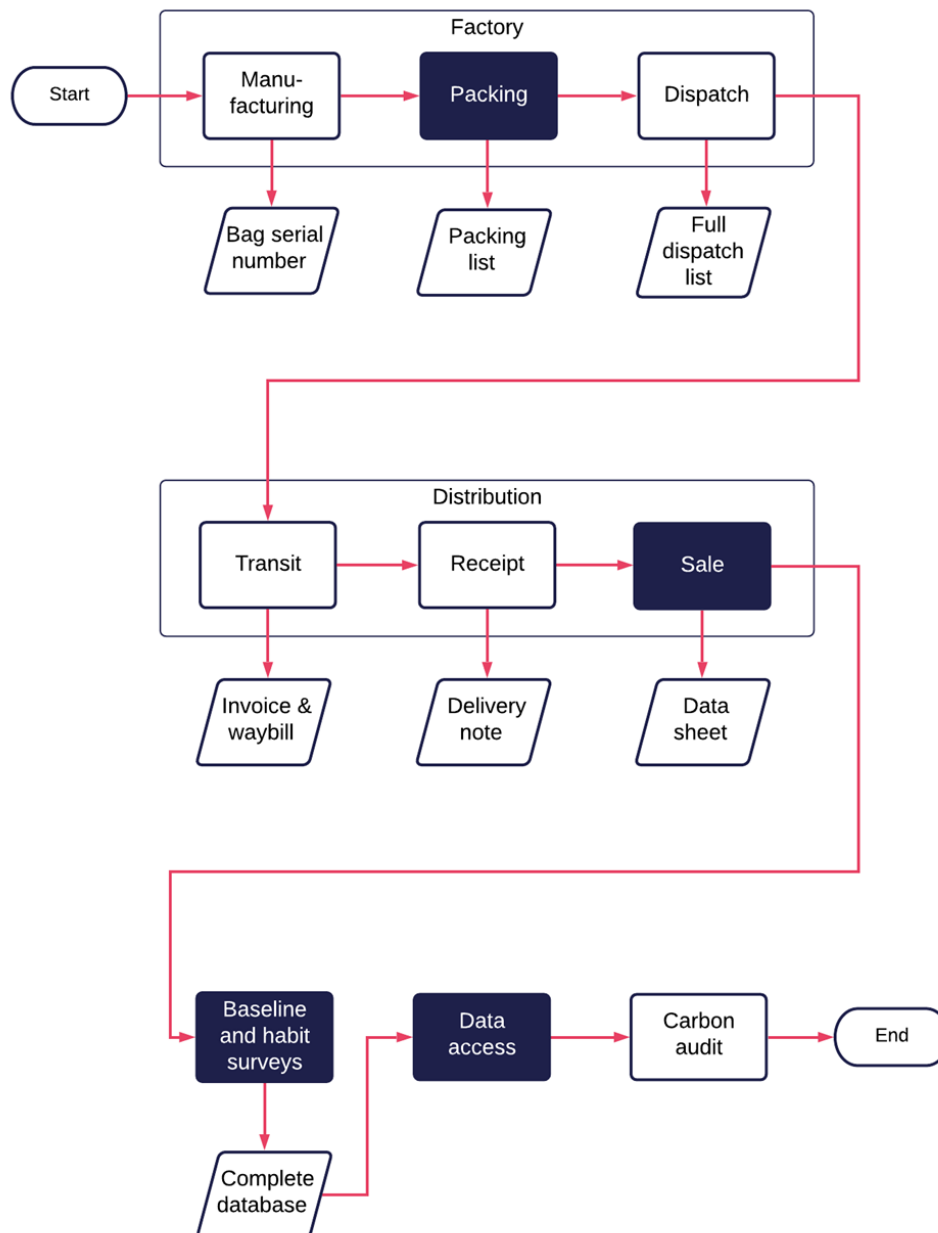


Figure 6: Wonderbag app flow

Distribution questionnaires:

The distributing entities use standardized distribution questionnaires for recording the contact details and relevant information of each Wonderbag user, against the respective serial number of the provided Wonderbag.

The data sets from the distribution questionnaires are captured directly into an application on an electronic device, such as a smartphone or tablet. The distributing entities may also use manual recording methods where the required electronic device is not available at the time of distributing the bag. The manual data sets are subsequently uploaded and captured into the electronic database at a later stage.

Wonderbag users are encouraged to update their contact and personal information recorded in the distribution questionnaires. Users may update their contact details through a variety of means, including direct contact with Wonderbag representatives that may live in local communities and/or field researchers undertaking monitoring surveys, as well as other electronic means such as by email or in future, potentially by logging on to the Wonderbag app.

The Wonderbags and related individual users that are captured in the database form the total population upon which the user habit surveys are based and respective sample (target) populations are drawn.

Baseline and user habit surveys:

The baseline survey is a once off survey used to establish baseline and fixed parameters. The user habit surveys are periodic surveys undertaken to establish the ongoing monitored parameters.

The number of bags in field makes its impractical and economically unfeasible to monitor every bag in use. Field surveys, based on random samples of the bags in the field, are therefore used to statistically quantify the number of carbon credits generated by the total population (bags in use). Field researchers visit and interview the Wonderbag users identified in the random sample-target population during the respective surveys.

The data sets collected in the surveys by field researchers are also captured, collated and stored in the electronic database. Data sets are inputted by field researchers directly into an application on an electronic device, such as a smartphone or tablet. The field researchers may also use manual recording methods where the required electronic devices are not available at the time of the survey interviews. In such cases the manual data sets are subsequently uploaded into the electronic database at a later stage.

All the monitored data parameters outlined in section 4 above are captured and managed in the electronic database, described in the following figure.

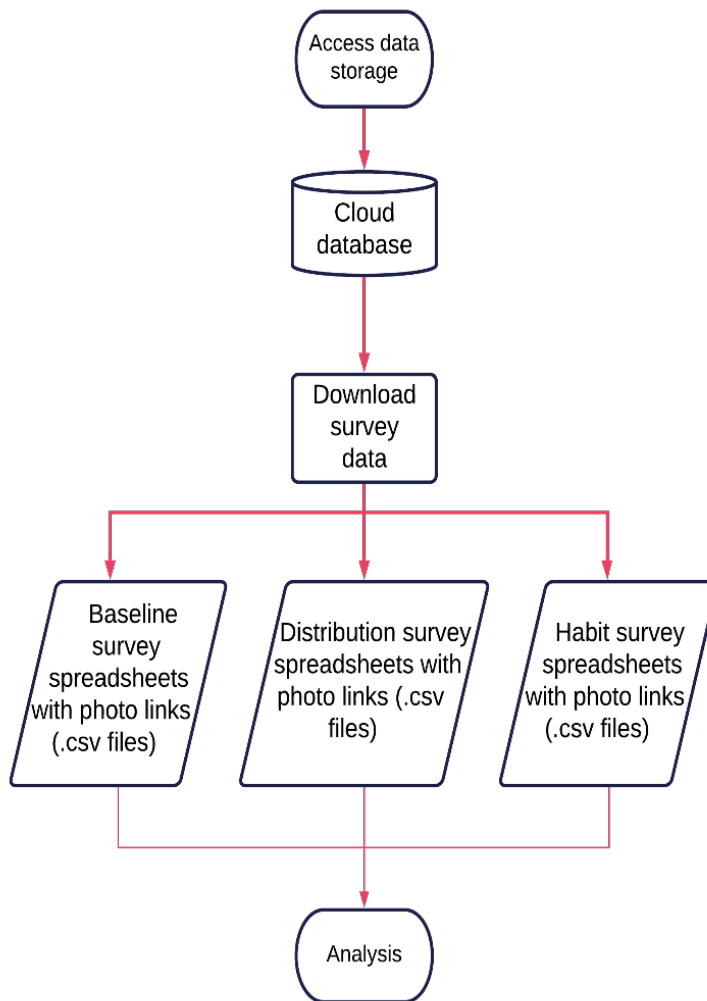


Figure 7: Web-based data storage and management process

The electronic database therefore provides for professional data management services, from which periodic monitoring reports to be drawn. This includes the number and dates of bags distributed per distributing entity, the number of bags distributed per project activity instance, the distribution of bags across national provinces, the quantities of fuels used for cooking purposes, types of fuel that may be used for cooking purposes, etc.

Calibration procedures for monitoring equipment:

Due to the nature of the project, none of the monitoring equipment utilised for survey purposes requires calibration. This is because the pieces of monitoring equipment used, which includes hand-held scales, foot scales and measuring jugs, are typically used in residential or household applications and therefore do not have accuracy ranges or calibration requirements associated with meters or equipment utilised in industrial applications.

5.3.2 Organisational structure and data management responsibilities

Wonderbag is the sole responsible party for the VCS grouped project. This includes:

- Manufacturing of Wonderbags
- Deployment of senior level staff and consultants with competencies for management of the grouped project and for effectiveness in the roles listed here
- Training, capacity-building, technical support and operational guidance to Wonderbag manufacturers and distributors
- Focal point for communications with the VVB, the VCS-registry operator and the VCS
- Oversight of record-keeping by manufacturers and quality control of all programme documentation and records, such as the Wonderbag database
- Oversight and accountability for the commissioning of monitoring surveys. Wonderbag is responsible for ensuring that the in-house personnel or third parties undertaking monitoring activities have the required competencies
- Reports summarizing user records together with results of monitoring surveys for submission to verifying VVB
- Continuous improvement of VCS grouped project management system
- On-going support to users to ensure proper use of Wonderbags
- Registration of representative pool of Wonderbag users
- Facilitation of tracking and quality assurance, data authentication, elimination of double-counting risks, investigation by VVBs and other auditors

The organisational structure of Wonderbag including the responsibilities for the VCS grouped project is depicted in the figure below.

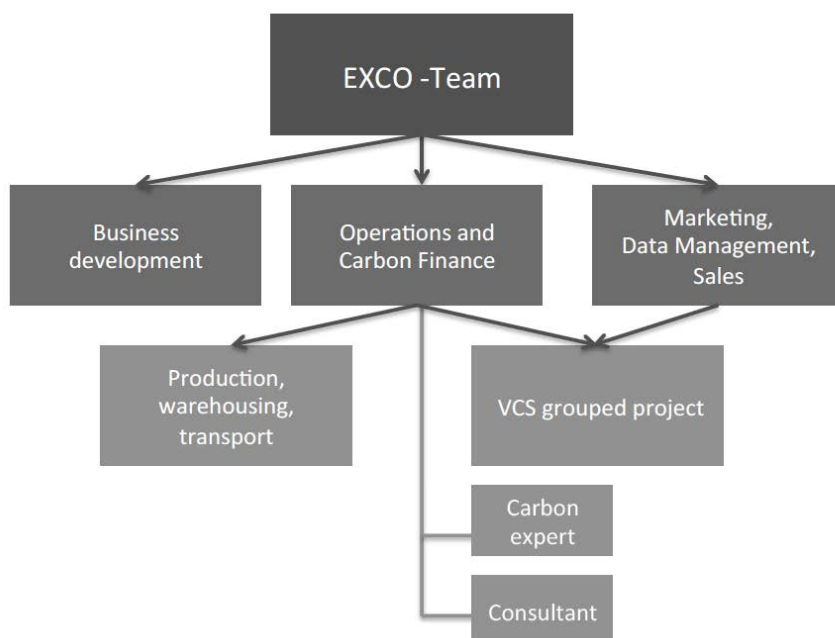


Figure 8 Organisational Chart - Wonderbag

5.3.3 Internal auditing and QA/QC

Wonderbag undertakes internal quality checking processes during the manufacturing of the bags. The internal QA/QC procedures include the checking of completed bags. The checks include the removal of chalk dust and threads on the fabric, as well as checks on the quality of the stitching. Bags that do not pass the internal QA/QC process are returned to the production line for the required amendments.

The bags are only vacuum packed for distribution once they have successfully passed the internal QA/QC procedure.

Wonderbag also undertakes periodic training to ensure that quality control is maintained. The training covers monitoring requirements, such as app usage, and QA/QC procedures related to data collection and management.

5.3.4 Non-conformances with the monitoring plan

The use of a central database, which generates reports related to the monitored data parameters, provides for the timeous identification of non-conformances with the monitoring plan. Data sets are regularly reviewed and assessed for completeness, consistency, accuracy and transparency. Any non-conformances are flagged and addressed as they are identified, to ensure that monitoring is undertaken as per the stipulated monitoring plan. Where necessary, field researchers may be deployed back into the field to recapture the relevant data sets.

5.3.5 Sampling plan

Sampling will occur at grouped project level. The purpose of sampling is to obtain unbiased and reliable estimates of the mean value of parameters used in the calculations of greenhouse gas emission reductions. ‘Unbiased’ in this case indicates that the sampling will not systematically underestimate or overestimate the mean value determined. The sampling design is based on the following UNFCCC guidance:

- The CDM’s “General guidelines for sampling and surveys for small-scale CDM project activity”; and
- The Clean Cooking Alliance’s “Kitchen Performance Test”³¹.

The sampling plan below contains:

- A. Sampling design and method; and
- B. Data to be collected.

The sampling plan will be implemented according to the details below.

A: Sampling design

(i) Objectives and Reliability Requirements

The objective of the surveys is to establish the reduction in energy use for the cooking systems that employ the use of heat retaining Wonderbags.

Sampling is necessary to establish variables in the calculation of the reduction in energy use. Hence it will result in mean annual values over the crediting period.

The minimum desired precision of the sample group is a sampling error of 10% and a confidence level of 95%. The number of samples is determined so that the propagated error meets 95/10.

(ii) Target Population

The target sample populations are drawn from the Wonderbag database, which consists of all registered Wonderbag users in South Africa at the time of the survey.

(iii) Sampling Method

The selection of sample-households is on a simple random or systematic sampling basis. The survey methodology is a paired-sample study with no control. A paired-sample study compares household’s fuel use without the use of a Wonderbag (established in the once-off baseline survey) and with the use of a Wonderbag (established in the periodic user habit surveys).

³¹ Bailis, B., Thompson, R., Lam, N., Berrueta, V., Muhwezi, G., and Adams, E. 2018. *Kitchen Performance Test (KPT), Version 4.0*.

(iv) Sample Size

The sample sizes are determined according to the CDM survey and sampling guidelines or the KPT guidelines. The CDM's associated Excel-based, survey sample calculator can be employed to assist in determining sample sizes.

Sample sizes (i.e. number of households within the survey) are determined based on different factors. These factors include the total number of the population being considered (i.e. the number of bags in the field); the average amount of time spent cooking on a stove with a Wonderbag (known as the mean) and the degree of variation (known as the standard deviation) between the amounts of time households spend cooking with a Wonderbag.

The sample size (number of households in the survey) is particularly sensitive to the standard deviation (different cooking times), depicted in the following figure. The sample number needs to increase as the standard deviation increases. The sample size may therefore change during the course of the survey due to changes in standard deviation. The correct sample size is imperative to determining the required 95% confidence level of the survey results³². An estimate of the standard deviation may be obtained using the range rule and assuming a normal distribution. The estimated variance is therefore assumed to be the expected mean divided by two.

Therefore, the sampling design, per sampling-cluster where applicable, will contain 30 households as a starting point. Should clustering not be applicable, a starting point of 100 households should be used in accordance with the Kitchen Performance Test guidelines for groups larger than 1000. The final sample number will need to be determined using the CDM's Excel-based, survey sample calculator. In order to minimize non-sampling errors, such as non-responses and errors, the field team will practice over-sampling from the population to ensure a total number respondents that meets the required level of precision. This will ensure the integrity of the sample group and maintains the randomness of participant selection. All samples groups will be re-selected for each monitoring period / year, as appropriate for the parameter in question.

B: Data to be collected:

(i) Field measurements

The following monitored data parameters will be collected during surveys:

- a. Number, age and gender of people in the household
- b. Serial numbers (unique identifier) of distributed Wonderbags
- c. Failure rate of distributed Wonderbags
- d. Type of cooking system e.g. electric stove; other fossil fuel stove or biomass cooking system

³² The confidence level required to sample across multiple project activity instances.

- e. Electric stove type and power rating for electric stoves
- f. Time spent cooking on the household stove with and without a Wonderbag
- g. Quantity of fossil fuel or biomass consumed with a Wonderbag (in periodic user habit surveys) and without a Wonderbag (in the once-off baseline survey)

On site surveying will be conducted by researchers using a prepared questionnaire, which is either captured directly into an electronic device, such as a smartphone or tablet, or captured manually and uploaded thereafter to the electronic Wonderbag app database.

(ii) Quality Assurance/Quality Control

Wonderbag is responsible for the QA/QC for the grouped project. In-house personnel and/or third-party survey entities are contracted for the execution of the surveys. They are required to ensure that the obtained sample results meet the confidence level and are of the required quality.

The randomly selected survey sample population, specifying names, contact numbers and Wonderbag ID etc., is made available to the field researchers. A predefined questionnaire provides for high-levels of data accuracy. The surveys are conducted in accordance with the CDM's "General guidelines for sampling and surveys for small-scale CDM project activity" the Clean Cooking Alliance's "Kitchen Performance Test Protocol", to ensure quality data is captured.

(iii) Analysis

The obtained data from the survey is captured and processed in the Wonderbag database. The resulting emission reductions are calculated based on the energy consumption in both the baseline and project scenarios.

APPENDIX 1

Calculation of the Fraction of Non-Renewable Biomass for the new VCS Group Project: A Recipe for Change

Prepared by Promethium Carbon for:

wonderbag.

9 September 2020

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1. Introduction

Promethium Carbon is employed by Wonderbag UK to manage the registration of Wonderbag's new Grouped Project, *A Recipe for Change*, with the Verified Carbon Standard (VCS). Accordingly, Promethium is responsible for the development of the ex-ante model for the First Project Activity Instance under the Grouped Project, which contain the carbon projections for that project.

The ex-ante calculations require that a fraction for non-renewable biomass (fNRB) be utilised, in cases where households use woody biomass as a cooking fuel. The biomass methodology, AMS-II.G.³³ and associated TOOL30³⁴ provides for country specific default values to be used for the fNRB, in the absence of project specific information.

The default percentage for South is 30%. This value is considered to be inaccurate and hence Wonderbag has engaged Promethium Carbon to determine a more accurate project specific fraction of non-renewable biomass (fNRB) that is saved as a result of cooking with a Wonderbag in South Africa.

2. Procedure for the Calculation

Promethium's calculations are contained in Excel format, titled "2020-08-03 fNRB calculator v1". The outcomes of the calculations are provided in this report and as an appendix in the draft Wonderbag VCS Project Description.

Calculations as per TOOL30

TOOL03 provides for the calculation of the project specific fNRB on a country basis. Promethium has utilised this approach, which includes the utilisation of recent, national statistics. The quantity of NRB has therefore been determined by calculating the total consumption of wood (H) in the country or region and then deducting the quantity of renewable biomass (RB) from it.

The equations utilised and results follow:

i. fNRB calculation

fNRB = 71%.

Calculated using Equation 1 of TOOL30:

$$fNRB = \frac{NRB}{NRB + RB}$$

$$71\% = \frac{19,431,993}{19,431,993 + 7,869,360}$$

Where:

³³ "Energy efficiency measures in thermal applications of non-renewable biomass".

³⁴ "Calculation of the fraction of non-renewable biomass".

<i>ENRB</i>	=	Fraction of non-renewable biomass in the country/region or project area)
<i>NRB</i>	=	Quantity of non-renewable biomass in the country/region or project area (t/yr)
<i>RB</i>	=	Quantity of renewable biomass in the country/region or project area (t/yr)

ii. NRB calculation

$$\text{NRB} = 19,431,993 \text{ t/yr.}$$

Calculated using Equation 2 of TOOL30:

$$\text{NRB} = H - RB$$

$$19,431,993 \text{ t} = 27,301,353 \text{ t} - 7,869,360 \text{ t}$$

Where:

<i>H</i>	=	Total annual consumption of wood in the absence of the project activity in the country (t/yr)
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Explanation:

The South African Department of Energy publishes the country's energy balance which provides a detailed balance of the country's energy carriers and their consumption. The latest available energy balance is for the year 2017³⁵. The annual consumption of biomass in the balance was used for the total annual consumption of wood in South Africa before the implementation of the project activity. This figure includes all consumption sources of biomass in accordance with TOOL30 "Calculation of the fraction of non-renewable biomass" Version 2.0 paragraph 12.

The energy balance provides the biomass consumption in TJ/year which was converted to the required tonnes/year using the Net Calorific Value published for wood in Annexure A of the South African Technical Guidelines³⁶. The annual consumption of biomass in 2017 equated to 425,901 TJ. This was converted using an NCV of 0.0156 TJ/tonne to an annual consumption of 27,301,353 tonne/yr.

³⁵ http://www.energy.gov.za/files/media/Energy_Balances.html

³⁶ https://www.environment.gov.za/sites/default/files/legislations/technicalguidelinesformrvofemissionsbyindustry_0.pdf

iii. RB calculation

$$RB = 7,869,360 \text{ t/yr.}$$

Calculated using Equation 4 of TOOL30:

$$RB = \sum (MAI_{forest,i} \times (F_{forest,i} - P_{forest})) + \sum (MAI_{other,i} \times (F_{other,i} - P_{other}))$$

$$\begin{aligned} &7,869,360 \text{ tonnes} \\ &= \sum 2.2 \text{ tonnes/ha/yr} \times (3,923,142 \text{ ha} - 346,160 \text{ ha}) \\ &+ \sum 0 \times (0 - 0) \end{aligned}$$

Where:

$MAI_{forest,i}$	=	Mean Annual Increment of woody biomass growth per hectare in sub-category i of forest areas (t/ha/yr)
$MAI_{other,i}$	=	Mean Annual Increment of woody biomass growth per hectare in sub-category i of other wooded land areas (t/ha/yr)
$F_{forest,i}$	=	Extent of forest in sub-category i (ha)
$F_{other,i}$	=	Extent of other wooded land in sub-category i (ha)
P_{forest}	=	Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas (ha)
P_{other}	=	Extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within other wooded land areas (ha)
i	=	Sub-category i of forest areas and other wooded land areas

Explanation:

$$MAI_{forest,i}$$

In order to determine variable $MAI_{forest,i}$, the type of forest typical for the region which is dependent on the climatic and ecological zone needed to be identified.

The climatic zoning and related forest classification used follows the one provided by the Food and Agriculture Organization (FAO). For any global and regional forest-related representation, FAO uses global ecological zones, as per the updated Global Ecological Zone (2010): Tropical, subtropical, temperate, boreal and polar (Figure 9).

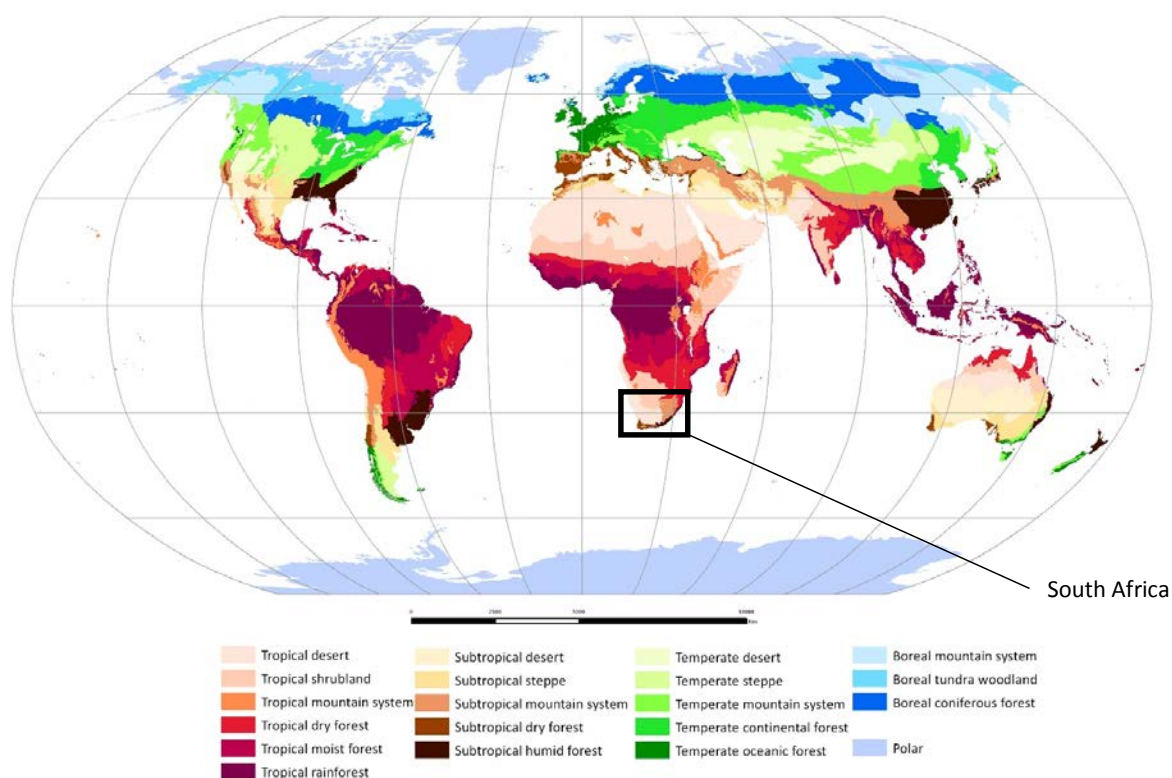


Figure 9: FAO Global Ecological Zoning framework for 2010 map
(Source: <http://foris.fao.org/static/data/fra2010/ecozones2010.jpg>).

According to Simons (2001)³⁷, an Ecological Zone is defined as:

“A zone or area with broad yet relatively homogeneous natural vegetation formations, similar (not necessarily identical) in physiognomy. Boundaries of the Ecological Zones approximately coincide with the map of Köppen-Trewartha climatic types, which was based on temperature and rainfall. An exception to this definition are “Mountain systems”, classified as one separate Ecological Zone in each Domain and characterized by a high variation in both vegetation formations and climatic conditions caused by large altitude and topographic variation.”

Based on this classification and Figure 9, South Africa falls within the subtropical climatic zone. This zone is characterised by a climate of over 10°C for 8 months or more. Specifically, its forests are classified as subtropical dry forests (seasonally dry: winter rains, dry summers), subtropical humid forests (humid: no dry season) and subtropical mountain system (approximate >800-1000m altitude)³⁸.

³⁷ Simons, H. 2001. FRA 2000. Global Ecological Zoning for the Global Forest Resources Assessment 2000. FRA Working Paper 56. FAO, Rome.

³⁸ FAO. 2012. Global ecological zones for FAO forest reporting: 2010 Update. Food and Agriculture Organization of the United Nations. FAO, Rome.

As per Table 4.9 (updated) of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories³⁹, subtropical regions are divided into subtropical humid forest and subtropical dry forest. Only values for subtropical dry forest and subtropical mountain systems were available for Africa. There are two values for above-ground biomass growth (tonnes d.m. ha⁻¹ yr⁻¹) available for *subtropical dry forests* in Africa as well as two values for *subtropical mountain systems* in Africa (Table 8 below). The mean of the values provided for subtropical mountain systems was calculated, and thereafter the mean of the four values for above-ground biomass growth calculated, which equates to **2.2 tonnes d.m. ha⁻¹ yr⁻¹** and constitutes the value for MAI_{forest,i} used here.

Table 12: Above-ground net biomass growth in natural forests (Source: IPCC (2006), Vol. 4. Agriculture, Forestry and Other Land Use, Chapter 4³⁹)

Domain	Ecological zone	Continent	Above-ground biomass growth (tonnes d.m. ha ⁻¹ yr ⁻¹)	Reference
Subtropical	Subtropical dry forest	Africa (<20 y)	2.4 (2.3-2.5)	IPCC, 2003
		Africa (>20 y)	1.8 (0.6-3.0)	IPCC, 2003
	Subtropical mountain systems	Africa (<20 y)	2.0-5.0	IPCC, 2003
		Africa (>20 y)	1.0-1.5	IPCC, 2003

MAI_{other,i}

The *Mean Annual Increment of woody biomass growth per hectare in sub-category i of other wooded land areas (t/ha/yr)* was set to zero (0) as the remaining land area of South Africa is semi-desert and desert. F_{other,i} was set to zero (see Section E) and therefore MAI_{other,i} also equals zero.

F_{forest,i}

To determine the extent (ha) of forests in South Africa, the land area (Mha) of South Africa and its nine provinces was obtained from Global Forest Watch⁴⁰ (Figure 10), which data originates from GADM⁴¹.

³⁹ IPCC. 2006. Forest Land. In 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Vol. 4. Agriculture, Forestry and Other Land Use, Chapter 4, pages 4.57-4.58. IGES Hayama, Japan.

⁴⁰ <https://www.globalforestwatch.org> – Interactive map.

⁴¹ <https://gadm.org/maps/ZAF.html> and https://gadm.org/download_country_v3.html.

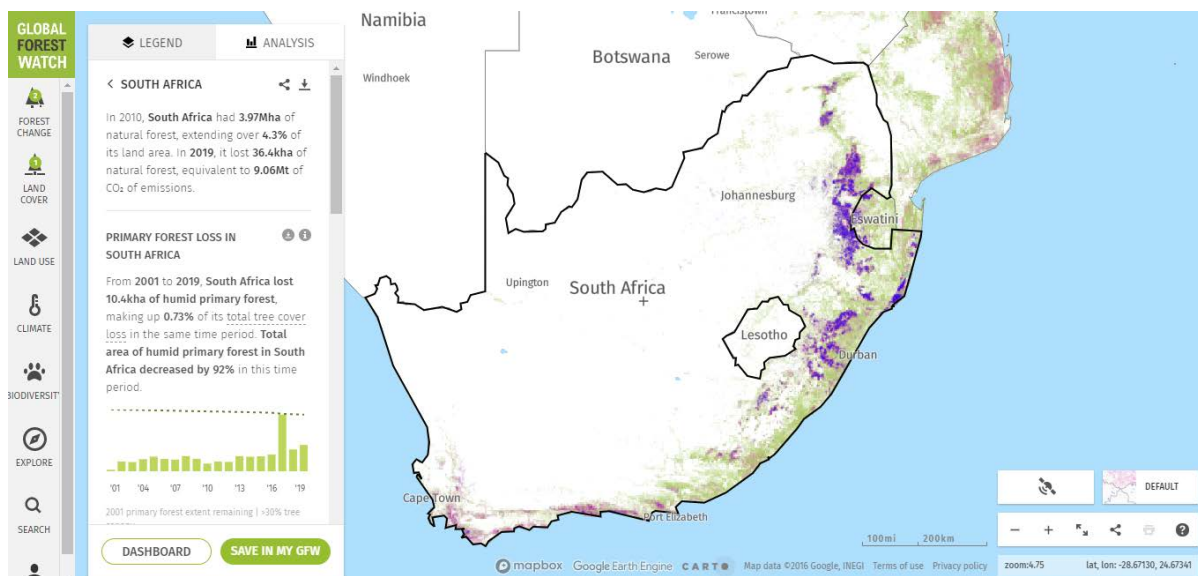


Figure 10: Global Forest Watch Interactive Map used to determine the land area and natural forest cover in South Africa.

For each of the provinces, the Global Forest Watch Interactive Map states the extent of natural forested areas, which data originates from the Global Land Analysis & Discovery (GLAD)⁴². The provincial natural forested area was reported for 2010 as well as a change in the extent of natural forested areas in 2019. The difference between the 2010 extent and 2019 area change was calculated and a total area of the natural forest area for South Africa in 2019 resulted in a figure of 3,923,142 ha (Table 9).

Table 13: Land and natural forested area per province in South Africa

Province	Provincial area		Natural forested area (2019)
	Mha	ha	ha
Eastern Cape	16,9	16 900 000	1 319 800
Free State	13	13 000 000	8 865
Gauteng	1,82	1 820 000	5 188
KwaZulu-Natal	9,33	9 330 000	1 694 150
Limpopo	12,6	12 600 000	289 920
Mpumalanga	7,65	7 650 000	344 720
North West	10,5	10 500 000	3 909
Northern Cape	37,3	37 300 000	2 990
Western Cape	12,9	12 900 000	253 600
South Africa	122	122 000 000	3 923 142

⁴² <https://glad.umd.edu/dataset>

$F_{other,i}$

The *extent of other wooded land in sub-category i (ha)* was set to zero (0) as the remaining land area of South Africa is semi-desert and desert, therefore $F_{forest,i}$ covers the forested/wooded areas in the country.

$P_{forest,i}$

The extent of non-accessible area (e.g. protected area where extraction of wood is prohibited, geographically remote area) within forest areas (ha).

The area of protected areas in South Africa was obtained from Protected Planet⁴³, a UNEP database, which provides the datasets to be used for analysis in GIS software. The data is classified according to the following categories:

- Nature Reserves;
- National Parks;
- Marine Protected Areas;
- Special Nature Reserves;
- Mountain Catchment Areas;
- Forest Nature Reserves;
- Protected Environments; and
- Forest Wilderness Areas.

The only dataset not used to determine the area extent of forested protected areas was the Marine Protected Areas as this dataset is irrelevant for the analysis.

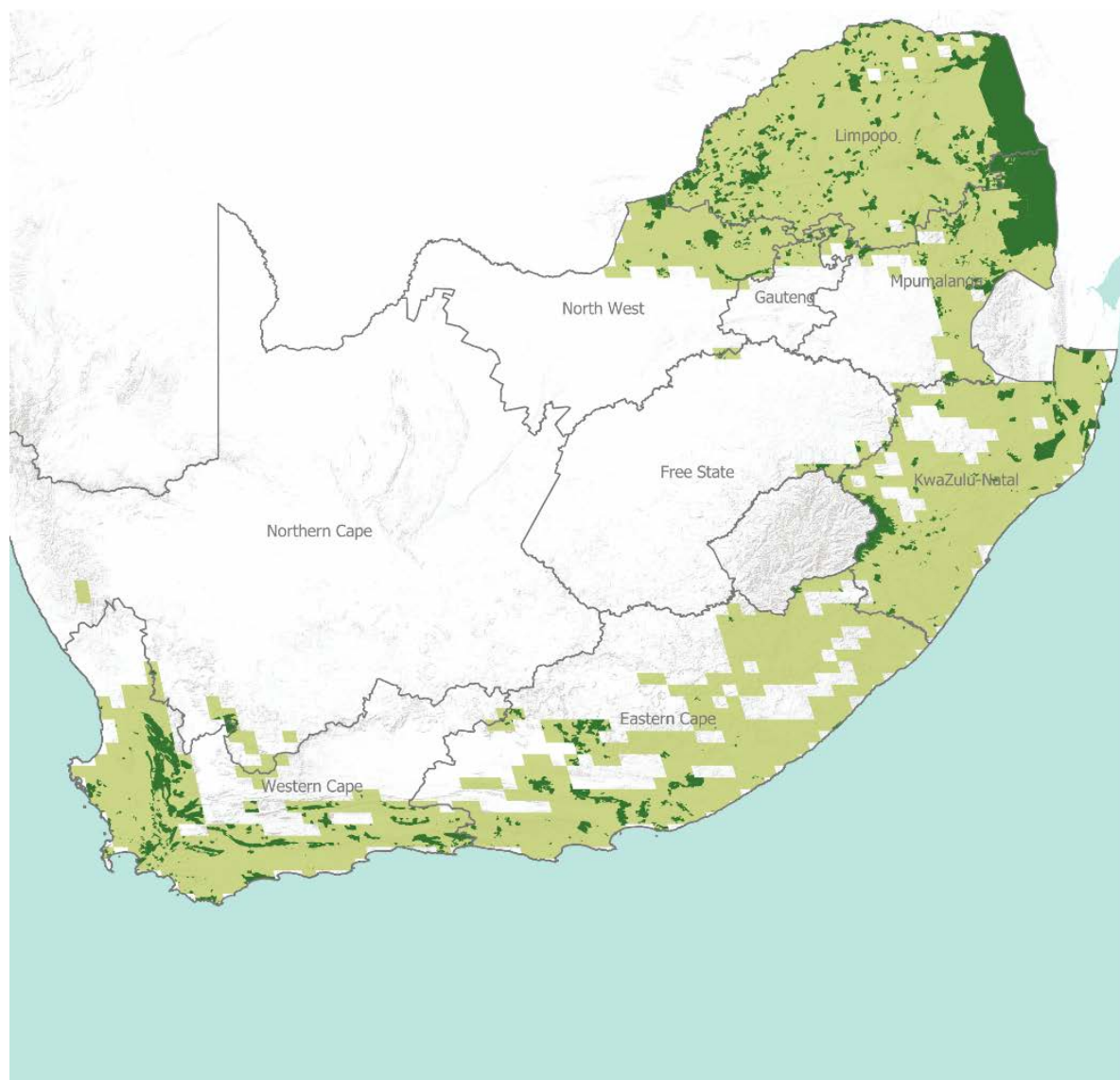
Some of the recorded protected areas or parts thereof could be classified as more than one category, for example as a result of designating a protected area by national as well as provincial entities, but each classifying this according to a different category. Such a protected area would therefore be recorded more than once, and in turn their area as well. To eliminate any overlap and consequently double counting of land area of protected areas, the shapefiles of the protected areas were added to the GIS software and any overlapping protected areas removed from the attribute table of the spatial map. A combined shapefile was created that had a single record of each protected area in South Africa.

Because South Africa falls within the *subtropical* Global Ecological Zone (refer to Figure 9), the protected areas falling within this zone needed to be identified. For this, a second shapefile was added to the GIS project showing the extent of the tropical and subtropical forest biome⁴⁴. In addition, a polygon of South Africa was added as well. Using GIS data processing tools, the intersection between the subtropical forest, South Africa (polygon) and the protected areas (excluding Marine Protected Areas) was obtained (Figure 11). As the data underlying the GIS shapefile of the protected areas contained information such as provincial affiliation, the protected

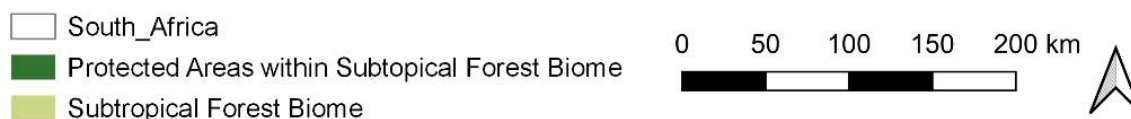
⁴³ UNEP-WCMC (2020). Protected Area Profile for South Africa from the World Database of Protected Areas, July 2020. Available at: <https://www.protectedplanet.net/country/ZA>.

⁴⁴ Source: Global Land Analysis & Discovery. Available at: <https://glad.umd.edu/>.

areas could be split according to this classification and the total coverage of protected areas within the subtropical forest zone in South Africa as well as per province be determined (Table 10).



Protected Areas in South Africa within the Subtropical Biome



Author: Promethium Carbon. Date: 1 July 2020. Tropics and Subtropics biomes layer from Global Land Analysis & Discovery. Protected areas layer from protected planet.

Figure 11: GIS map of protected areas within the subtropical biome in South Africa (generated with QGIS)

Table 14: Section of the data extracted from GIS data package to determine protected areas in South Africa, per province, falling within the subtropical forest zone

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
4	FID	FID_In	FID_Me	FID_Me	NAME	DESIG	DESIG	MAR	REP_AR	STA	STATU	GOV_T	OVN_T	MANG_A	MANG_F	VER	METADA	BIOM	name_1
5	1132	1053	1344	16	Addo-Elephant National Park	National Park	National	0	1377,42	Designat	1931	Federal or r State		South African	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
6	885	827	844	1193	Andries Vosloo Kudu Nature Reserve	Nature Reserve	National	0	213,47	Designat	1976	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
7	886	828	845	1194	Andriesbergen Private Nature Reserve	Nature Reserve	National	0	42,32	Designat	1982	Federal or r State		Not Reported	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
8	87	79	85	0	Auckland Nature Reserve	Forest Nature Reserve	National	0	2,02	Designat	1983	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
9	246	226	240	285	Baviaanskloof Hartland Nature Reserve	Nature Reserve	National	0	57,89	Designat	2014	Individual Ia Individual Ia		Baviaanskloo	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
10	297	276	290	360	Baviaanskloof Nature Reserve	Nature Reserve	National	0	41,01	Designat	2016	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
11	909	850	867	1220	Bizana Nature Reserve	Nature Reserve	National	0	9,58	Designat	1999	Federal or r State		Bizana Transil	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
12	801	747	763	1090	Blaauwkrantz Nature Reserve	Nature Reserve	National	0	1,98	Designat	1985	Federal or r State		Cacadu Distri	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
13	702	661	677	970	Blouberg Protea Nature Reserve	Nature Reserve	National	0	8,12	Designat	1989	Federal or r State		Kou Kamma h	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
14	1127	1048	87	0	Bosch Hoek Nature Reserve	Forest Nature Reserve	National	0	15,76	Designat	1985	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
15	89	81	88	0	Boxwood Nature Reserve	Forest Nature Reserve	National	0	8,79	Designat	1985	Federal or r State		South African	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
16	803	749	765	1092	Bridle Drift Dam Nature Reserve	Nature Reserve	National	0	5,53	Designat	1973	Federal or r State		Buffalo City Iv	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
17	14	14	14	2	Buffalo Kloof Protected Environment	Protected Environment	National	0	67,81	Designat	2018	Individual Ia Individual Ia		Buffalo Kloof	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
18	1184	1105	1340	9	Camdeboo National Park	National Park	National	0	186,86	Designat	2005	Federal or r State		South African	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
19	90	82	89	0	Cape Henderson Nature Reserve	Forest Nature Reserve	National	1	1,45	Designat	1983	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
20	938	877	894	1253	Cathcart Nature Reserve	Nature Reserve	National	0	5,24	Designat	1990	Federal or r State		Amahlali Mun	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
21	25	25	25	17	Cedarville Protected Environment	Protected Environment	National	0	133,57	Designat	2015	Individual Ia Individual Ia		Cerdaville Cor	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
22	1131	1052	90	0	Congas Kraal Nature Reserve	Forest Nature Reserve	National	0	6,02	Designat	1985	Federal or r State		South African	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
23	805	751	767	1095	Cycad Nature Reserve	Nature Reserve	National	0	0,44	Designat	1976	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
24	174	154	166	163	Dunnden Private Nature Reserve	Nature Reserve	National	0	0,38	Designat	1986	Individual Ia Individual Ia		Not Reported	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
25	693	652	668	956	Dwesa-Cwebe Nature Reserve	Nature Reserve	National	0	53,76	Designat	1975	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
26	548	516	532	676	Eastoot Private Nature Reserve	Nature Reserve	National	0	0,50	Designat	1987	Individual Ia Individual Ia		S.L.A. Trust	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
27	810	756	772	1101	Ecca Nature Reserve	Nature Reserve	National	0	1,27	Designat	1985	Federal or r State		Cacadu Distri	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
28	68	61	64	0	Fort Pato Nature Reserve	Forest Nature Reserve	National	0	6,73	Designat	1973	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
29	1048	974	1338	7	Garden Route National Park	National Park	National	1	1263,86	Designat	1964	Federal or r State		South African	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
30	814	760	776	1106	Ghio Wetland Nature Reserve	Nature Reserve	National	0	0,54	Designat	1985	Federal or r State		Regional Serv	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
31	815	761	777	1107	Great Fish River Mouth Wetland Nature Reserve	Nature Reserve	National	0	2,11	Designat	1988	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
32	10	10	10	10	Groendal Wilderness Area	Forest Wilderness Area	National	0	217,50	Designat	1976	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
33	70	63	67	0	Gulu Nature Reserve	Forest Nature Reserve	National	1	3,30	Designat	1983	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
34	745	699	715	1020	Hluikela Nature Reserve	Nature Reserve	National	0	6,09	Designat	1976	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
35	245	225	239	284	Honeyville Nature Reserve	Nature Reserve	National	0	8,26	Designat	2014	Federal or r State		Earth Temple	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
36	820	766	782	1113	Huisklip Nature Reserve	Nature Reserve	National	1	3,18	Designat	1994	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
37	13	13	13	1	Indalo Protected Environment	Protected Environment	National	0	639,75	Designat	2018	Federal or r State		Indalo Associ	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
38	824	770	786	1118	Kap River Nature Reserve	Nature Reserve	National	0	2,63	Designat	1990	Federal or r State		Eastern Cape	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
39	1183	1104	418	533	Karoo Nature Reserve	Nature Reserve	National	0	143,15	Designat	1983	Federal or r State		South African	Not Reported	State Ve		1840	Dry Tropic Eastern Cape
40	826	772	788	1120	King Williams Town Nature Reserve	Nature Reserve	National	0	1,09	Designat	1973	Federal or r State		Buffalo City Iv	Not Reported	State Ve		1840	Dry Tropic Eastern Cape

Determination of protected areas falling only within *natural forested* areas:

The provincial land area and natural forested areas as described in D, Table 9, were firstly used to calculate the proportion of forested area of per province.

This percentage was then applied to the area of protected areas to obtain the extent (ha) of *forested protected areas* per province in South Africa (Table 11).

Table 15: Overview of variables used to calculate the proportion of protected forested areas per province in South Africa

Province	Provincial area (ha)	Natural forested area (ha; 2019) - $F_{other,i}$	Proportion of natural forest in Province (%)	Total protected area (ha)	Proportion of protected forested area in province (ha) - $P_{forest,i}$
Eastern Cape	16 900 000	1 319 800	7,81%	905 009	70 676
Free State	13 000 000	8 865	0,07%	105 811	72
Gauteng	1 820 000	5 188	0,29%	88 321	252
KwaZulu-Natal	9 330 000	1 694 150	18,16%	839 603	152 456
Limpopo	12 600 000	289 920	2,30%	3 597 960	82 787
Mpumalanga	7 650 000	344 720	4,51%	381 433	17 188
North West	10 500 000	3 909	0,04%	157 785	59
Northern Cape	37 300 000	2 990	0,01%	146 974	12
Western Cape	12 900 000	253 600	1,97%	1 152 564	22 658
South Africa	122 000 000	3 923 142	3,22%	7 375 462	346 160

$P_{other,i}$

The *extent of non-accessible area* (e.g. *protected area where extraction of wood is prohibited, geographically remote area within other wooded land areas* (ha) was set to zero (0) as the remaining land area of South Africa is semi-desert and desert, within which other (non-wooded) protected areas are situated. Therefore $P_{forest,i}$ covers the forested/wooded areas in the country and $P_{forest,i}$ equals zero.

3. Conclusion

The following is a summary of the inputs and the results of the calculations to determine the fNRB for the Wonderbag Group Project, *A Recipe for Change*.

Inputs

Inputs			
	i⁴⁵	Unit	Reference/notes
H (Total annual consumption of wood in the absence of the project activity in the country (t/yr))	27 301 353	tonne	Official statistics: 2017 South Africa Energy Balance published by the Department of Energy (now known as the Department of Mineral Resources and Energy)
MAI _{forest,i}	2.2	tonne/ha/yr	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: V4_04_Ch4_Forest_Land Table 4.9, Subtropical dry forest - Africa
MAI _{other,i}	0	tonne/ha/yr	Not applicable
F _{forest,i}	3 923 142	ha	Calculated by determining the proportion of protected natural forest cover for the country. See further details in tab titled 'Protected forest areas'
F _{other,i}		ha	Not applicable
P _{forest}	346 160	ha	Calculated by determining the proportion of protected natural forest cover for the country. See further details in tab titled 'Protected forest areas'
P _{other}	0	ha	Not applicable

Results of the calculations

fNRB calculation	
Equation 1 of TOOL30 to calculate NRB:	$fNRB = \frac{NRB}{NRB + RB}$
fNRB (fraction or %)	0.71

⁴⁵ Sub category i of forest area and other wooded areas.

NRB calculation	
Equation 2 of TOOL30 to calculate NRB:	$NRB = H - RB$
NRB (tonnes/year)	19,431,993

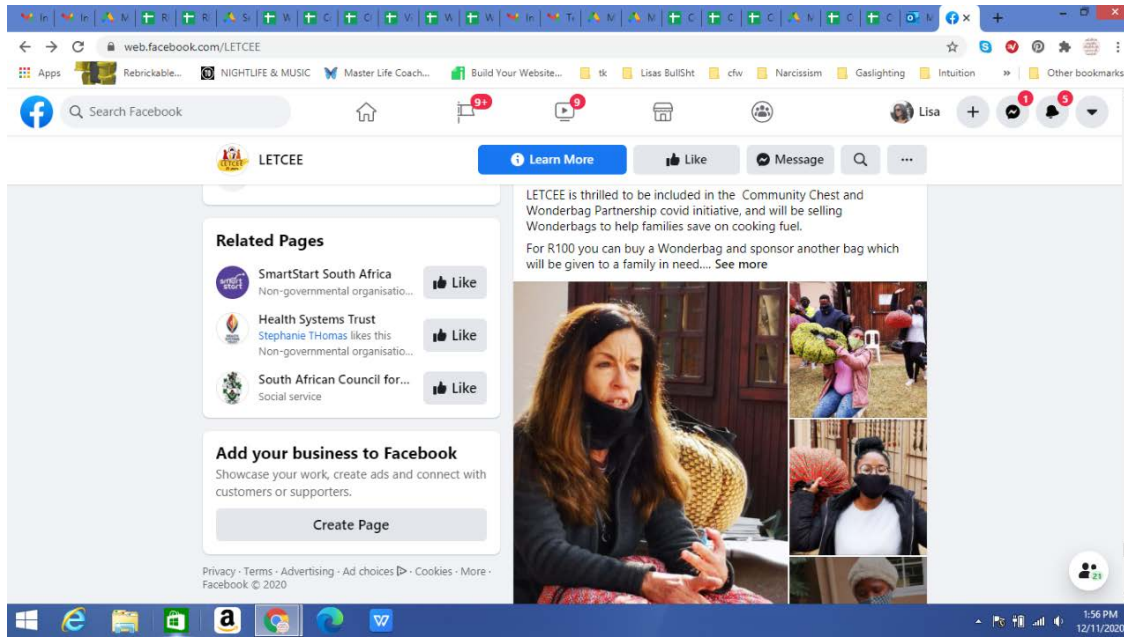
RB calculation	
Equation 4 of TOOL30 to calculate NRB:	$RB = \sum (MAI_{forest,i} \times (F_{forest,i} - P_{forest}))$ $+ \sum (MAI_{other,i} \times (F_{other,i} - P_{other}))$
$\Sigma(MAI_{forest,i} \times (F_{forest,i} - P_{forest}))$	7 869 360
RB (tonnes/year)	7,869,360

APPENDIX 2

This appendix contains supporting documentation for the Local Stakeholder Consultations conducted. A report for 10 stakeholder meetings has been provided along with a general report around the Stakeholder Consultations that were conducted. Photographic evidence and attendance registers have been provided where available for the stakeholder meetings conducted.

Photographic evidence





Stakeholder meetings report back

From: [Lisa Wimble | Wonderbagworld](#)

To: [Olivia Tuchten](#)

Cc: [Office of Sarah Collins; Kristen](#)

Subject: Wonderbag stakeholder meetings - report back

Date: 28 September 2020 07:58:07 PM

Dear Olivia

I trust that you are well.

Please find below the report on the 10 stakeholder meetings that were requested.

Training, included the following, and is done on a very interactive basis encouraging questions and comments throughout:

1. Providing an overview of the Community Chest and Wonderbag partnership initiative, including an overview of what is expected from distribution partners.
2. An explanation on what the Wonderbag is, how the bag is made up, the wash care, the functioning of the drawstring and the location of the serial number.
3. The benefits of the Wonderbag usage are discussed including how end-users can save time on the cooking process, save money spent on cooking fuels, the positive environmental

impact of using the Wonderbag especially regarding water and wood savings, health benefits due to reduced indoor air pollution and finally the empowerment of women.

4. How to cook in the Wonderbag is discussed, providing different options and ideas of how food can be cooked. We discuss the recipe book and emphasize that the Wonderbag is adaptive to all food preferences and recipes.
5. A demonstration is provided showing rice cooked in the Wonderbag including, how the pot should be placed in the bag, recommending the use of a dishcloth and the reasons for this recommendation.
6. We follow on to the data sheet, explaining its importance, and how it needs to be completed.
7. We include tips on how to manage a large number of data sheets and Wonderbags at different activation scenarios.
8. A question and discussion session is then encouraged.
9. Trainees are then given the opportunity to complete a data form to enforce and ensure an understanding of expectations.
10. They are then provided with a complimentary Wonderbag that they take home to use for themselves, use for demos and promotions within their communities.

Distribution partners are listed below:

1. Planting Hope Foundation - Location Pietermaritzburg

On the 28 July 2020, 4 members of the Planting Hope Foundation were trained. This Foundation is a community faith-based non-profit organisation that focuses on supporting lower-income households by standing in solidarity with the global fight against hunger & food insecurity, the lack of holistic education and self-care amongst the youth.

Names of attendees are:

Logan Naidoo

Shamla Naidoo Mike

Goble Thandi

Radebe

2. Sizasimeni Creche - Snathing Location

On 28 August 2020 we did an activation and training session for 18 members of staff and parents from the Sizasimeni Creche in Snathing, Pietermaritzburg. Sizasimeni Creche is an ECD that cares for children in Snathing a rural Location 30 Minutes from Pietermaritzburg.

Names of the attendees are:

Nonto Nxele Fo

Nxele

Lindiwe Mhlokwa

Philile Ndlovu Ziningi

Shange Lindiwe Zulu

MaDlamini Nxele

Triphina Mtshali
Nokuthula Mtshali
Thandeka Msane
Lindiwe Mtshali Gugu
Magubane Nokwanda
Mlalazi Bongiwe
Ngcamu Regina Made
Snakho Phungula Nozi
Phungula Phumaphi
Mweli

3. Letcee - Location Greytown

We did a training on the 6 August 2020 for 18 Letcee employees and their director Mary James. Letcee is based in Greytown and is an Early Childhood Development Non-profit organisation working to provide playful early learning experiences to South African children who would not otherwise have access to these services. Letcee also has a total of 120 PowerGirls in 3 communities. The PowerGirls mission is to educate girls from disadvantaged communities to become proud, strong and responsible young women, who will strengthen the community, by becoming positive role models. The names of some of the attendees are:

Mary James Di
Kohne

Rebecca Mkize
Nomfundo Ngcobo
Mamsy Dlamini
Thandiwe Jacobs Ketso
Maragelo

Fezeka Dlamini

4. Cancer Support Group - Location Overport Durban

We did a training and activation on 6 August 2020 to the executive committee of the Cancer Support Group in Overport Durban. This group offers support to cancer patients from under-privileged communities and families in Overport and the Berea.

The attendees were:

Zorah Elias

Luthfia Kajee
Rubina Paruk
Zeba

5. Thandinani Childrens Foundation - Location Pietermaritzburg

Founded in 1989, Thandanani Children's Foundation is a registered non-profit organisation that facilitates community-based care and support for orphans and other vulnerable children in Kwa-Zulu

Natal. They have a well-established system of community-based care and support for orphans and their families that involves capacitating and supporting community-based Fieldworker teams to respond to the basic material, physical, cognitive and emotional needs of orphans and vulnerable children (OVC) through our Family Strengthening Project.

We did train the trainer and activation to 25 field workers on 29 June 2020. A list of the attendees was not taken however, the director Duncan Andrew was in attendance.

6. Kalinka - Location Pietermaritzburg

On 1 July 2020 we did a train the trainer session at Community Chest Office in Pmb. Bernice and Veronica from Kalinka attended. Kalinka is an NGO based in Oribi Village, who focus on the development, nutrition and education of young children from very under- privileged families. Many of the children face neglect during the day, and are taken in and cared for by the staff at Kalinka. Bernice, the director, invited 6 unemployed mothers to assist in the Wonderbag distribution and activations.

In attendance on 1 July:

Bernice

Veronica

7. Open Door Crisis Centre - location Pinetown

On the 31 July 2020 we did training and activation at Open Door Crisis Centre in Pinetown. Open Door is a centre that aims to sustain a holistic, multi-faceted, one-stop crisis and trauma centre, offering counseling, social services, and support groups. They have a number of social workers and field workers that work within communities.

The attendees were:

Ann Young (Trauma Counsellor) 12

Social Workers

8. Molweni Zime Centre - Molweni Valley 1000 Hills

On the 27 August 2020 we did training and activation at Molweni Zime Centre, that is a creche located in Molweni in the Valley of Thousand Hills. The creche looks after 68 disabled children. They also have large beautiful vegetable gardens that help support the community.

Approximately 20 people from the creche and community attended the training. Please find below some of the names of those who attended.

Jabu Zulu, Bongsi

Miya,

Cebile Mthimkhulu,

Lindelwa Mfeka, Zamekile

Ndlovu, Thombi Sibiya,

Mrs Mkhize, Mrs
Basi, Thembi Zondi,
Zama Buthelezi

9. Red Cross Pietermaritzburg - Location Pietermaritzburg

On the 12 August 2020 we did training and activation for the Pietermaritzburg Red Cross, a member organisation of the International Federation of the Red Cross. They support a number of field workers that support the communities in and around Pietermaritzburg. We facilitated transport for the field workers to attend the training and activation at the Community Chest offices.

The field workers and the director who attended the training were: Dumsile
Ndlovo

Busisiwe Sithole
Delisile Mthlane
Sicelo Zibula

10. Dlalanathi - Location Pietermaritzburg

Dlalanathi is a non-profit organisation based in Pietermaritzburg. Within the South African context, they work to provide psychosocial support for children through play by training and supporting caregivers. In the context of trauma and loss, Dlalanathi's mission is to create unique, playful, healing processes for children, youth, families and community stakeholders to restore relationships for positive action.

On the 7 July, 3 members of Dlalanathi attended a training and activation session at Community Chest office. The attendees where:

Robyn Hemmens
Nontobeko Mpangose
Louise

Attendance Registers

12	Gordon	Pillay	comradescoach@gmail.com	0763883700	
13	Shamla	Naidoo	shamla@plantinghopefoundation.com knaidoo@mwbo.co.za	073304704	Aldoo
14	LOGAN NAILO	NATINDU	LOGAN PLANTINGHOPE FOUNDATION	0834311138	Kulu.
15	BONLANGAT	HELEA	bonlangat@plantinghopefoundation.com	0619286885	PB
16	MICHAEL	GOBE	MIKE@plantinghopefoundation.com	0710180768	John
17	SABRELL	NEPAUL	SIMUNYESTRA@gmail.com	0746026715	
18					
19					
20					
21					



Wonderbag Training : 28th July 2020





Wonderbag Training : 6th August 2020 – Location - Greytown



No.	Contact Person	Name of Organisation	Email Address	Contact Number	Sign
1	Mary James	Lettee	ecd@lettee.org	082858 0819	
2					
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Stakeholder engagement report

Compiled by: Wonderbag

Date compiled: November 2020

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1. Introduction

In 2008, Sarah Collins reinvented an age-old cooking method, having foreseen the impact it might have on the world. A world where half its inhabitants still cook on an open fire every day. She created the Wonderbag.

The Wonderbag is a revolutionary non-electric, heat retention cooker that allows food that has been brought to the boil by conventional methods, to continue to cook for up to 10 hours without using any additional energy source.

The Wonderbag has been used extensively in both developed and developing countries throughout the world. It has been hailed as a solution to many of our global environmental and humanitarian problems by bringing about social change.

The Wonderbag has its roots in Tongaat in KZN, South Africa, where production first began some 10 years ago. The original factory still continues to produce Wonderbags and is considered the Centre of Excellence in today's production of Wonderbags. Each bag is handmade, from start to finish and is filled with repurposed insulation foam. The company has subsequently built a network of agents across the globe, with Wonderbags been used in nearly every country in the world, with production hubs established across Africa creating an easier distribution network on the continent.

Wonderbag has been leading initiatives since its inception with successful partnerships with major corporations such as Unilever, Microsoft and Pfizer. Wonderbag focuses on working with International Federation of Red Cross, Mercy Corp, US Aid and others activating Wonderbag and training vulnerable households, in refugee camps, host communities and rural, urban homes across Africa. In South Africa, Wonderbag partners with Red Cross, Community Chest, Early Childhood Centres, and 250 NGO's across all sectors in South Africa.

In addition to offsetting carbon emissions Wonderbag has many other positive impacts on our world.

- * Reduces fuel costs creating further disposable incomes
- * Reduces water consumption in cooking
- * Minimises deaths and injuries caused by fires and burns in homes
- * Reduces deforestation
- * Reduces cooking times considerably allowing increased productive time for women and girls
- * A reduction in cooking times drastically reduces respiratory illnesses and deaths, particularly amongst children, which is caused by indoor air-pollution. Indoor air-pollution causes more deaths each year than malaria, TB and HIV Aids, combined. That is estimated to be between 4 - 7million deaths annually.

The positive impact on so many platforms have affected the economic, social, environmental,

humanitarian, health and entrepreneurship benefits of the Wonderbag - which is to improve the resilience of vulnerable communities against climate change.

The following report summarises Wonderbag's approach to ongoing community and partner engagements, and also summarises recent Wonderbag stakeholder consultations.

2. Methods of engagement

Ongoing, local stakeholder consultations are key components of the Wonderbag operations. Wonderbag and our distribution partners (on behalf of Wonderbag) undertake interactive training and activation (demonstration) sessions with community members who receive the Wonderbags.

2.1 Training for Wonderbag Distribution Partners

Wonderbags are distributed through various distribution channels. Where distribution partners are responsible for the physical distribution of the bags, Wonderbag provides training to these partners on how to conduct demonstrations with the final users of the Wonderbags. These sessions are often referred to as 'train the trainer' sessions.

Training of distribution partners is done on a very interactive basis, encouraging questions and comments throughout:

1. Providing an overview of the Wonderbag and distribution partnership initiative, including an overview of what is expected from distribution partners.
2. An explanation on what the Wonderbag is, how the bag is made up, the wash care, the functioning of the drawstring and the location of the serial number.
3. The benefits of the Wonderbag usage are discussed including how end-users can save time on the cooking process, save money spent on cooking fuels, the positive environmental impact of using the Wonderbag especially regarding water and energy savings which reduce greenhouse gas emissions, health benefits due to reduced indoor air pollution and finally the empowerment of women.
4. How to cook in the Wonderbag is discussed, providing different options and ideas of how food can be cooked. We discuss the recipe book and emphasize that the Wonderbag is adaptive to all food preferences and recipes.
5. A demonstration is provided showing rice cooked in the Wonderbag including how the pot should be placed in the bag, recommending the use of a dishcloth and the reasons for this recommendation.
6. We follow on to the data sheet⁴⁶, explaining its importance, and how it needs to be completed. An example of a data sheet is provided in Annexure A.
7. We include tips on how to manage a large number of data sheets and Wonderbags at different activation scenarios.
8. A question and discussion session is then encouraged.
9. Trainees are then given the opportunity to complete a data form to enforce and ensure an understanding of expectations.
10. They are then provided with a complimentary Wonderbag that they take home to use for themselves, use for demos and promotions within their communities.

⁴⁶ The Data Sheets are stored by Wonderbag. The information provided, such as contact details, bag serial numbers, cooking fuel used by household etc., is also stored in the electronic database.

2.2 Community Activation/Demonstration Sessions

International Women's Month March 2019.

Sarah Collins was recognised as one of the "Top 6 New Wealth Creators in Africa". This acknowledgement was in response to the Wonderbag, creating wealth for women in vulnerable communities and uplifting entrepreneurs through the intervention of the time saving Wonderbag.

The summit was hosted by the KwaZulu Natal Provincial Government, at the Durban International Conference Centre, and saw this selection of the continent's most influential women in business. These six women were selected as visionaries who were celebrated as pioneers within their respective fields of endeavour, due to their ability to tap into previously unknown sources of income and transform the world as we currently know it.

Collins honours the summit as a catalyst and inspiration that connects and empowers women all over the African continent. She firmly believes that every woman in Africa is a potential entrepreneur, and that Africa needs economic stimulation in rural communities to help ease the burden of urbanisation. By allowing women to take their rightful place as entrepreneurs and matriarchs in their homes and communities - these initiatives can significantly help towards feeding the hungry and help get girls back into schools in order for them to pursue great things. This is why, she says, the Wonderbag was created.

In celebration of International Women's Months, Recipe For Change Carbon Project was launched. This would mark the start of the third Carbon Registered project in Africa.

These first Wonderbag Activations following in March 2019, signified the start of a new era for Wonderbag and Carbon Funding. It was launched with a series of activations beginning with:

1. Zululand Manyoni Kwa-Zulu Natal South Africa: 18 bags were activated on 15 March 2019.
2. Maqwavani Feeding programme in Tongaat, Kwazulu-Natal, South Africa: 14 bags were activated on 17 March 2019.

Further bag distributions and associated local stakeholder consultations followed thereafter, in the form of training and activation sessions (See Annexure B).

Wonderbag recipients typically come from impoverished or low-income communities, where literacy levels are often poor. The methods of engagement are therefore largely physical in nature, e.g. meetings or events, because this is the best means of communicating with the end-users of bags.

Wonderbag and its distribution partners are responsible for bag activations or demonstrations within recipient communities. The following programme of actions is an example of the process typically undertaken at these sessions:

At Sizasimeni Creche in Snathing Pietermaritzburg, Wonderbags were activated to a group of ladies who live in the rural setting. At the activation, we were able to demonstrate the cooking of rice to the group

who were very excited when they were able to observe how the Wonderbag was able to complete the cooking process.

The benefits of the Wonderbag usage were discussed including time saving on the cooking process, the money that would be saved on cooking fuels due to reduced cooking times, the positive environmental impact of using the Wonderbag especially regarding water saving and energy savings which in turn would reduce greenhouse gas emissions, as well as the health benefits due to reduced indoor air pollution and finally the empowerment of women.

The activation included providing different options and ideas of how food can be cooked. We discuss the recipe book and emphasized that the Wonderbag can be adapted to all food preferences and recipes.

A question and discussion session was then encouraged.

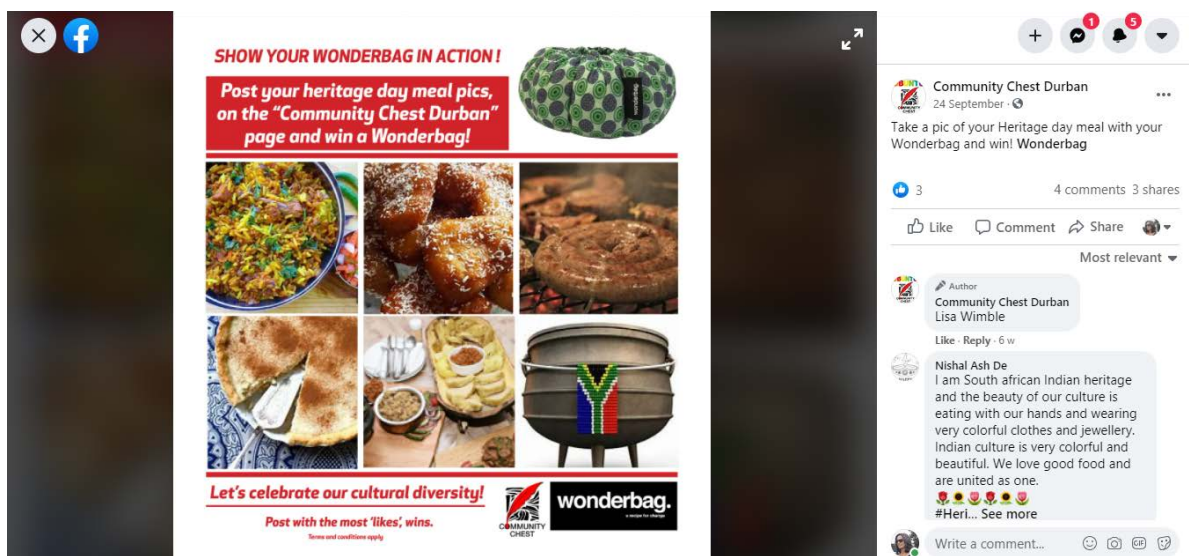
A summary of recent distribution partner training and community activation/demonstration sessions is available in Annexure B.

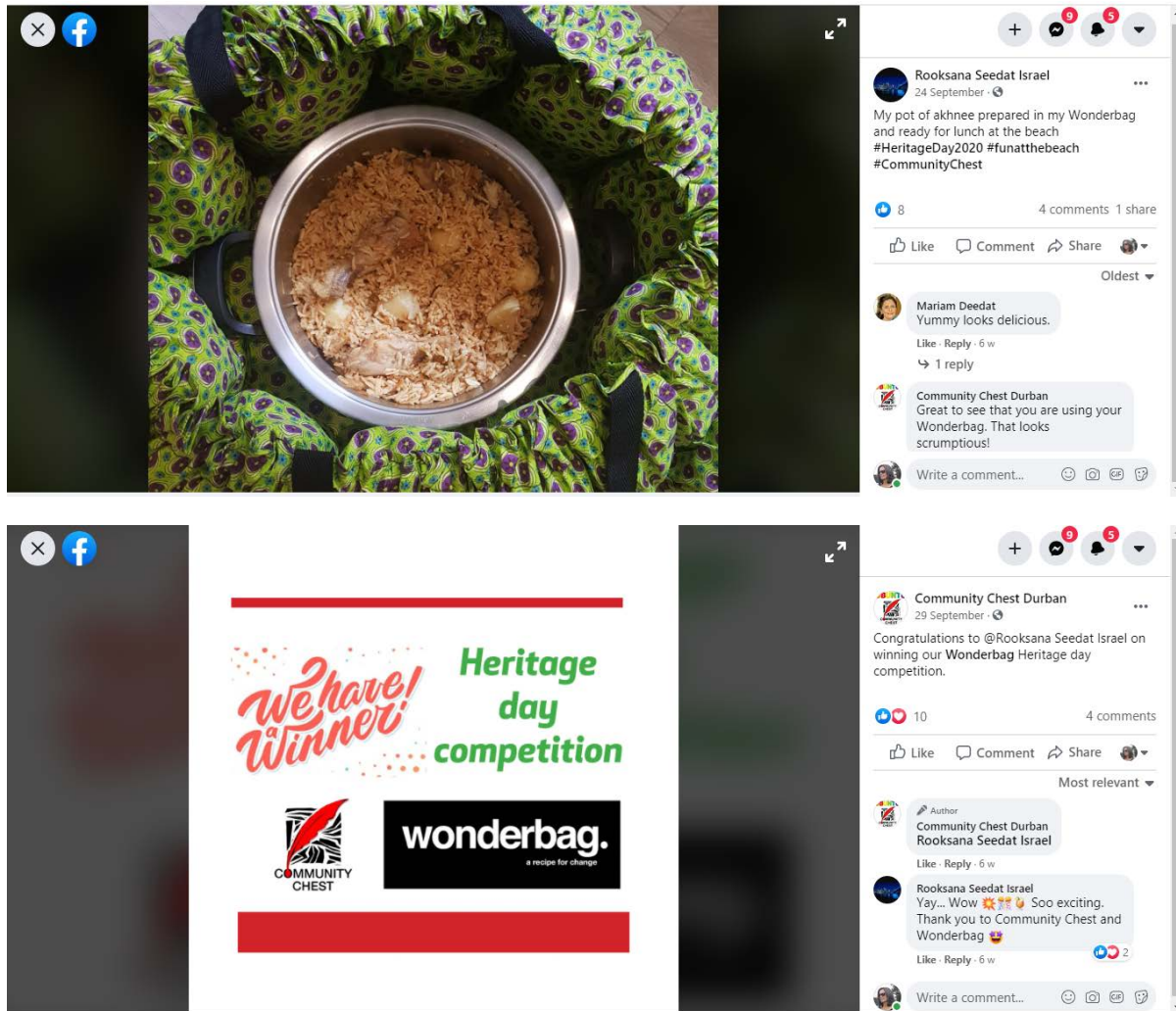
3. Ongoing mechanisms for engagement

Distribution partners are actively involved within their communities as distribution partners are mostly NGOs who actively provide support and services to the communities within which they work. Wonderbag owners therefore have ongoing means of communicating with Wonderbag, through the respective NGOs that provide ongoing community support and development.

Furthermore, each Wonderbag recipient receives a Wonderbag recipe book which has the contact details of Wonderbag should the recipient wish to reach out for assistance.

In addition, social media promotions, including recipient's success stories with Wonderbag cooking are shared within communities. For example, cooking competitions have been promoted on Facebook by distributing partners, described in the following figures.





Please find below the link to the recent Facebook Wonderbag Cooking Competition:

<https://web.facebook.com/Community-Chest-Durban-141100792595323>

In addition to the ongoing communication channels and mechanisms discussed above, Wonderbag is developing an electronic app which may be used in future for easy, ongoing communication with recipients of Wonderbags. The primary aim of the electronic app is to assist with data collection. However, it is envisaged that the app may be expanded in future, assuming the feasibility is confirmed, to allow for direct communication by Wonderbag users with Wonderbag.

4. Responses to queries/comments

The following are typical questions that Wonderbag recipients and distribution partners are asked at the training and demonstration sessions:

Q: Why is the Wonderbag provided for free or at such a discounted rate?

- A: the bags provided under this grouped project are subsidized by carbon funding. This mechanism allows Wonderbag to provide the bags for free, or at a heavily discounted rate, to

end users. Wonderbag therefore maintains the right to any carbon credits that accrue due to the use of the bags.

Q: What is the Wonderbag filled with?

- A: approximately 1.5 kg of repurposed insulation foam or other recycled materials.

Q: How long will the bag last?

- A minimum of 15 years assuming it is properly cared for.

Q: Is it possible to wash the Wonderbag?

- A: Yes it is, both by hand and in the washing machine.

ANNEXURE A: Example of a typical data sheet

Wonderbag Data Sheet 	
Location:	Distribution Partner / Project:
Name & Contact number for Person Responsible:	
Bale / Box Number:	Wonderbag Serial Number:
Date of receipt of Wonderbag:	
Name:	Surname:
ID of any description:	
Address:	Mobile Number:
What type of fuel do you usually use to cook? (highlight)	[wood] [electricity] [coal] [paraffin] [gas]
How many times a day do you cook?	How many times a week do you cook?
Number of children in your household :	Number of adults in your household :
By my signature hereto: 1. I confirm that I have been informed that my personal information has been collected. 2. I agree that the legal and beneficial rights to the impact credits generated by the Wonderbag(s) shall vest in Wonderbag UK and that I hereby forfeit any legal or beneficial rights associated with such impact credits. Sign:	

ANNEXURE B: Distribution partner training & activations

ENGAGEMENTS IN KWA-ZULU NATAL

The following is a summary of recent Wonderbag training sessions and activations in the KwaZulu Natal province.

1. Planting Hope Foundation

Location: Pietermaritzburg, KwaZulu Natal

Date: 28 July 2020

Description: 4 members of the Planting Hope Foundation were trained. This Foundation is a community faith-based non-profit organisation that focuses on supporting lower-income households by standing in solidarity with the global fight against hunger & food insecurity, the lack of holistic education and self-care amongst the youth.

Attendees:

- Logan Naidoo
- Shamla Naidoo
- Mike Goble
- Thandi Radebe

2. Sizasimeni Creche

Location: Snathing Location, KwaZulu Natal

Date: 28 August 2020

Description: We did an activation and training session for 18 members of staff and parents from the Sizasimeni Creche in Snathing, Pietermaritzburg. Sizasimeni Creche is an Early Childhood Development centre that cares for children in Snathing, a rural Location 30 Minutes from Pietermaritzburg.

Attendees:

- Nonto Nxele
- Fo Nxele
- Lindiwe Mhlokwa
- Philile Ndlovu
- Ziningi Shange
- Lindiwe Zulu
- MaDlamini Nxele

- Triphina Mtshali
- Nokuthula Mtshali
- Thandeka Msane
- Lindiwe Mtshali
- Gugu Magubane
- Nokwanda Mlalazi
- Bongiwe Ngcamu
- Regina Made
- Snakho Phungula
- Nozi Phungula
- Phumaphi Mveli

3. Letcee

Location: Greytown, KwaZulu Natal

Date: 6 August 2020

Description: We trained 18 Letcee employees and their director Mary James. Letcee is based in Greytown and is an Early Childhood Development Non-profit organisation working to provide playful early learning experiences to South African children who would not otherwise have access to these services. Letcee also has a total of 120 PowerGirls in 3 communities. The PowerGirls mission is to educate girls from disadvantaged communities to become proud, strong and responsible young women, who will strengthen the community, by becoming positive role models.

Attendees:

- Mary James
- Di Kohne
- Rebecca Mkize
- Nomfundo Ngcobo
- Mamsy Dlamini
- Thandiwe Jacobs
- Ketso Maragelo
- Fezeka Dlamini

4. Cancer Support Group

Location: Overport Durban, KwaZulu Natal

Date: 6 August 2020

Description: We did a training session and activation for the executive committee of the Cancer Support Group in Overport Durban. This group offers support to cancer

patients from under-privileged communities and families in Overport and the Berea.

Attendees:

- Zorah Elias
- Luthfia Kajee
- Rubina Paruk
- Zeba

5. Thandanani Children's Foundation

Location: Pietermaritzburg, KwaZulu Natal

Date: 29 June 2020

Description: Founded in 1989, Thandanani Children's Foundation is a registered non-profit organisation that facilitates community-based care and support for orphans and other vulnerable children in Kwa-Zulu Natal. They have a well-established system of community-based care and support for orphans and their families that involves capacitating and supporting community-based Fieldworker teams to respond to the basic material, physical, cognitive and emotional needs of orphans and vulnerable children (OVC) through our Family Strengthening Project.

We did train the trainer and activation to 25 field workers and director Duncan Andrew.

Attendees: A list of the 25 attendees was not taken however, the director Duncan Andrew was in attendance.

6. Kalinka

Location: Pietermaritzburg, KwaZulu Natal

Date: 1 July 2020

Description: We did a train the trainer session at Community Chest Office in Pietermaritzburg. Bernice and Veronica from Kalinka attended. Kalinka is an NGO based in Oribi Village, who focus on the development, nutrition and education of young children from very under-privileged families. Many of the children face neglect during the day, and are taken in and cared for by the staff at Kalinka. Bernice, the director, invited 6 unemployed mothers to assist in the Wonderbag distribution and activations.

Attendees:

- Bernice
- Veronica

7. Open Door Crisis Centre

Location: Pinetown, KwaZulu Natal

Date: 31 July 2020

Description: We did training and activation at Open Door Crisis Centre in Pinetown. Open Door is a centre that aims to sustain a holistic, multi-faceted, one-stop crisis and trauma centre, offering counselling, social services, and support groups. They have a number of social workers and field workers that work within communities.

Attendees:

- Ann Young (Trauma Counsellor)
- 12 Social Workers

8. Molweni Zime Centre

Location: Molweni Valley 1000 Hills, KwaZulu Natal

Date: 27 August 2020

Description: We did training and activation at Molweni Zime Centre, that is a creche located in Molweni in the Valley of Thousand Hills. The creche looks after 68 disabled children. They also have large beautiful vegetable gardens that help support the community.

Attendees:

Approximately 20 people from the creche and community attended the training. Please find below some of the names of those who attended.

- Jabu Zulu,
- Bongzi Miya,
- Cebile Mthimkhulu,
- Lindelwa Mfeka,
- Zamekile Ndlovu,
- Thombi Sibiyi,
- Mrs Mkhize,
- Mrs Basi,
- Thembi Zondi,
- Zama Buthelezi

9. Red Cross Pietermaritzburg

Location: Pietermaritzburg, KwaZulu Natal

Date: 12 August 2020

Description: We did training and activation for the Pietermaritzburg Red Cross, a member organisation of the International Federation of the Red Cross. They support a number of field workers that support the communities in and around Pietermaritzburg. We facilitated transport for the field workers to attend the training and activation at the Community Chest offices.

Attendees:

- Dumsile Ndlovo
- Busisiwe Sithole
- Delisile Mthlane
- Sicelo Zibula

10. Dlananathi

Location: Pietermaritzburg, KwaZulu Natal

Date: 7 July 2020

Description: Dlananathi is a non-profit organisation based in Pietermaritzburg. Within the South African context, they work to provide psychosocial support for children through play by training and supporting caregivers. In the context of trauma and loss, Dlananathi's mission is to create unique, playful, healing processes for children, youth, families and community stakeholders to restore relationships for positive action.

Attendees:

- Robyn Hemmens
- Nontobeko Mpangose
- Louise

ENGAGEMENTS IN THE WESTERN CAPE

The following is a summary of recent Wonderbag training sessions and activations in the Western Cape province.

1. Constantia CAN

Location: Constantia and Khayelitsha site B, Western Cape

Date: 13 May 2020 and 28 May 2020

Description: We did training and activation for CAN (Community Action Network) which deals with hunger from economy shutting down due to COVID. Continuing to work with building resilient communities.

Attendees:

- Gail
- Nola Nomaqhalo (Wonderwoman)
- Maria Hauck (Financial)
- 9 soup kitchen ladies

2. Kommetjie CAN/Ocean View

Location: Living Hope, Capri and Ocean View, Western Cape

Date: 14 May 2020 and 26 May 2020

Description: We did training and activation for CAN (Community Action Network) which deals with hunger from economy shutting down due to COVID. Continuing to work with building resilient communities.

Attendees:

- Nandipha Dyan (Living Hope Intern)
- Holle
- Jenny
- Yusra Davies
- 12 Masi Wonderwomen
- Yusra
- 7 Soup Kitchen people

3. Living Hope

Location: Living Hope, Capri, Western Cape

Date: 12 activations over May & June 2020

Description: Started in 2000 and Wonderbag has worked with them by providing Wonderbags to reduce the amount of people in the soup kitchens queue.

Attendees:

- Avril Thomas
- Gail Bedford (assistant)

4. Clovelly CAN

Location: Living Hope, Capri, Western Cape

Date: 28 April 2020

Description: We did training and activation for CAN (Community Action Network) which deals with hunger from economy shutting down due to COVID. Continuing to work with building resilient communities.

Attendees:

- Kyoko Morgan
- Taiji Morgan
- Nandipha
- Masi Wonderwomen

5. PayGas – WC

Location: Delft, Western Cape

Date: 28 May 2020

Description: Activations encouraging people to move to using more sustainable source of fuel by providing gas depots in low income areas and making it cheaper for them.

Attendees:

- Lungelo
- Philippe Hoeblich
- Mrs Hoelich

6. Pure Good

Location: Windfield Military Air Base, Cape Town, Western Cape

Date: 1 June 2020

Description: Started in 2013 to provide sustainable food solutions. During COVID they set up FeedThePeople Project to make food for feeding schemes (e.g) 600 refugees in Windfield Air base Cape Town.

Attendees:

- Shannon
- 80 x refugees

7. This is Progress

Location: Salt River, Western Cape

Date: 14 August 2020

Description: A UK NGO formed to green the inner city areas with growing food. They see WB as an important next step in the preparation of food. Presently operating in Salt River and Cape Town CBD.

Attendees:

- 32 people

8. Ward 67 – Gerry

Location: Pelikan heights, Western Cape

Date: 18 August 2020

Description: A DA Councillor of Ward 67 which covers a huge area of the Cape Flats where gang violence is rife. She is gathering small groups of women together to talk about the issues as well as giving WB a platform for activation and distribution.

Attendees:

- Gerry Gordon (Councillor)
- 24 ladies

9. Ladles of Love/ Den Anker

Location: Den Anker, Waterfront, Western Cape

Date: 11 September 2020

Description: A volunteer run soup kitchen and during COVID they started distributing food.

Attendees:

- 24 ladies

10. Do More Foundation

Location: Worcester, Western Cape

Date: 12 August 2020

Description: They back projects that focus on the young and easing hunger. They ran Feeding a Million in Mandela week with rainbow chickens and WB was very involved. Presently working with raising funds to re-open and run early childhood development centres through the sale of subsidised Wonderbags.

Attendees:

- Jackie Saaiman

11. Uphawu Community / Philippi

Location: Grounds Farm, Philippi, Western Cape

Date: 10 August 2020

Description: Before Covid she focused on children's readership and No Barefeet Fund. During Covid, she's been very active in helping her community both in the Western & Eastern Cape with food shortage distributing WB's as part of this project.

Attendees:

- Shannon Smuts
- Mondeka
- 40 people

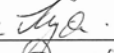
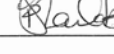
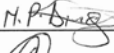
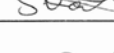
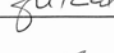
ANNEXURE C: Examples of attendance registers

Attendance registers of Train the Trainer sessions:



Wonderbag Training - 1st July 2020



No	Contact Person	Name of Organisation	Email Address	Contact Number	Sign
1	SC Mponiwa	Gateway Project	Sindimbengwa 240-SC-EC@gmail.com	0762402241	
2	Fiona Balgobind	Pmb Children's Home	manager@pch.org.za	0844444503	
3	Reetie Rajah	Reetie Rajah		0721011370	
4	Teressa Myosi	M.N.C.P		063035202	
5	ROPAFADZO NASHOKO	Pmb Children's Home	ccmanager@pch.org.za	0733026133	
6	NOZIPHO DINGINDLELA	Pmb Children's Home		0710120041	
7	SANDRA PILLAY	MNCP	mncp@telkomsa.net	0741200321	
8	Solomon Qadi	Mncp	mncp@telkomsa.net	0713676867	
9	Z.N. Thwala	Benevolent Soc		0843286534	
10	Ladebe Phindile	AVP	phindile@avp.co.za	0872440077	
11	Nomtha Sikwaga	BESG	nomtha@besg.co.za	0717386554	

 Wonderbag Training -7th July 2020 					
No	Contact Person	Name of Organisation	Email Address	Contact Number	Sign
1	Nemusa Moko	Masibumbane Creche	masibumbane-creche@gmail.com	0722131540	Nemusa
2	Zodwa Molefe	Siphumelele Day Care		0828307145	Zodwa
3	Phisoile NENE	Khombindlele Creche		0720538995	Phisoile
4	Londwe Ngweni	Mabonane Creche	londwe4354@gmail.com	0799229359	Londwe
5	Zandile Shezi	Mamboza Creche		0721388385	Zandile
6	Delisile Mshayga	Inadi Poe Scho	-	0715540764	Delisile
7	Lungelo Nkshale	Amen Creche		0768794499	Lungelo
8	Bongekile Mendi	Sigalo		0796065746	Bongekile
9	Bunzile Shaba	Isigalo E.C.D	-	0828146241	Bunzile