



**Component project activity design document form for
small-scale CDM component project activities**

(Version 05.0)

Complete this form in accordance with the Attachment "Instructions for filling out the component project activity design document form for CDM small-scale component project activities" at the end of this form.

COMPONENT PROJECT DESIGN DOCUMENT (CPA-DD)

Title of the CPA	GS 5046 - The Breathing Space Improved Cooking Stoves Programme, India – VPA No. 11 Envirofit
Version number of the CPA-DD	Version 3.1
Completion date of the CPA-DD	21/08/2017
Title of the PoA to which the CPA is included	The Breathing Space Improved Cooking Stoves Programme, India
Host Party	India
Estimated amount of annual average GHG emission reductions	22,543
Applied methodology(ies) and, where applicable, applied standardized baseline(s)	AMS II.G. version 3.0
Sectoral scope(s) linked to the applied methodology(ies)	Sector Scope 3

SECTION A. General description of CPA**A.1. Title of the proposed or registered PoA**

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The Breathing Space Improved Cooking Stoves Programme, India

A.2. Title of the CPA

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GS 5046 - The Breathing Space Improved Cooking Stoves Programme, India – VPA No. 11
 Envirofit
 21/08/2017
 Version 3.1

A.3. Description of the CPA

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The proposed small scale VPA involves installation and dissemination of improved cook-stoves (ICS) in India. The VPA is the part of the PoA that is a voluntary initiative taken by Envirofit, that develops well-engineered technology solutions to improve the living conditions on a global scale with primary emphasis on applications in the developing countries. The VPA is the 11th VPA to be included as part of the PoA referred in A.1 above. Till date 9 VPAs have been already included in the PoA. Envirofit is the coordinating/ managing entity (CME) for the PoA. The energy – efficient stoves in this VPA also known as improved cook stoves (ICS), are designed by a team of experts, scientists and engineers at Envirofit.

In the absence of project activity, the traditional inefficient cook stoves, commonly referred to as *chulhas*, would have been used for cooking – producing substantial GHG emissions due to burning of non-renewable biomass. A large portion of the rural population in India is dependent on traditional biomass *chulhas*. The most commonly used *chulhas* are made of mud/clay fixed in a kitchen corner with an opening near the floor for fuel and one or two openings on top to place pots. The use of solid biomass fuels (eg. fuel wood) in these inefficient traditional *chulhas* – while meeting domestic household needs - releases large amounts of particulate matter into the air, thus causing Indoor Air Pollution¹. The VPA, by replacing traditional *chulhas*, solves the Indoor Air Pollution problem by deploying cleaner and greener ICS in addition to reducing GHG emissions.

Confirmation that the proposed SSC-VPA is a voluntary action by the coordinating/managing entity

The proposed VPA 11 is an entirely voluntary initiative undertaken by the CME. The CME is not bound by any governmental policy or mandatory law / regulation in India that mandates the dissemination or adoption of improved cook stoves by households.

Contribution of the proposed programme to sustainable development

The proposed VPA, makes significant positive contributions towards sustainable development. The VPA's contribution to sustainable development is given follows:

Environment**Air Quality**

The ICS reduces household IAP levels through its design which produces complete biomass combustion through proper air flow in the stove's combustion chamber. Thus, the programme shall improve project household kitchen conditions with respect to indoor air pollution. This shall reduce

¹ Per the World Health Report 2002, IAP is responsible for 2.7% of the global burden of disease. Around 2.5 million people in rural and urban areas of developing countries die every year due to exposure to indoor particulate matter. This accounts for 4-5% of the 50-60 million global deaths that occur annually.
http://whqlibdoc.who.int/hq/2002/WHO_SDE_OEH_02.05.pdf

the exposure of women engaged in cooking in these households and small children who are accompanied by the mother most of the times. On the other hand, in the baseline, cooking with traditional *chulhas* would have exposed project household occupants to CO, polycyclic aromatic hydrocarbons and PM - increasing occupant susceptibility to acute respiratory diseases².

Socio-economic Development

Employment

The VPA shall give rise to new employment opportunities for stove technicians, distributors/dealers, people engaged in awareness campaigns, and support staff.

Livelihood of the poor

The VPA would lead to improvements in living conditions especially for women in project households. The ICS are fuel efficient compared to traditional *chulhas*. Therefore, the VPA reduces the drudgery of fuel wood collection for women and young children by reducing the time required for this activity (because of reduced fuel demand). Furthermore, reduction in biomass consumption directly reduces cooking costs for the project population permitting higher savings for end users.

Access to affordable and clean energy services

The ICS are sold at nominal prices to end users thereby providing them affordable energy service. In addition, Envirofit has spent considerable effort in creating robust marketing and distribution channels for ICS sales which can be easily accessed by end users. Envirofit has trained distributors and retailers to ensure that ICS benefits are explained to end users at the time of purchase. Thus, the VPA contributes towards improving access to affordable and clean energy services.

Human and institutional capacity

The VPA aims to develop human and institutional capacity of project households in India. During its operation, the VPA would conduct awareness campaigns to sensitize people against the ill-effects of IAP. Further, by reducing the amount of cooking time (better heat transfer in ICS saves cooking time) the VPA provides women in project households with more time to invest in productive and capacity development activities.

A.4. Entity/individual responsible for the operation of CPA

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Envirofit International Limited is the coordinating/ managing entity of the programme. Also, for VPA 11, Envirofit International Limited acts as the VPA Implementer.

A.5. Technical description of the CPA

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The proposed SSC-VPA is a retroactive VPA and involves installation and dissemination of improved cook-stoves replacing the traditional *chulhas*. It is implemented within the geographical boundary of the PoA. The ICS have been jointly designed and engineered by Envirofit and members of Colorado State University’s Engines and Energy Conversion Laboratory

Model	Thermal efficiency	Operation lifetime
M5000	29.7%	5 years
PCS1	25.4%	5 years

Table 1: Various stove model types included in the VPA

The design of the stove improves heat transfer from combustion chamber to the cooking pot saving cooking fuel and time. A grate is provided at the base of the pot for placing wood fuel. The clearance between the grate and the floor provides for natural draft of air into the combustion chamber resulting in rich combustion as compared to traditional cook stoves where such natural

² The IAP (smoke, PM, etc.) caused by incomplete combustion of fuel in traditional biomass stoves is directly linked with the health condition of those exposed to such constrained cooking environments. Staton, D. M. Harding, M. H., *Health and Environmental Effects of Cooking Stove Use in Developing Countries*, <http://www.bioenergylists.org/stovesdoc/Environment/staton.pdf>

draft absent resulting in incomplete combustion of fuel. The design improves heat transfer to the base of the pot by trapping hot gases inside the combustion chamber aiding minimal dissipation to the ambience. Also, the combustion chamber has a refractory lining / thermal insulation that prevents heat loss from the walls of the stove. Such provisions are not available in a traditional cook stove because of which its efficiency is relatively lower.

Size of VPA

The size of SSC-VPA is limited to the threshold level applicable to Type II small scale activities: 180 GWh_{th} annual thermal energy savings. This VPA 11 includes the ICS sales made from 22 May 2015 to 14 December 2015. The total number of stoves in the VPA are 43,284 , resulting in annual thermal energy savings of 179.36 GWh_{th}.

A.6. Party(ies)

Name of Party involved (host) indicates host Party	Private and/or public entity(ies) CPA implementer(s) (as applicable)	Indicate if the Party involved wishes to be considered as CPA implementer (Yes/No)
India (host)	Envirofit International Limited (private)	No

A.7. Geographic reference or other means of identification

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The boundary of the proposed SSC-VPA 11 is the physical, geographical site of the ICS, but is limited to the geographical boundary of the PoA (India). The identification of ICS installed and in use is possible through the information compiled in the SSC-VPA database. The onus of maintaining this information lies with the CME.

A.8. Duration of the CPA

A.8.1. Start date of the CPA

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22/05/2015

A.8.2. Expected operational lifetime of the CPA

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Over 10 years

A.9. Choice of the crediting period and related information

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Renewable(twice)

A.9.1. Start date of the crediting period

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22/05/2015 or two years prior to the date of inclusion in the PoA, whichever is later.

A.9.2. Length of the crediting period

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5 years 00 months

A.10. Estimated amount of GHG emission reductions

Emission reductions during the crediting period	
Years	Annual GHG emission reductions (in tonnes of CO ₂ e) for each year
2015	3715

CDM-SSC-CPA-DD-FORM

2016	43249
2017	45063
2018	45063
2019	45063
2020	41441
2021	1838
2022	0
2023	0
2024	0
Total number of crediting years	10
Annual average GHG emission reductions over the crediting period	22,543
Total estimated reductions (tonnes of CO ₂ e)	225,432

A.11. Public funding of the CPA

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No public funding was diverted for the implementation of the SSC-VPA.

A.12. Debundling of small-scale component project activities

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As per Gold Standard PoA Rules and Guidance³, de-bundling provisions as per Annex 13 to EB54, "Guidelines on Assessment of Debundling for SSC Project Activities do not apply for voluntary PoAs. As the proposed VPA No. 11 by Envirofit is a part of a voluntary PoA, debundling provisions do not apply to the same.

A.13. Confirmation for CPA

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The small scale VPA 11 is neither registered as an individual CDM project activity nor is part of another registered PoA.

A.14. Contact information of responsible persons/ entities for completing the CDM-SSC-CPA-DD-FORM

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Name of entity/individual	Rohit Lohia
Organisation	Envirofit International Limited
Designation	Carbon Project Development Manager
E-mail	rohit.lohia@envirofit.org

Envirofit International is also the VPA implementer and CME for the PoA

SECTION B. Environmental analysis**B.1. Analysis of the environmental impacts**

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This information is provided at the PoA level.

SECTION C. Local stakeholder consultation**C.1. Solicitation of comments from local stakeholders**

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³http://www.cdmgoldstandard.org/wp-content/uploads/2012/05/v2.2_ANNEX-F.pdf

Not applicable as the VPA 11 is retroactive in nature. As per clause VIII.b.4 of GS requirements Project Proponents submitting a project activity for retroactive registration shall not conduct a Local Stakeholder Consultation but instead must apply for a Pre-feasibility Assessment. Also, as part of the design consultation for the PoA, the feedback received from the stakeholders was to conduct the consultation at the PoA level which has already been conducted.

C.2. Summary of comments received

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Not applicable

C.3. Report on consideration of comments received

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Not applicable

SECTION D. Eligibility of CPA and estimation of emissions reductions

D.1. Reference of methodology(ies) and standardized baseline(s)

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AMS-II.G. ver. 3 - Energy efficiency measures in thermal applications of non-renewable biomass

D.2. Applicability of methodology(ies) and standardized baseline(s)

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Applicability Condition 1:
This category comprises appliances involving the efficiency improvements in the thermal applications of non-renewable biomass. Examples of these technologies and measures include the introduction of high efficiency biomass fired cook stoves or ovens or dryers and/or improvement of energy efficiency of existing biomass fired cook stoves or ovens or dryers.
- The PoA involves installation of improved cooking stoves (efficient biomass cooking stoves) which leads to efficiency improvements in the thermal applications of the non-renewable biomass. The same technology / measure is being used in this VPA by installation of M5000 and PCS1 ICS models.

Applicability Condition 2:
Project participants can show that non-renewable biomass has been used since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.
- The same has been justified at the PoA level

D.3. Sources and GHGs

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The project boundary is the geographical area where the ICS are installed and in use and this is restricted to the geographical boundary of India. The table below illustrates the GHG emissions sources included:

Emissions sources included in or excluded from the project boundary

Source		Gas	Included ?	Justification / Explanation
Baseline	Combustion of non-renewable biomass for cooking	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
		N ₂ O	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
Project activity	Combustion of non-renewable biomass for	CO ₂	Yes	Major source of emissions
		CH ₄	No	Minor source of emissions and limited data available.

	cooking	N ₂ O	No	Minor source of emissions and limited data available.
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D.4. Description of the baseline scenario

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Per paragraph 4 of the applied methodology AMS-II. G ver 03, in the absence of the programme, the baseline scenario would be the use of fossil fuel to meet equivalent energy needs.

D.5. Demonstration of eligibility for a CPA

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The SSC-VPA 11 meets eligibility criteria for inclusion into the SSC – PoA as mentioned in the Section A.4.2.2. of the SSC-PoA-DD. The eligibility criteria are as follow:

- *Eligibility Criteria 1:* Involve the distribution of ICS within the geographical boundary of India.
 - The VPA 11 involves the distribution of ICS within the geographical boundary of India. All ICS included in this VPA 11 are within India
- *Eligibility Criteria 2:* Have a maximum energy saving of 180 GWh_{th}/year. Each SSC VPA shall have a system to ensure that stoves bear logo of the PO /CME to ensure their unique association to the PoA
 - The current size of the proposed SSC VPA 11 is 179.36 GWh_{th}/year and is below the maximum energy saving of 180 GWh_{th}/year prescribed by the methodology. The sales in the VPA will be capped at cumulative energy saving equivalent of 180 GWh_{th}/year. The stoves bear the logo of Envirofit
- *Eligibility Criteria 3:* Uses the small scale approved methodology AMS.II.G. ver 3. The CME will verify that all CPA-DDs employ the aforesaid version of the methodology.
 - The proposed SSC-VPA 11 uses the methodology AMS – II.G. ver.3
- *Eligibility Criteria 4:* The proposed SSC VPA is voluntary in nature and is not mandated by any law/regulation in India
 - The VPA 11 is a voluntary initiative by Envirofit.
- *Eligibility Criteria 5:* The proposed SSC VPA does not results in diversion of ODA
 - The VPA 11 is a voluntary initiative by Envirofit. Envirofit has already submitted a declaration to Gold Standard that they have not received any ODA funding.
- *Eligibility Criteria 6:* Each SSC VPA must be approved by the coordinating and managing entity prior to its incorporation into the PoA. The VPA 11 is being developed by Envirofit International itself.
- *Eligibility Criteria 7:* Criteria for transfer of credit ownership:
 1. For regular cycle VPA, this shall be ensured through relevant provision for example warranty cards, customer agreements etc. or collecting stakeholder feedback on this issue during LSC
 2. For retroactive VPA, stakeholder feedback should be collected during SFR or through warranty cards, customer agreements etc.
 - The VPA 11 is a retroactive VPA and the transfer of ownership of credits is being ensured via disclaimer on warranty cards/stove box. This disclaimer is now mandated as an operational control at the programme level. Each stove in the VPA now has a warranty card/stove box that confirms transfer of the rights of emission reduction to Envirofit International by the user.
- *Eligibility Criteria 8:* Each SSC VPA includes sale of improved cook stoves where the users of the improved cook stoves are households or communities or Small and Medium Enterprises (SMEs)

- The cookstoves are domestic cookstoves and are being deployed in households and SMEs
- *Eligibility Criteria 9:* The size of each Improved cook stove in the VPA shall not exceed 5% of the small-scale CDM threshold that is 9 GWh_{th} energy savings per year
 - The thermal energy savings of the cook-stove models is as follows which is much less than 9 GWh_{th}:

Stove Model	η_{new}	Lifetime	Thermal savings per stove (GWh _{th})
M5000	0.297	5	0.0045
PCS1	0.254	5	0.0041

- *Eligibility Criteria 10:* For demonstrating additionality, the following criteria also needs to be complied with for retroactive VPAs in case a new PO implements the VPA
 1. A new PO entering in the PoA shall justify prior consideration of carbon revenues⁴.
 - Envirofit is not a new PO in the PoA hence this is not applicable.
 2. Provision for warranty of stoves in the VPA ensuring after-sales service within the warranty period.
 - Each stove owner in VPA 11 has been provided with two year warranty. The customer care number on the stove box provides users with an option of raising warranty claims thus ensuring after-sales service within the warranty period.

D.6. Estimation of emission reductions

D.6.1. Explanation of methodological choices

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$$ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected_fossilfuel} * LAF$$

Where:

- ER_y** Emission reductions during the year y in tCO_{2e}
- B_{y,savings}** Quantity of biomass that is saved in tonnes
- f_{NRB,y}** Fraction of biomass saved by the project activity in year y that can be established as non-renewable biomass using survey methods
- NCV_{biomass}** Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)
- EF_{projected_fossilfuel}** Emission factor for the substitution of non-renewable biomass by similar consumers. Use a value of 81.6tCO₂/TJ
- LAF** Leakage Adjustment Factor (In line with paragraph 13 and 23 c) of AMS II.G version 03, a gross leakage adjustment factor of 0.95 has been considered in ER calculations to account for leakage as described above)

B_{y,savings} is estimated using option 2 of the methodology AMS-II.G version 3

$$B_{y,savings} = B_{old} * (1 - \eta_{old} / \eta_{new})$$

Where:

⁴ As VPA are based on time, multiple VPAs may be implemented by same PO. In this case prior consideration of CDM shall be considered at the time of start of stove distribution programme rather than on individual VPA level. Therefore, the aforesaid criteria shall be checked for retroactive VPAs of each new project organization (PO) in the PoA

- B_{old}** Quantity of biomass used in the absence of the project activity in tonnes/ year
- η_{old}** A default value of 0.1 as the replaced system is a conventional system (three stone cook stove)
- η_{new}** Efficiency of the system being deployed as part of the project activity (fraction) as determined by using Water Boiling Test

Following option (a) of the methodology, B_{old} is calculated as the product of the number of appliances multiplied by the estimate of average annual consumption of biomass per appliance (tonnes/year) derived from historical data/ survey of local usage.

$$B_{old} = Q_{biomass} * \sum_{i=1}^{N_{all}} (Stove\ year_i) * SOF$$

Where,

- B_{old}** Quantity of woody biomass used in the absence of project activity (tonnes)
- N_{all}** Total number of stoves in VPA(number)
- Q_{biomass}** Average annual biomass consumption per appliance (tonnes/ year)
- SOF** Stove Operation Fraction (% of stoves operating or replaced by equivalent in-service appliance) – measured ex post using survey
- Stove year_i** Calculated stove operation year for stove *i* (years)

Cut-Off Age

Each year, the cut-off age is decided at the discretion of the CME, and stoves older than this age will not be included in calculations of emission reduction. This introduces conservativeness to the estimation of emission reductions.

D.6.2. Data and parameters fixed ex-ante

Data / Parameter	Q _{biomass}
Unit	Tonnes/ year
Description	Annual average biomass consumption per appliance
Source of data	Registered PoA-DD
Value(s) applied	1.915
Choice of data or Measurement methods and procedures	Refer registered PoA-DD
Purpose of data	Baseline calculations
Additional comment	

Data / Parameter	fNRB,y
Unit	Fraction
Description	Fraction of biomass in year y that can be established as non-renewable using survey methods
Source of data	Registered PoA-DD
Value(s) applied	0.90
Choice of data or Measurement methods and procedures	Refer registered PoA-DD
Purpose of data	Baseline calculations
Additional comment	A statewise weighted average fNRB,y shall be used for ER calculations ex-post

Data / Parameter	NCV _{biomass}
Unit	TJ/tonne
Description	Net Calorific Value of the wood used as cooking fuel
Source of data	AMS-II. G version 03, page 2
Value(s) applied	0.015
Choice of data or Measurement methods and procedures	Default value as prescribed by methodology applied
Purpose of data	Baseline calculations
Additional comment	

Data / Parameter	EF _{projected_fossilfuel}
Unit	tCO ₂ /TJ
Description	Emission factor for the substitution of non-renewable biomass by similar consumers
Source of data	AMS-II. G version 03, page 2
Value(s) applied	81.6
Choice of data or Measurement methods and procedures	Default values prescribed by the methodology applied
Purpose of data	Baseline calculations
Additional comment	

Data / Parameter	η_{old}
Unit	Fraction
Description	Efficiency of the system being replaced, use 0.10 (i.e. 10%) as default value or local data if available
Source of data	AMS-II. G version 03
Value(s) applied	0.1
Choice of data or Measurement methods and procedures	The default value taken from the methodology AMS-II.G version 03.
Purpose of data	Baseline calculations
Additional comment	

Data / Parameter	LAF
Unit	Fraction
Description	Net to gross Leakage Adjustment Factor
Source of data	AMS-II. G version 03
Value(s) applied	0.95
Choice of data or Measurement methods and procedures	Default value as prescribed by methodology applied, to account for leakage
Purpose of data	Baseline calculations
Additional comment	

D.6.3. Ex-ante calculation of emission reductions

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The equation for calculation of emission reductions is:

$$ER_y = B_{y,savings} * f_{NRB,y} * NCV_{biomass} * EF_{projected_fossilfuel} * LAF$$

$$B_{y,savings} = B_{old} * (1 - \eta_{old} / \eta_{new})$$

$$B_{old} = Q_{biomass} * \sum_{i=1}^{Nall} (Stove\ year_i) * SOF$$

ER summary VPA11									
Symbol	Parameter	unit	Value						
Symbol	Description	unit	2015	2016	2017	2018	2019	2020	2021
$Q_{biomass}$	Average annual biomass consumption per appliance	tonnes / year	1.724	1.724	1.724	1.724	1.724	1.724	1.724
SOF	Stove Operation Fraction (% of stoves operating or replaced by equivalent in-service appliance)	%	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Stove _(year)	Stove operation years	year	3569	41542	43284	43284	43284	39805	1766
B_{old}	Quantity of woody biomass used in the absence of project activity	tonnes	5843.42	68017.56	70869.98	70869.98	70869.98	65174.36	2891.39
η_{old}	Efficiency of the system being replaced	fraction	0.10	0.10	0.10	0.10	0.10	0.10	0.10
η_{new}	Efficiency of the system being deployed (weighted average)	fraction	0.255	0.255	0.255	0.255	0.255	0.255	0.255
$B_{y,savings}$	Quantity of biomass that is saved by the project activity	tonnes	3550.4	41326.8	43059.9	43059.9	43059.9	39599.3	1756.8
f_{NRB}	Fraction of biomass saved by the project activity in year y that can be established as non renewable biomass	--	0.90	0.90	0.90	0.90	0.90	0.90	0.90
$NCV_{biomass}$	Net Calorific Value of the non-renewable woody biomass that is substituted	TJ/tonne	0.015	0.015	0.015	0.015	0.015	0.015	0.015
$EF_{projected_fossilfuel}$	Emission factor for the substitution of non-renewable biomass by similar Consumers	tCO ₂ e/TJ	81.6	81.6	81.6	81.6	81.6	81.6	81.6
LAF	Leakage Adjustment Factor	--	0.95	0.95	0.95	0.95	0.95	0.95	0.95
BE_y	Baseline Emissions achieved by the project activity	tCO ₂ e	3715	43249	45063	45063	45063	41441	1838
PE_y	Project Emissions achieved by the project activity	tCO ₂ e	0	0	0	0	0	0	0
L_y	Leakage Emissions achieved by the project activity	tCO ₂ e	0	0	0	0	0	0	0
ER_y	Emission reduction achieved by the project activity	tCO ₂ e	3715	43249	45063	45063	45063	41441	1838

D.6.4. Summary of the ex-ante estimates of emission reductions

Year	Baseline emissions (t CO ₂ e)	Project emissions (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions (t CO ₂ e)
2015	3715	0	0	3715
2016	43249	0	0	43249
2017	45063	0	0	45063
2018	45063	0	0	45063
2019	45063	0	0	45063
2020	41441	0	0	41441
2021	1838	0	0	1838
2022	0	0	0	0
2023	0	0	0	0
2024	0	0	0	0
Total	225,432	0	0	225,432
Total number of crediting years	10			
Annual average over the crediting period	22,543	0	0	22,543

D.7. Application of the monitoring methodology and description of the monitoring plan

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D.7.1. Data and parameters to be monitored

Data / Parameter	η_{new}
Unit	Fraction
Description	Efficiency of the system being deployed as part of the project activity
Source of data	Ex-post WBT tests
Value(s) applied	M5000 = 29.7% PCS1 = 25.4%
Measurement methods and procedures	Water Boiling Test will be carried out for a stratified random sample of installed ICS in operation
Monitoring frequency	Annually / biennially
QA/QC procedures	The CME/PO conducts Water Boiling Tests with the help of trained personnel. In case where survey results indicate that desired precision is not achieved, the lower bound of confidence interval of the parameter value would be used instead of repeating the tests. All data required for verification and issuance will be backed-up and kept for at least two years after the end of the crediting period or the last issuance of VERs of this project, whichever occurs later.
Purpose of data	Baseline calculations
Additional comment	The sample size to be calculated as per the confidence / precision of 90/10 for annual and 95/5 for biennial monitoring. Ex-post weighted average value to be used in line with Option 2 of paragraph 6 of AMS-II. G version 03

Data / Parameter	N_{all}
Unit	Number
Description	Total number of stoves installed.
Source of data	Envirofit sales record
Value(s) applied	43,284
Measurement methods and procedures	Sales Records containing details of all the cook-stoves sold to bulk purchasers like dealers, distributors, retailers and NGOs within a particular SSC VPA is maintained ⁵ The records will be maintained and updated
Monitoring frequency	Continuous
QA/QC procedures	All data required for verification and issuance will be backed-up and kept for at least two years after the end of the crediting period or the last issuance of CERs of this project, whichever occurs later.
Purpose of data	To calculate Baseline Emissions
Additional comment	

⁵ A project database with the end user details shall be collected as many as commensurate with representative sampling, i.e. the number of end user names and addresses (and phone numbers where possible) within end user sales record shall be large enough so that surveys and tests can be based on purely representative selected samples. In all cases this should not be less than 10 times the survey and field test sample sizes, to ensure an adequate end user pool to which sampling can be applied.

Data / Parameter	SOF
Unit	Fraction
Description	Stove Operation Fraction - To determine only stoves that are still operating, measured ex-post through survey
Source of data	Ex-post Monitoring survey
Value(s) applied	0.95
Measurement methods and procedures	The CME conducts survey with expert assistance. This is measured by investigation of the number of ICS installations within the samples which are operational. If for example 90% of the sampled ICS is found to be operational, then SOF is 90% for corresponding population
Monitoring frequency	Annually / biennially
QA/QC procedures	A survey shall be conducted for the same. In case where survey results indicate that desired precision is not achieved, the lower bound of confidence interval of the parameter value would be used instead of repeating the survey. All data required for verification and issuance will be backed-up and kept for at least two years after the end of the crediting period or the last issuance of CERs of this project, whichever occurs later.
Purpose of data	Baseline calculations
Additional comment	The sample size to be calculated as per the confidence / precision of 90/10 for annual and 95/5 for biennial monitoring

Data / Parameter	Disposal of traditional cook-stove
Unit	fraction
Description	The sampled ICS households shall be cross checked for disposal / discontinuation of traditional cook-stove.
Source of data	Ex-post Monitoring survey
Value(s) applied	0.90
Measurement methods and procedures	In case it is observed that the traditional cook-stove are not disposed/ discontinued and are still in use, the fuel-wood consumption of those traditional stoves shall be excluded from Q_{biomass} accordingly as per its weightage in the sample.
Monitoring frequency	Annually / biennially
QA/QC procedures	
Purpose of data	Baseline calculations
Additional comment	

Sustainability Parameters

Data / Parameter	Air Quality
Unit	--
Description	Reduction in smoke or Particulate Matter (PM)
Source of data	Ex-post Monitoring survey
Value(s) applied	--
Measurement methods and procedures	Through questionnaires and Surveys of a sample of stove users for qualitative assessment of improvement in air quality achieved by the project activity (visible reduction in smoke or PM).
Monitoring frequency	Annually / biennially
QA/QC procedures	
Purpose of data	Sustainable development indicator
Additional comment	

Data / Parameter	Access to affordable and clean energy services (Retroactive VPA)
Unit	--
Description	Number of ICS sold under the VPA / Complaints addressed during warranty
Source of data	Ex-post Monitoring survey
Value(s) applied	--
Measurement methods and procedures	Through questionnaires and Surveys of a sample of stove users for qualitative assessment of feedback received from end users regarding warranty and after sales services
Monitoring frequency	Annually / biennially
QA/QC procedures	
Purpose of data	Sustainable development indicator
Additional comment	

Data / Parameter	Quantitative employment and income generation
Unit	--
Description	No of Jobs created due to the project activity
Source of data	HR records/ Sales and marketing records
Value(s) applied	--
Measurement methods and procedures	The direct employment generated by the project at the coordinating entity shall be determined through internal HR records. Indirect employment generated at market level (retailers/distributors) may be estimated using the sales and marketing records.
Monitoring frequency	Annually / biennially
QA/QC procedures	
Purpose of data	Sustainable development indicator
Additional comment	

D.7.2. Description of the monitoring plan

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The SSC – VPA 11 as part of the PoA aims at installation and dissemination of ICS and is implemented using the methodology AMS – II. G “Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass” – ver 03 as it meets the eligibility criteria of the methodology. Please refer to Annex 4 for justification of applicability of monitoring methodology.

SECTION E. Approval and authorization

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Not Applicable

Appendix 1. Contact information of CPA implementer(s) and responsible person(s)/ entity(ies) for completing the CDM-SSC-CPA-DD-FORM

Coordinating/managing entity and/or responsible person/entity	<input checked="" type="checkbox"/> CPA implementer(s) <input type="checkbox"/> Responsible person/ entity for completing the CDM-SSC-CPA-DD-FORM Coordinating/managing entity
Organization name	Envirofit International Ltd.
Street/P.O. Box	109 N Colleague Ave Suite 200
Building	-
City	Fort Collins
State/Region	Colorado
Postcode	CO 80524
Country	United States of America
Telephone	-
Fax	+1 970 221-1550
E-mail	-
Website	www.envirofit.org
Contact person	
Title	Managing Director – Carbon Programmes
Salutation	-
Last name	Marshall
Middle name	-
First name	Nick
Department	-
Mobile	-
Direct fax	
Direct tel.	+44 7703194688
Personal e-mail	nick.marshall@envirofit.org

Coordinating/managing entity and/or responsible person/entity	<input type="checkbox"/> CPA implementer(s) <input checked="" type="checkbox"/> Responsible person/ entity for completing the CDM-SSC-CPA-DD-FORM
Organization name	Envirofit International Ltd.
Street/P.O. Box	109 N Colleague Ave Suite 200
Building	-
City	Fort Collins
State/Region	Colorado
Postcode	CO 80524
Country	United States of America
Telephone	-
Fax	+1 970 221-1550
E-mail	
Website	
Contact person	Rohit Lohia
Title	Carbon Project Development Manager
Salutation	Mr
Last name	Lohia
Middle name	-
First name	Rohit
Department	-
Mobile	-
Direct fax	-
Direct tel.	+91 9717093552
Personal e-mail	rohit.lohia@envirofit.org

Appendix 2. Affirmation regarding public funding

Provided in section A.11

Appendix 3. Applicability of methodology(ies) and standardized baseline(s)

Detailed in section D.2

Appendix 4. Further background information on ex ante calculation of emission reductions

The sampling procedure/method used for monitoring is as follows in line with the “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities” and as described in the registered PoA-DD:

a) **Sampling Design:**

- (i) *Objective and Reliability Requirements:* The objective of sampling is to monitor the following parameters:
1. η_{new} - Efficiency of the ICS deployed
 2. SOF - Stoves that are operating
 3. Disposal / discontinuation of traditional cook-stove
 4. Reduction in smoke or Particulate Matter (PM)
 5. Access to affordable and clean energy services (Retroactive VPA)

The above parameters shall be monitored using a 90/10 (confidence/precision) in case of annual surveys and 95/5 (confidence/precision) in case of biennial surveys for VPA level sampling. The same is in line with paragraph 22 of the applied methodology AMS-II. G version 03. In case of PoA level sampling this should be 95/10 and 95/5 respectively.

- (ii) *Target Population:* The target population is the stove users under the programme
- (iii) *Sampling Frame:* Sales records containing details of all the cook-stoves sold to bulk purchasers like dealers, distributors, retailers and NGOs within a SSC VPA is maintained. A project database with the end user details shall be collected as many as commensurate with representative sampling, i.e. the number of end user names and addresses (and phone numbers where possible) within sales record shall be large enough so that surveys and tests can be based on purely representative selection of samples. In all cases this should not be less than 10 times the survey and field test sample sizes (including usage surveys for each age of product), to ensure an adequate end user pool to which sampling can be applied. The same shall be used as sampling frame and shall be used for drawing random samples.

(iv) *Sampling Method:* The sampling method chosen is stratified random sampling. The following options with respect to stratified sampling are available:

1. A single-stage process which samples households across the entire PoA population / population being assessed (subject to cut off age) i.e. a sample would be picked from all stove installations combined (total population) in the PoA or all the VPAs included in the assessment. The sampling strata will be defined based on stove model and vintage, thereafter.
2. A two-stage process whereby a group of VPAs out of VPAs under assessment is selected and within the selected VPAs, a stratified random sample selection is made of ICS. If the two-stage process is followed, then the first step is to select a group of VPAs representative of the population being verified. This approach ensures that every VPA has an equal probability of selection, so the sample is representative of the entire population of VPAs under assessment.

(v) *Sample Size:* The sample size shall depend upon the survey frequency

1. Sample size calculated for 90/10 (confidence/precision) in case of annual surveys
2. Sample size calculated for 95/5 (confidence/precision) in case of biennial surveys

In case VPAs involve replacement of expired cook stoves with new cook stoves, it shall be ensured that sample also involve a representative fraction of new stoves.

(vi) *Field Measurements:* Field measurements for different parameters are conducted using the following monitoring procedures:

Parameter	Description of measurement methods and procedures to be applied:
Efficiency of the ICS deployed (η_{new})	Water Boiling Test
Stoves that are operating (SOF)	Survey
Disposal / discontinuation of traditional cook-stove	Survey
Reduction in smoke or Particulate Matter (PM)	Survey
Access to affordable and clean energy services (Retroactive VPA)	Survey

The frequency of monitoring is annual or biennial depending on whether (90/10) or (95/5) confidence/ precision is being followed.

(vii) *Quality Assurance/ Quality Control:* In case where survey results indicate that desired precision is not achieved, the lower bound of corresponding confidence interval of the parameter value would be used as an alternative to repeating survey. the same is also in accordance with the representative sampling methods provided by the methodology AMS-II.G version 03, paragraph 22

b) Implementation Plan:

Training, if required, shall be provided to ensure that the above-mentioned requirements are complied with at the time of sampling.

Appendix 5. Further background information on monitoring plan

Not applicable

Appendix 6. Summary of post registration changes

Not applicable

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
05.0	15 April 2016	Revision to ensure consistency with the "Standard: Applicability of sectoral scopes" (CDM-EB88-A04-STAN) (version 01.0).
04.0	9 March 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; • Editorial improvement.
03.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the component project activity design document form for small-scale CDM component project activities (these instructions supersede the "Guidelines for completing the component project activity design document form for small-scale component project activities" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a CPA implementer and/or responsible person/ entity for completing the CDM-SSC-CPA-DD-FORM in A.14. and Appendix 1; • Add general instructions on post-registration changes in paragraph 4 and 5 of general instructions and Error! Reference source not found.; • Change the reference number from <i>F-CDM-SSC-CPA-DD</i> to <i>CDM-SSC-CPA-DD-FORM</i>; • Editorial improvement.
02.0	13 March 2012	EB 66, Annex 17 Revision required to ensure consistency with the "Guidelines for completing the component project design document form for small-scale component project activities".

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	27 July 2007	EB33, Annex44 Initial adoption.

Decision Class: Regulatory
Document Type: Form
Business Function: Registration
Keywords: component project activity, project design document, SSC project activities
