Gold Standard
for the Global Goals

TEMPLATE

MONITORING REPORT

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VERSION **v. 1.1**

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

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KEY PROJECT INFORMATION

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

GS ID of Programme	GS 3112
Title of Programme	GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh
Version of POA-DD applicable to this monitoring report	4.0
Name and GS ID of fully Validated VPA/VPAs (i.e. non-compliance check)	GS 3544 VPA 01- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3482 VPA 02- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3619 VPA 04- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3620 VPA 05- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3618 VPA 06- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4372 VPA 07 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4373 VPA 08 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4374 VPA 09 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4375 VPA 10 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4376 VPA 11 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4377 VPA 12 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4378 VPA 13 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4379 VPA 14 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4380 VPA 15 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh

	GS 4381 VPA 16 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4382 VPA 17 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4384 VPA 18 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4383 VPA 19 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4385 VPA 20 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4386 VPA 21 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4387 VPA 22 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4388 VPA 23 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4389 VPA 24 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4390 VPA 25 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4391 VPA 26 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4392 VPA 27 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4393 VPA 28 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4394 VPA 29 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4395 VPA 30 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4396 VPA 31 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4397 VPA 32 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh

	GS 4398 VPA 33 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4399 VPA 34 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4400 VPA 35 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4401 VPA 36 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh

Key Project Information

GS ID (s) of Project (s)	PoA ID: **GS 3112** **VPA ID:** GS 3544, GS 3482, GS 3619, GS 3620, GS 3618, GS 4372, GS 4373, GS 4374, GS 4375, GS 4376, GS 4377, GS 4378, GS 4379, GS 4380, GS 4381, GS 4382, GS 4384, GS 4383, GS 4385, GS 4386, GS 4387, GS 4388, GS 4389, GS 4390, GS 4391, GS 4392, GS 4393, GS 4394, GS 4395, GS 4396, GS 4397, GS 4398, GS 4399, GS 4400, GS 4401
Title of the project (s) covered by monitoring report	GS 3544 VPA 01- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3482 VPA 02- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3619 VPA 04- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3620 VPA 05- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 3618 VPA 06- GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4372 VPA 7 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4373 VPA 8 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4374 VPA 9 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4375 VPA 10 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4376 VPA 11 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh

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	GS 4396 VPA 31 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4397 VPA 32 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4398 VPA 33 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4399 VPA 34 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4400 VPA 35 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh GS 4401 VPA 36 - GHG Emission Reduction through use of Bondhu Chula (Improved Cook Stoves) in Bangladesh
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	

PoA DD ID	**Version No:**
GS3112	4.0
VPA IDs	**Version No**
GS 3544 VPA 01	7.0
GS 3482 VPA 02	4.0
GS 3619 VPA 04	3.0
GS 3620 VPA 05	3.0
GS 3618 VPA 06	3.0
GS 4372 VPA 07	3.0
GS 4373 VPA 08	3.0
GS 4374 VPA 09	3.0
GS 4375 VPA 10	3.0
GS 4376 VPA 11	3.0
GS 4377 VPA 12	3.0
GS 4378 VPA 13	3.0
GS 4379 VPA 14	3.0
GS 4380 VPA 15	3.0
GS 4381 VPA 16	3.0
GS 4382 VPA 17	3.0
GS 4384 VPA 18	3.0
GS 4383 VPA 19	3.0
GS 4385 VPA 20	3.0
GS 4386 VPA 21	2.0
GS 4387 VPA 22	2.0
GS 4388 VPA 23	2.0
GS 4389 VPA 24	2.0
GS 4390 VPA 25	2.0
GS 4391 VPA 26	2.0
GS 4392 VPA 27	2.0
GS 4393 VPA 28	2.0
GS 4394 VPA 29	2.0
GS 4395 VPA 30	2.0
GS 4396 VPA 31	2.0
GS 4397 VPA 32	2.0
GS 4398 VPA 33	2.0
GS 4399 VPA 34	2.0
GS 4400 VPA 35	2.0
GS 4401 VPA 36	2.0

Version number of the monitoring report	3.0
Completion date of the monitoring report	27/10/2022
Date of project design certification	01/04/2014
Date of Last Annual Report	Not Applicable, given the project has undergone GS4GG transition in year 2022.
Monitoring period number	4th of the crediting period 1
Duration of this monitoring period	VPA 01-36: 01/03/2018-29/02/2020
Project Representative	Bangladesh Bondhu Foundation
Host Country	People's Republic of Bangladesh
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	The Gold Standard Simplified Methodology for Efficient Cookstoves, Version 1.0, dated February 2013
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
13 Climate Action	Amount of CO_2e emissions reduced by the project per year	MS#1: 177,884 MS#2: 172,947 **Total: 350,831**	tCO_2e
1 No Poverty 1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial	1.4.1 Proportion of population living in households with access to basic services **Indicator:** Cumulative Number of ICS distributed under the project as an indicator of providing basic service access to households	MS#1 1,83,882 MS#2 1,83,882	Number

services, including microfinance				
1 No Poverty 1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services **Indicator:** % users reporting money saving due to reduction in purchased fuel consumption in project	MS#1 MS#2	94.76% 93.66%	%
3 Good Health and Well Being 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	3.9.1 - Mortality rate attributed to household and ambient air pollution **Indicator:** % users reporting reduction in smoke/PM after shifting to ICS in project	MS#1 MS#2	94.76% 93.66%	%
5 Gender Equality 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location **Indicator:** % users reporting time saving due to reduction in collected fuel consumption / cooking time in project	MS#1 MS#2	94.76% 93.66%	%
7 Affordable and Clean Energy 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.2 Proportion of population with primary reliance on clean fuels and technology **Indicator:** % users reporting an operational ICS in project	MS#1 MS#2	94.64% 93.50%	%
8 Decent Work and Economic Growth 8.5 By 2030, achieve full and productive	8.5.1Average hourly earnings of female and male employees, by	MS#1 MS#2	551 580	Number

employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	occupation, age and persons with disabilities **Indicator:** Number of male / female numbers of employment created by project			
12 Responsible Consumption and Production 12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.2 - Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP **Indicator:** Average fuel consumption per HH in Project	MS#1 MS#2	0.5054 0.5105	%

Table 2 – Product Vintages

		Amount Achieved
Start Dates	**End Dates**	**VERs (tCO2e)**
01/03/2018	31/12/2018	149,113
01/01/2019	31/12/2019	173,348
01/01/2020	29/02/2020	28,370

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

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The micro-scale PoA ("mSC-PoA") involves the installation and maintenance of domestic improved cooking stoves ("ICS" branded as Bondhu Chula) in Bangladesh. These stoves burn fuel more efficiently than the "three-stone" cooking stove (popularly known as traditional stoves), which is the current cooking practice in Bangladesh. The inherent inefficiency of such stoves, combined with the high moisture content of biomass cooking fuels, results in incomplete combustion, producing IAP. Further, the combustion of the non-renewable fraction of woody biomass of the cooking fuel generates Greenhouse Gases –specifically, Carbon Dioxide (CO_2), Nitrous Oxide (N_2O) and Methane (CH_4).

The PoA attempts to address these issues by implementing the widespread adoption of energy efficient stoves to households all over Bangladesh. The replacement of traditional stoves by ICS improves heat transfer, hence reducing the total amount of fuel required for cooking and reducing amount of GHG emitted into the atmosphere. The project ICS burn fuel more efficiently and have been shown to use about 50% less fuel to cook the same amount of food. They are designed to draw off smoke and toxins, thus creating cleaner indoor air for women and children.

This program is managed by Bangladesh Bondhu Foundation (BBF) as the Coordinating/Managing Entity (CME). BBF coordinates the installation of the ICS by local

partners, at a subsidized cost for users, in exchange for the rights to the Voluntary Emission Reductions (VERs). The PoA is a voluntary action by the CME.

A.2. Location of project

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Host Party(ies): Bangladesh
Region/State/Province: All across Bangladesh
City/Town/Community: All across Bangladesh
Physical Geographical location: The geographical boundary of Bangladesh is depicted by the map given below[1].

The VPAs are located within Bangladesh as can be verified from the ICS installation database. Dhaka is the national capital of Bangladesh. GPS Coordinates of Dhaka is 23°42'37.44"N, 90°24'26.78"E[2].

A.3. Reference of applied methodology

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The Gold Standard Simplified Methodology for Efficient Cookstoves, Version 1.0, dated February 2013

https://globalgoals.goldstandard.org/standards/408_V1.0_EE_ICS_Simplified-Methodology-for-Efficient-Cookstoves.pdf.

A.4. Crediting period of project

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GS Ref ID	Crediting Period Start Date	Crediting Period End Date	Length of Crediting Period
GS 3544 VPA 01	01/04/2014	31/03/2024	10 YEARS

[1] https://www.researchgate.net/figure/Political-Map-of-Bangladesh-Source_fig1_328717393
[2] https://latitudelongitude.org/bd/dhaka/

GS 3482 VPA 02	05/05/2014	04/05/2024	10 YEARS
GS 3619 VPA 04	15/09/2014	14/09/2024	10 YEARS
GS 3620 VPA 05	15/09/2014	14/09/2024	10 YEARS
GS 3618 VPA 06	28/10/2014	27/10/2024	10 YEARS
GS 4372 VPA 07	01/08/2014	31/07/2024	10 YEARS
GS 4373 VPA 08	15/08/2014	14/08/2024	10 YEARS
GS 4374 VPA 09	27/08/2014	26/08/2024	10 YEARS
GS 4375 VPA 10	15/09/2014	14/09/2024	10 YEARS
GS 4376 VPA 11	27/09/2014	26/09/2024	10 YEARS
GS 4377 VPA 12	08/10/2014	07/10/2024	10 YEARS
GS 4378 VPA 13	21/10/2014	20/10/2024	10 YEARS
GS 4379 VPA 14	02/11/2014	01/11/2024	10 YEARS
GS 4380 VPA 15	15/11/2014	14/11/2024	10 YEARS
GS 4381 VPA 16	26/11/2014	25/11/2024	10 YEARS
GS 4382 VPA 17	04/12/2014	03/12/2024	10 YEARS
GS 4384 VPA 18	15/12/2014	14/12/2024	10 YEARS
GS 4383 VPA 19	19/12/2014	18/12/2024	10 YEARS
GS 4385 VPA 20	28/12/2014	27/12/2024	10 YEARS
GS 4386 VPA 21	07/01/2015	06/01/2025	10 YEARS
GS 4387 VPA 22	15/01/2015	14/01/2025	10 YEARS
GS 4388 VPA 23	24/01/2015	23/01/2025	10 YEARS
GS 4389 VPA 24	14/02/2015	13/02/2025	10 YEARS
GS 4390 VPA 25	21/02/2015	20/02/2025	10 YEARS
GS 4391 VPA 26	21/02/2015	20/02/2025	10 YEARS
GS 4392 VPA 27	15/03/2015	14/03/2025	10 YEARS
GS 4393 VPA 28	15/03/2015	14/03/2025	10 YEARS
GS 4394 VPA 29	24/03/2015	23/03/2025	10 YEARS
GS 4395 VPA 30	15/04/2015	14/04/2025	10 YEARS
GS 4396 VPA 31	26/04/2015	25/04/2025	10 YEARS
GS 4397 VPA 32	30/04/2015	29/04/2025	10 YEARS
GS 4398 VPA 33	23/05/2015	22/05/2025	10 YEARS
GS 4399 VPA 34	30/05/2015	29/05/2025	10 YEARS
GS 4400 VPA 35	30/05/2015	29/05/2025	10 YEARS
GS 4401 VPA 36	23/06/2015	22/06/2025	10 YEARS

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

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

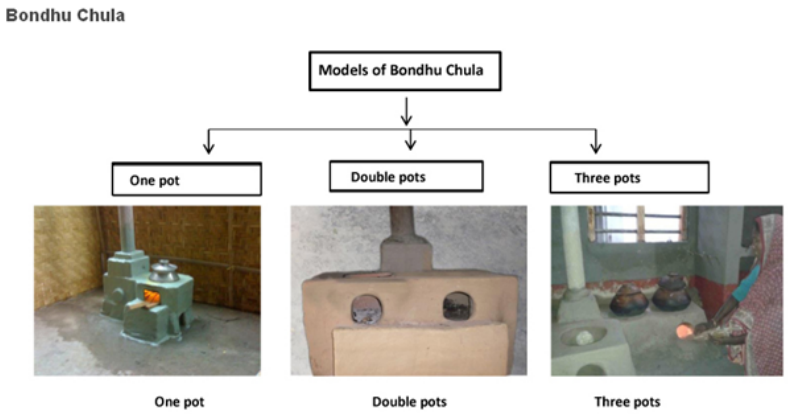
All VPAs included in the monitoring report are identical in measure. All VPAs are micro-scale VPAs and have been implemented by the Bangladesh Bondhu Foundation. All VPAs involve installation and maintenance of domestic improved cooking stoves ("ICS" branded as Bondhu Chula) in Bangladesh. These stoves burn fuel more efficiently than the "three-stone" cooking stove, (popularly known as traditional stoves) which is the current practice for cooking in Bangladesh. The inherent inefficiency of such stoves, combined with the high moisture content of biomass cooking fuels, results in incomplete combustion, producing IAP. Further, the combustion of the non-renewable fraction of woody biomass of the cooking fuel generates Greenhouse Gases –specifically, Carbon Dioxide (CO_2), Nitrous Oxide (N_2O) and Methane (CH_4).

The replacement of traditional stoves by ICS improves heat transfer, hence reducing the total amount of fuel required for cooking and reducing amount of GHG emitted into

the atmosphere. These stoves burn fuel more efficiently and have been shown to use less fuel to cook the same amount of food. They are designed to draw off smoke and toxins, thus creating cleaner indoor air for women and children.

(b) Description of the technology employed and installed equipment and/or infrastructure, including information requested by the eligibility criteria;

All VPAs included in the monitoring report use the same technology for emission reduction. All ICS installed under the VPA are constructed from brick and/or cement concrete and have as accessories - a chimney with a cap, and grate. ICSs are designed to increase heat transfer, while also matching traditional utensils and cooking habits of people in Bangladesh. The improvement in efficiency is achieved by properly adjusting the dimensions of the combustion chamber and ensuring effective air flow. In comparison to traditional stoves, the VPA ICS provide a fuel savings of around 50% to cook the same amount of food. Various models of Bondhu Chulas disseminated under the VPAs included in the monitoring report are given below:



Information requested by Eligibility criteria

Refer registered VPA-DDs for detailed description of compliance with eligibility criteria for inclusion of a VPA in the PoA.

The eligibility criteria # 1, 3, 4 and 10 are discussed below, which are relevant to the technology involved in the VPAs.

Eligibility criteria #	Eligibility criteria requirements	Explanation for a typical VPA included in the PoA
1. PoA Boundary and automatic additionality with respect to LDC as a region.	The geographical boundary of the VPA including any time-induced boundary consistent with the geographical boundary set in the PoA;	All the stoves included in the VPAs are within the VPA specific boundary. Please refer the Sales database for the same.
3. Methodology applicability criteria 2	The ICS shall have a design efficiency of more than 20%.	This has been substantiated at the time of VPA inclusion. The VPAs include the models that have been already described in the VPA-DD. No new model other than those described in VPA-DDs has been sold/distributed.

4. Methodology applicability criteria 3	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations	All ICS are provided with unique serial number and address of the cook stove location is collected at the time of installation.
10. Micro Scale Limit	Annual ER from each VPA shall be limited to 10000 tCO_2e	Refer ER calculator. The ER per annum is in each VPA is much lesser / capped at 10,000 per annum

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

VPA	GS ID	Commissioning date of VPA	Monitoring period	
			MS1	MS2
VPA 01	GS 3544	01/04/2014		
VPA 02	GS 3482	05/05/2014		
VPA 04	GS 3619	15/09/2014		
VPA 05	GS 3620	15/09/2014		
VPA 06	GS 3618	28/10/2014		
VPA 07	GS 4372	01/08/2014		
VPA 08	GS 4373	15/08/2014		
VPA 09	GS 4374	27/08/2014		
VPA 10	GS 4375	15/09/2014		
VPA 11	GS 4376	27/09/2014		
VPA 12	GS 4377	08/10/2014		
VPA 13	GS 4378	21/10/2014		
VPA 14	GS 4379	02/11/2014		
VPA 15	GS 4380	15/11/2014		
VPA 16	GS 4381	26/11/2014		
VPA 17	GS 4382	04/12/2014		
VPA 18	GS 4384	15/12/2014	01/03/2018 – 28/02/2019	01/03/2019 – 29/02/2020
VPA 19	GS 4383	19/12/2014		
VPA 20	GS 4385	28/12/2014		
VPA 21	GS 4386	07/01/2015		
VPA 22	GS 4387	15/01/2015		
VPA 23	GS 4388	24/01/2015		
VPA 24	GS 4389	14/02/2015		
VPA 25	GS 4390	21/02/2015		
VPA 26	GS 4391	21/02/2015		
VPA 27	GS 4392	15/03/2015		
VPA 28	GS 4393	15/03/2015		
VPA 29	GS 4394	24/03/2015		
VPA 30	GS 4395	15/04/2015		
VPA 31	GS 4396	26/04/2015		
VPA 32	GS 4397	30/04/2015		
VPA 33	GS 4398	23/05/2015		
VPA 34	GS 4399	30/05/2015		
VPA 35	GS 4400	30/05/2015		
VPA 36	GS 4401	23/06/2015		

(d) Total GHG emission reductions or net GHG removals by sinks achieved in this monitoring period for the specific-case VPA(s), including information on how double counting is avoided.

VPA	Emission Reductions tCO_2e		
	MS1	MS2	Total
VPA 01	8,674	8,427	17,101
VPA 02	8,284	8,048	16,332
VPA 04	8,726	8,478	17,204
VPA 05	8,489	8,248	16,737
VPA 06	8,315	8,079	16,394
VPA 07	3,290	3,196	6,486
VPA 08	4,182	4,064	8,246
VPA 09	2,827	2,747	5,574
VPA 10	3,289	3,196	6,485
VPA 11	2,257	2,193	4,450
VPA 12	4,329	4,206	8,535
VPA 13	3,596	3,494	7,090
VPA 14	6,019	5,848	11,867
VPA 15	3,729	3,623	7,352
VPA 16	2,960	2,876	5,836
VPA 17	4,520	4,391	8,911
VPA 18	2,731	2,653	5,384
VPA 19	4,159	4,041	8,200
VPA 20	3,651	3,547	7,198
VPA 21	7,322	7,114	14,436
VPA 22	5,122	4,976	10,098
VPA 23	5,571	5,412	10,983
VPA 24	4,604	4,473	9,077
VPA 25	594	577	1,171
VPA 26	5,808	5,650	11,458
VPA 27	1,611	1,569	3,180
VPA 28	3,893	3,790	7,683
VPA 29	8,672	8,443	17,115
VPA30	5,115	4,980	10,095
VPA31	6,330	6,163	12,493
VPA32	8,872	8,638	17,510
VPA33	1,989	1,937	3,926
VPA34	281	274	555
VPA35	9,023	8,785	17,808
VPA36	9,050	8,811	17,861
Total	**177,884**	**172,947**	**350,831**

Avoidance of double counting:

For each Bondhu Chula installed, the end user signs an agreement (customer agreement) with the PO/PE transferring the ownership of credits to PO/PE. At the time of installation, each Bondhu Chula is assigned a unique serial number. The PO/PE's technician collects information about the user, serial number of stove and the installation date at the time of installation in the customer agreement form. The agreement is signed by the user and the PO/PE authorized representative. The PO/PE is under contractual obligation with BBF to manufacture the stove using standard grade

material and standard design specifications provided by BBF. Also, the POs/PEs assign the ownership of credits to BBF through this contract. Further, all VPAs included in the monitoring report are implemented by the CME, thus ensuring that the PO/PEs are aware of and agree that the cook stoves are included in this PoA.

For all VPAs included in the Monitoring Report, the information collected by PO/PEs technicians is transferred to its BBF's Head office – where they are screened to eliminate any double counting of ICS and/or incomplete, invalid entries. The electronic files containing each installation record are duplicated by paper documents received from individual householders. BBF maintains a summary of all installations in an excel sheet with a clear demarcation of the VPA Boundaries This PoA level database, containing stove and user record is maintained and updated regularly.

B.1.1 Forward Action Requests

>>

Not Applicable

B.2. Post-Design Certification changes

>>

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

>>

DEV_163:

A. To be completed by Gold Standard

1| Decision

1.1 | Date – 11/01/2021

1.2 | Decision - Approved

The deviation request is approved on account of the appropriateness of justifications provided by the CME in this deviation form. Consequently, the CME is allowed to:

a) initiate a combined design certification and performance/issuance review for VPAs 21-36, pertaining to monitoring period 01/08/2014 to 31/07/2016, by submitting all relevant documents to SustainCert through the Impact Registry interface.

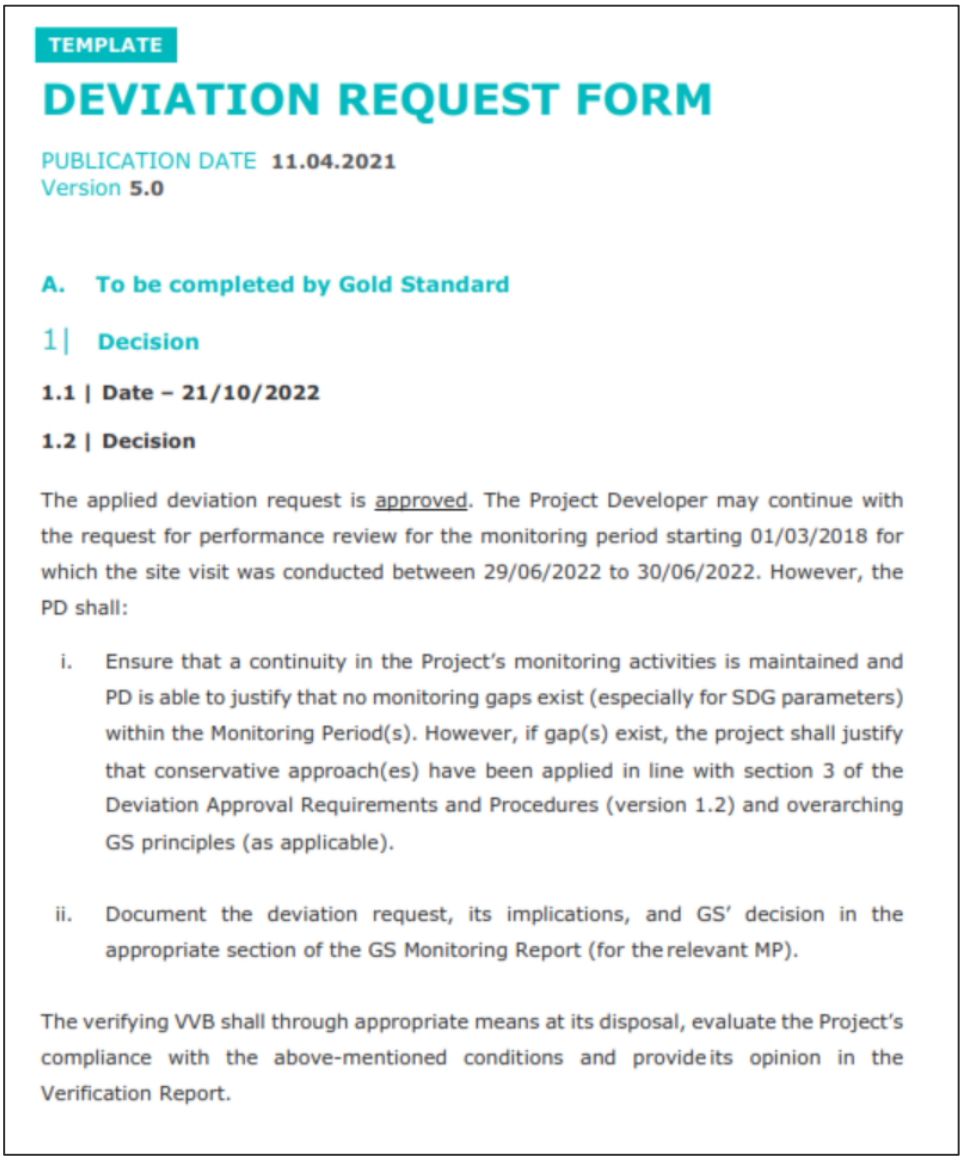
b) claim emissions reduction occurring from 01/08/2016 to 28/02/2018 by following all relevant requirements of the GS version currently under use (i.e., GSv2.2).

The deviation approval is subject to the following conditions being met -

i. For carrying out activities listed in points (a) and (b) above, the PD shall demonstrate compliance with all standard/methodological requirements documented in the registered PoA/VPA-DD(s), and where gap(s) exist, justify that conservative approach(es) have been applied in line with the GS principles.
The verifying VVB shall assess PD's compliance with this condition and provide their opinion in the Verification Report. SustainCert shall subsequently review both the PD's compliance and VVB's assessment and opinion.

ii. For claiming emissions reduction occurring from 01/03/2018 onwards, the CME shall first transition the PoA from GSv2.2 to the current version of GS4GG by following the Transition Requirements (v1.1 dated March 2018) available on the GS website and subsequently undergo verification and performance review by following the established performance certification/issuance procedure.

DEV_299:



TEMPLATE

DEVIATION REQUEST FORM

PUBLICATION DATE **11.04.2021**
Version **5.0**

A. To be completed by Gold Standard

1| Decision

1.1 | Date – 21/10/2022

1.2 | Decision

The applied deviation request is approved. The Project Developer may continue with the request for performance review for the monitoring period starting 01/03/2018 for which the site visit was conducted between 29/06/2022 to 30/06/2022. However, the PD shall:

i. Ensure that a continuity in the Project's monitoring activities is maintained and PD is able to justify that no monitoring gaps exist (especially for SDG parameters) within the Monitoring Period(s). However, if gap(s) exist, the project shall justify that conservative approach(es) have been applied in line with section 3 of the Deviation Approval Requirements and Procedures (version 1.2) and overarching GS principles (as applicable).

ii. Document the deviation request, its implications, and GS' decision in the appropriate section of the GS Monitoring Report (for the relevant MP).

The verifying VVB shall through appropriate means at its disposal, evaluate the Project's compliance with the above-mentioned conditions and provide its opinion in the Verification Report.

B.2.2. Corrections
>>
Not Applicable

B.2.3. Changes to start date of crediting period
>>
Not Applicable

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline
>>
Not Applicable

B.2.5. Changes to project design of approved project

>>
Not Applicable

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

>>

BBF is the implementer for all VPAs included in the concerned monitoring period. Thus, all VPAs included in the monitoring report follow the same management system.

The partner organizations / entrepreneurs (PO/PEs) developed by BBF are responsible for manufacturing, sales and installation of Bondhu Chulas. The training of the user on how to operate and maintain the Bondhu Chula is provided by the PO/PEs as well by the promotional volunteers of BBF. Physical maintenance of the Bondhu Chula is undertaken by the PO/PEs and its associated technicians at a marginal fee from the user, depending on the nature of maintenance.

Each Bondhu Chulha carries a unique serial number. Information on details about the user, serial number of stove and the installation date is recorded at the time of installation of the stove by the PO/PEs technicians. For all VPAs included in the Monitoring Report, the information collected by PO/PEs technicians is transferred to its BBF's Office – where they are QA/QC'ed to eliminate any double counting or and/or incomplete, invalid entries. BBF maintains a summary of all installations in an electronic format with a clear demarcation of the VPA Boundaries. This PoA level database, containing stove and user records is maintained and updated regularly.

Data on other ex-post parameters, including operational performance of Bondhu Chulha, continued usage of baseline Chulha, etc are recorded objectively during sample surveys conducted annually. For the current monitoring period, sampling was done at a PoA level (across multiple VPAs) using 95/10 as confidence / precision. Monitoring consisted of checking the representative samples against monitoring plan parameters using a questionnaire-based survey. The survey was conducted by BBF to collect feedback from sampled households. The data collected was transferred into excel sheet for analysis and calculation of emission reductions. The CME is responsible for developing the Monitoring Report; and for ensuring adherence to the monitoring procedures set in the monitoring plan.

The data recorded at the time of installation, as well as that collected through sampling surveys are transferred onto the emission reduction calculation workbook. For results of the ER calculations, refer VER calculation sheet.

SECTION D. DATA AND PARAMETERS

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

>>

SDG Indicator	**SDG 1: No Poverty**
Data/parameter	$BSA_{Baseline}$
Unit	Number

Description	Access to Basic Services (Number of ICS distributed under the baseline)
Source of data	--
Value(s) applied	0
Choice of data or Measurement methods and procedures	--
Purpose of data	SDG 1 Impact calculation
Additional comment	--

SDG Indicator	**SDG 1: No Poverty**
Data/parameter	$HHS_{Baseline}$
Unit	%
Description	% Users reporting money saving due to reduced fuel consumption in baseline
Source of data	--
Value(s) applied	0
Choice of data or Measurement methods and procedures	--
Purpose of data	SDG 1 Impact calculation
Additional comment	--

SDG Indicator	**SDG 3: Good Health and Well Being**
Data/parameter	$SPM_{HH,Baseline}$
Unit	%
Description	% Users reporting reduction in smoke/PM emissions while cooking on improved stove in baseline
Source of data	--
Value(s) applied	0
Choice of data or Measurement methods and procedures	--
Purpose of data	SDG 3 Impact calculation
Additional comment	--

SDG Indicator	**SDG 5: Gender Equality**
Data/parameter	$HHT_{Baseline}$
Unit	%
Description	% Users reporting time saving due to reduced collected fuel consumption / cooking time in baseline
Source of data	--

Value(s) applied	0
Choice of data or Measurement methods and procedures	--
Purpose of data	SDG 5 Impact calculation
Additional comment	--

SDG Indicator	**SDG 7: Affordable and Clean Energy**
Data/parameter	$ACS_{Baseline}$
Unit	%
Description	Access to affordable and clean energy (% of operating ICS units under Baseline)
Source of data	--
Value(s) applied	0
Choice of data or Measurement methods and procedures	--
Purpose of data	SDG 7 Impact calculation
Additional comment	--

SDG Indicator	**SDG 8: Decent Work and Economic Growth**
Data/parameter	QE $IG_{Baseline}$
Unit	Number
Description	Quantitative Employment and income generation (Number of person (male and female) hired under Baseline)
Source of data	-
Value(s) applied	0
Choice of data or Measurement methods and procedures	-
Purpose of data	SDG 8 Impact calculation
Additional comment	-

SDG Indicator	**SDG 12: Responsible Consumption and Production**
Data/parameter	$FC_{Baseline}$
Unit	Tonnes/year/HH
Description	Average fuel consumption per HH in Baseline
Source of data	World Bank Study, Restoring Balance: Bangladesh's Rural Energy Realities, March 2009
Value(s) applied	1.06484

Choice of data or Measurement methods and procedures	-
Purpose of data	SDG 12 Impact calculation
Additional comment	-

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	$B_{b,y}$
Unit	Tons of firewood per household per year
Description	Quantity of firewood consumed in baseline scenario during year y (tons per household per year)
Source of data	World Bank Study, Restoring Balance: Bangladesh's Rural Energy Realities, March 2009
Value(s) applied	1.06484
Choice of data or Measurement methods and procedures	The Gold Standard Simplified Methodology for Efficient Cookstoves, option (a), Section 4.2
Purpose of data	Baseline emissions calculations
Additional comment	Fixed for the entire crediting period

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	$f_{NRB,y}$
Unit	Fraction
Description	Fraction of biomass in year y that can be established as non-renewable using survey methods
Source of data	Default Values of Fraction of Non-Renewable Biomass for Least Developed Countries and Small Island Developing States (EB 67 Annex 22)
Value(s) applied	0.83
Choice of data or Measurement methods and procedures	The value is provided by CDM EB as required by the methodology
Purpose of data	Baseline emissions calculations
Additional comment	-

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	$EF_{b,fuel,CO2}$
Unit	tCO_2/ton of wood
Description	CO_2 emission factor of firewood that is substituted or reduced
Source of data	The Gold Standard Simplified Methodology for Efficient Cookstoves
Value(s) applied	1.747

Choice of data or Measurement methods and procedures	Default value as prescribed by methodology applied
Purpose of data	Baseline emissions calculations
Additional comment	-

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	$EF_{b,fuel,non\_CO2}$
Unit	tCO_2/ton of wood
Description	Non_CO_2 emission factor of firewood that is substituted or reduced
Source of data	The Gold Standard Simplified Methodology for Efficient Cookstoves, http://www.goldstandard.org/sites/default/files/documents/er calculation tool cookstove meth v2.00.xlsx
Value(s) applied	0.533
Choice of data or Measurement methods and procedures	Default value as prescribed by methodology applied
Purpose of data	Baseline emissions calculations
Additional comment	The value mentioned in PoA-DD (0.455) is valid for first commitment period only. The calculation tool link referred above mentions the emission factor as 0.533 for post 2012 period.

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	η_b
Unit	Fraction
Description	Efficiency of the cookstove being used in the baseline scenario
Source of data	The Gold Standard Simplified Methodology for Efficient Cookstoves
Value(s) applied	0.1
Choice of data or Measurement methods and procedures	Default value as prescribed by methodology applied
Purpose of data	Baseline emissions calculations
Additional comment	-

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	η_p
Unit	Fraction

Description	Efficiency of the cookstove being used in the project scenario
Source of data	Third party test report as per PCIA protocol
Value(s) applied	0.2326 (23.26%) average of the test values obtained
Choice of data or Measurement methods and procedures	The stove thermal efficiency test reports as provided by University of Dhaka
Purpose of data	Baseline emissions calculations
Additional comment	-

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	DF_{η}
Unit	Fraction
Description	Discount factor to account for efficiency loss of project cookstove per year of operation (Fraction)
Source of data	The Gold Standard Simplified Methodology for Efficient Cookstoves
Value(s) applied	0.99
Choice of data or Measurement methods and procedures	Default value as prescribed by methodology applied
Purpose of data	Baseline emissions calculations
Additional comment	-

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	LAF
Unit	Fraction
Description	Leakage adjustment factor
Source of data	The Gold Standard Simplified Methodology for Efficient Cookstoves
Value(s) applied	0.95
Choice of data or Measurement methods and procedures	Default value as prescribed by methodology applied
Purpose of data	Leakage emissions calculations
Additional comment	-

D.2 Data and parameters monitored

>>

SDG Indicator	**SDG 1: No Poverty**
Data/parameter	$BSA_{Project}$
Unit	Number

Description	Access to Basic Services (Number of ICS distributed under the project)
Source of data	ICS sales record
Value(s) applied	

VPA number	No. of ICS installed
VPA 01	9,029
VPA 02	8,623
VPA 03	0
VPA 04	9,083
VPA 05	8,837
VPA 06	8,656
VPA 07	3,425
VPA 08	4,354
VPA 09	2,943
VPA 10	3,424
VPA 11	2,350
VPA 12	4,507
VPA 13	3,744
VPA 14	6,266
VPA 15	3,882
VPA 16	3,082
VPA 17	4,705
VPA 18	2,843
VPA 19	4,330
VPA 20	3,801
VPA 21	7,622
VPA 22	5,332
VPA 23	5,799
VPA 24	4,793
VPA 25	619
VPA 26	5,968
VPA 27	1,642
VPA 28	3,966
VPA 29	8,834
VPA 30	5,211
VPA 31	6,449
VPA 32	9,038
VPA 33	2,027
VPA 34	287
VPA 35	9,192
VPA 36	9,219
Total	**183,882**

Measurement methods and procedures	Not applicable
Monitoring frequency	Continuous
QA/QC procedures	--
Purpose of data	SDG 1 Impact calculation
Additional comment	--

SDG Indicator	**SDG 1: No Poverty**

Data/parameter	$HHS_{Project}$
Unit	%
Description	% Users reporting money saving due to reduced fuel consumption in baseline
Source of data	Ex-post monitoring surveys
Value(s) applied	MS#1: 94.76% MS#2: 93.66%
Measurement methods and procedures	Determined via ex-post monitoring over a sample of project ICS users using a survey questionnaire
Monitoring frequency	Annual
QA/QC procedures	--
Purpose of data	SDG 1 Impact calculation
Additional comment	--

SDG Indicator	**SDG 3: Good Health and Well Being**
Data/parameter	$SPM_{HHProject}$
Unit	%
Description	% Users reporting reduction in smoke/PM emissions while cooking on improved stove in Project
Source of data	Ex-post monitoring surveys
Value(s) applied	MS#1: 94.76% MS#2: 93.66%
Measurement methods and procedures	Not applicable
Monitoring frequency	Annual
QA/QC procedures	--
Purpose of data	SDG 3 Impact calculation
Additional comment	--

SDG Indicator	**SDG 5: Gender Equality**
Data/parameter	$HHT_{Project}$
Unit	%
Description	% Users reporting time saving due to reduced collected fuel consumption / cooking time in project
Source of data	Ex-post monitoring surveys
Value(s) applied	MS#1: 94.76% MS#2: 93.66%
Measurement methods and procedures	Not applicable
Monitoring frequency	Annual
QA/QC procedures	--
Purpose of data	SDG 5 Impact calculation

Additional comment	--

SDG Indicator	**SDG 7: Affordable and Clean Energy**
Data/parameter	$ACS_{Project}$
Unit	%
Description	Access to affordable and clean energy (% of operating ICS units under Project)
Source of data	Ex-post monitoring surveys
Value(s) applied	MS#1: 94.64% MS#2: 93.50%
Measurement methods and procedures	Not applicable
Monitoring frequency	Annual
QA/QC procedures	--
Purpose of data	SDG 7 Impact calculation
Additional comment	--

SDG Indicator	**SDG 8: Decent Work and Economic Growth**
Data/parameter	QE $IG_{Project}$
Unit	Number
Description	Quantitative Employment and income generation (Number of person (male and female) hired under Project)
Source of data	HR records/ Sales and marketing records
Value(s) applied	MS#1: 551 MS#2: 580
Measurement methods and procedures	Not applicable
Monitoring frequency	Annual
QA/QC procedures	--
Purpose of data	SDG 8 Impact calculation
Additional comment	--

SDG Indicator	**SDG 12: Responsible consumption and production**
Data/parameter	$FC_{Project}$
Unit	tonnes/year/HH
Description	Average fuel consumption per HH in Project
Source of data	Ex-post monitoring surveys
Value(s) applied	MS#1: 0.5054

	MS#2 | 0.5105
Measurement methods and procedures	Not applicable
Monitoring frequency	Annual
QA/QC procedures	--
Purpose of data	SDG 12 Impact calculation
Additional comment	--

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	$U_{p,y}$
Unit	Fraction / Percentage
Description	Usage rate in project scenario p during year y
Source of data	Sampling Surveys/ Annual usage survey/Monitoring survey
Value(s) applied	MS1 | 3-4 years | 0.9515 MS1 | 4-5 years | 0.9439 MS2 | 4-5 years | 0.9412 MS2 | 5-6 years | 0.9320
Measurement methods and procedures	Proportion of number of project cook stoves found to be operational during the survey to the total number of samples surveyed
Monitoring frequency	Annual
QA/QC procedures	The parameter is determined based on sample surveys. The sample size is such determined to yield results with 95/10 confidence/precision.
Purpose of data	Calculation of baseline emissions or baseline net GHG removals by sinks
Additional comment	--

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	$N_{p,y}$
Unit	Number of projects cookstove credited (units)
Description	Cookstove in the project database for project scenario p through year y
Source of data	Sales Record
Value(s) applied	MS1 | 3-4 years | 59,438 MS1 | 4-5 years | 124,444 MS2 | 4-5 years | 59,438 MS2 | 5-6 years | 124,444
Measurement methods and procedures	--
Monitoring frequency	Continuous

QA/QC procedures	The sales record is cross checked to eliminate duplications.
Purpose of data	Calculation of baseline emissions or baseline net GHG removals by sinks
Additional comment	--

SDG Indicator	**SDG 13: Climate Action**
Data/parameter	$DF_{b,stove,y}$
Unit	Fraction
Description	Discount factor to account for the baseline stove use in project scenario during the year y
Source of data	Sampling Surveys/ Annual usage survey/Monitoring survey
Value(s) applied	MS1 / 3-4 years / 0.0270 MS1 / 4-5 years / 0.0315 MS2 / 4-5 years / 0.0337 MS2 / 5-6 years / 0.0382
Measurement methods and procedures	Proportion of number of meals cooked using the baseline stove vs total number of meals (if baseline stove is in use). If the baseline stove is not in use, the value is taken to be zero.
Monitoring frequency	Annual
QA/QC procedures	The parameter is determined based on sample surveys. The sample size is such determined to yield results with 95/10 confidence/precision.
Purpose of data	Calculation of baseline emissions or baseline net GHG removals by sinks
Additional comment	--

SDG Indicator	
Data/parameter	Stove Condition
Unit	Qualitative
Description	Inspection of physical condition of project
Source of data	Sampling Surveys/ Annual usage survey/Monitoring survey
Value(s) applied	All the stoves were found in good condition. Refer ER calculator for detail on each sample
Measurement methods and procedures	--
Monitoring frequency	Annual
QA/QC procedures	--
Purpose of data	SD Assessment
Additional comment	--

SDG Indicator	
Data/parameter	Stove Replacement
Unit	Qualitative
Description	Replacements of project ICS with new project ICS, if applicable
Source of data	Sales and warranty replacement records
Value(s) applied	MS1: 0; MS2: 0
Measurement methods and procedures	Recording the ICS model replaced as well as ICS model installed as a replacement
Monitoring frequency	Continuous
QA/QC procedures	--
Purpose of data	SD Assessment
Additional comment	--

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

Data/Parameter	VPA IDs	Value obtained in this monitoring period			Value obtained last monitoring period
		MS1	MS2	Total	
Emission Reductions (tCO2e)	VPA 1	8,674	8,427	17,101	18,355
	VPA 2	8,284	8,048	16,332	17,530
	VPA 4	8,726	8,478	17,204	18,464
	VPA 5	8,489	8,248	16,737	17,965
	VPA 6	8,315	8,079	16,394	17,596
	VPA 7	3,290	3,196	6,486	5,433
	VPA 8	4,182	4,064	8,246	6,907
	VPA 9	2,827	2,747	5,574	4,668
	VPA10	3,289	3,196	6,485	5,432
	VPA11	2,257	2,193	4,450	3,727
	VPA12	4,329	4,206	8,535	7,150
	VPA13	3,596	3,494	7,090	5,939
	VPA14	6,019	5,848	11,867	9,941
	VPA15	3,729	3,623	7,352	6,159
	VPA16	2,960	2,876	5,836	4,889
	VPA17	4,520	4,391	8,911	7,464
	VPA18	2,731	2,653	5,384	4,510
	VPA19	4,159	4,041	8,200	6,869
	VPA20	3,651	3,547	7,198	6,030
	VPA21	7,322	7,114	14,436	12,092
	VPA22	5,122	4,976	10,098	8,459
	VPA23	5,571	5,412	10,983	9,199
	VPA24	4,604	4,473	9,077	7,603
	VPA25	594	577	1,171	981
	VPA26	5,808	5,650	11,458	9,603
	VPA27	1,611	1,569	3,180	2,666
	VPA28	3,893	3,790	7,683	6,441

VPA29	8,672	8,443	17,115	14,348
VPA30	5,115	4,980	10,095	8,463
VPA31	6,330	6,163	12,493	10,475
VPA32	8,872	8,638	17,510	14,680
VPA33	1,989	1,937	3,926	3,292
VPA34	281	274	555	466
VPA35	9,023	8,785	17,808	14,929
VPA36	9,050	8,811	17,861	14,974
Total	**177,884**	**172,947**	**350,831**	**313,699**

The MP3 values are lower than that in MP4 due to difference in the duration of the monitoring periods.

D.4. Implementation of sampling plan

>>

a) List of VPAs to which the single sampling was applied

GS ID	No of stoves Active
GS 3544 VPA 01	9,029
GS 3482 VPA 02	8,623
GS 3619 VPA 04	9,083
GS 3620 VPA 05	8,837
GS 3618 VPA 06	8,656
GS 4372 VPA 07	3,425
GS 4373 VPA 08	4,354
GS 4374 VPA 09	2,943
GS 4375 VPA 10	3,424
GS 4376 VPA 11	2,350
GS 4377 VPA 12	4,507
GS 4378 VPA 13	3,744
GS 4379 VPA 14	6,266
GS 4380 VPA 15	3,882
GS 4381 VPA 16	3,082
GS 4382 VPA 17	4,705
GS 4384 VPA 18	2,843
GS 4383 VPA 19	4,330
GS 4385 VPA 20	3,801
GS 4386 VPA 21	7,622
GS 4387 VPA 22	5,332
GS 4388 VPA 23	5,799
GS 4389 VPA 24	4,793
GS 4390 VPA 25	619
GS 4391 VPA 26	5,968
GS 4392 VPA 27	1,642
GS 4393 VPA 28	3,966
GS 4394 VPA 29	8,834
GS 4395 VPA 30	5,211

GS 4396 VPA 31	6,449
GS 4397 VPA 32	9,038
GS 4398 VPA 33	2,027
GS 4399 VPA 34	287
GS 4400 VPA 35	9,192
GS 4401 VPA 36	9,219

b) Description of implemented single sampling design;

- **Objectives and reliability requirements:** Sampling done at a PoA level (across multiple VPAs), using 95/10 as confidence / precision given annual monitoring frequency is being maintained.

- **Sampling Schedule:** Usage survey on the sampled cook stoves was conducted during Jan 2019 (for MS1) and Jan 2020 (for MS2).

- **Target Population/ Sampling Frame:** The Target population is the stoves sold under PoA. The database of the stoves sold under the PoA (including information on date of sale, serial number, and user details) serve as the sampling frame.

- **Sampling Method:** As per the sampling plan, sampling is based on simple random sampling approach (based on age). All stoves under the PoA (i.e. from VPA01-VPA36) were categorized into age class belonging to their respective monitoring sessions depending upon their age as at end of monitoring period as a conservative measure, as follow:

  - 3-4 years and 4-5 years for MS1
  - 4-5 years and 5-6 years for MS2

- The sample size for each stratum was calculated independently using random sampling approach. Each stove under a given age category were assigned a sampling serial number. Required number of random numbers were generated using online tool i.e. STATTREK random number[3] generator after merging all the stoves across VPAs for a given age class together. The results from the corresponding age category have been applied for ER calculations.

- **Sampling Size:** Sample size was determined according to the applied methodologies that states:
  The survey should be conducted following simple random sampling approach and the minimum sample size should be determined as per the guidelines below:
  - Project target population < 300: Minimum sample size 30

[3] http://stattrek.com/statistics/random-number-generator.aspx

• Project target population 300 to 1000: Minimum sample size 10% of group size
• Project target population > 1000 Minimum sample size 100

Population Data							
Monitoring Session	Age Category	Number of Stoves installed	Estimated $U_{P,y}$ (p)	SD^2	$V = (SD/p)^2$	Sample Size required	Samples covered during monitoring
MS1	3-4 years	59438	0.925	0.07	0.08	100	103
	4-5 years	124444	0.900	0.09	0.11	100	107
Total/Average		183882	0.908			200	210
MS2	4-5 years	59438	0.900	0.09	0.11	100	102
	5-6 years	124444	0.875	0.11	0.14	100	103
Total/Average		183882	0.883			200	205

c) Collected data (electronic spreadsheets may be attached and referenced). Refer appendix 2 for the monitoring questionnaire that was used to collect the monitoring data. The data collected on the sampled stoves is presented in the worksheets titled "Sample Monitored for MS1" and "Samples Monitored for MS2" in the VER Calculation workbook.

d) Analysis of the collected data;

Analysis of the data monitored through sampling revealed the following results and precision levels:

$U_{P,y}$	MS1		MS2		Unit
	3-4 years	4-5 years	4-5 years	5-6 years	
	0.9515	**0.9439**	**0.9412**	**0.9320**	fraction
Population Size	59438	124444	59438	124444	number
Sample Size	103	107	102	103	number
Proportion for Up,y	0.9515	0.9439	0.9412	0.9320	fraction
Standard error of proportion for Up	2.12%	2.22%	2.33%	2.48%	%
Precision for Up,y	4.36%	4.62%	4.85%	5.21%	%
Result for Up,y	ok, acceptable	ok, acceptable	ok, acceptable	ok, acceptable	--

$DF_{b,Stove,y}$	MS1		MS2		Unit
	3-4 years	4-5 years	4-5 years	5-6 years	
	0.0270	**0.0315**	**0.0337**	**0.0382**	fraction
Population Size	59438	124444	59438	124444	number
Sample Size	103	107	102	103	number
Proportion for non baseline stove u	0.973	0.968	0.966	0.962	fraction
Standard error of proportion for no	1.60%	1.69%	1.78%	1.89%	%
Precision for non baseline stove us	3.22%	3.42%	3.62%	3.85%	%
Result for non baseline stove usage	ok, acceptable	ok, acceptable	ok, acceptable	ok, acceptable	--

e) Demonstration of whether the required confidence/precision has been met.

The VER calculation spreadsheet contains calculation of relative precision. Since the relative margin of error obtained is less than 10%, the data are statistically acceptable and deemed representative of the population.

f) ***Demonstration of whether the samples were randomly selected and are representative of the population.***

The sales data of VPA 01- 36 combined was arranged in the order of date in excel, with serial numbers assigned to each sale (separately for each age class). Random numbers for each age class were generated using the online random number

generator available at **STATTREK**[4] random number generator. The samples with same serial number as those generated by random number were selected for monitoring. Thus, the samples identified are purely random. Refer ER calculator and VPA01-36 combined database for details.

SECTION E. CALCULATION OF SDG IMPACTS

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

>>

SDG	SDG Impact	Baseline estimate
1 MS1-2018/2019	No Poverty (number of systems installed)	0
1 MS1-2018/2019	No Poverty (money savings)	0
1 MS2- 2019/2020	No Poverty (number of systems installed)	0
1 MS2- 2019/2020	No Poverty (money savings)	0

SDG	SDG Impact	Baseline estimate
3 MS1-2018/2019	Good Health and Well-Being	0
3 MS2- 2019/2020	Good Health and Well-Being	0

SDG	SDG Impact	Baseline estimate
5 MS1- 2018/2019	Gender Equality	0
5 MS2- 2019/2020	Gender Equality	0

SDG	SDG Impact	Baseline estimate
7 MS1- 2018/2019	Affordable and Clean Energy	0
7 MS1- 2019/2020	Affordable and Clean Energy	0

SDG	SDG Impact	Baseline estimate
8 MS1- 2018/2019	Decent Work and Economic Growth	0
8 MS2- 2019/2020	Decent Work and Economic Growth	0

SDG	SDG Impact	Baseline estimate
12 MS1- 2018/2019	Responsible Consumption and Production	1.0648
12 MS2- 2019/2020	Responsible Consumption and Production	1.0648

SDG	SDG Impact	Baseline estimate
13 MS1-2018/19	Climate Action	0
13 MS2-2019/20	Climate Action	0

For detailed/sample calculation, please refer ER calculator.

[4] https://stattrek.com/statistics/random-number-generator.aspx

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

>>

SDG	SDG Impact	Project estimate
1 MS1-2018/19	No Poverty	183,882
1 MS2-2019/20	No Poverty	183,882

SDG	SDG Impact	Project estimate
1 MS1-2018/19	No Poverty	% Users reporting money saving: 94.76%
1 MS2-2019/20	No Poverty	% Users reporting money saving: 93.66%

SDG	SDG Impact	Project estimate
3 MS1-2018/19	Good Health and Well-Being	% Users reporting reduction in smoke/PM: 94.76%
3 MS2-2019/20	Good Health and Well-Being	% Users reporting reduction in smoke/PM: 93.66%

SDG	SDG Impact	Project estimate
5 MS1-2018/19	Gender Equality	% Users reporting time saving: 94.76%
5 MS2-2019/20	Gender Equality	% Users reporting time saving: 93.66%

SDG	SDG Impact	Project estimate
7 MS1-2018/19	Affordable and Clean Energy	94.64%
7 MS2-2019/20	Affordable and Clean Energy	93.50%

SDG	SDG Impact	Project estimate
8 MS1-2018/19	Decent Work and Economic Growth	551
8 MS2-2019/20	Decent Work and Economic Growth	580

SDG	SDG Impact	Project estimate
12 MS1-2018/19	Responsible Consumption and Production	0.5054
12 MS2-2019/20	Responsible Consumption and Production	0.5105

SDG	SDG Impact	Project estimate
13 MS1-2018/19	Climate Action	177,884
13 MS2-2019/20	Climate Action	172,947

For detailed/sample calculation, please refer ER calculator.

E.3. Calculation of leakage

>>

The Net to Gross Leakage Adjustment Factor has already been included in the emission reduction calculations as explained above, hence this is not applicable.

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

For SDG 1: No Poverty

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

Where:

$BSA_{Baseline}$ Access to basic services (Number of ICS distributed in baseline)
$BSA_{Project}$ Access to basic services (Number of ICS distributed in Project)

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

Where:
$HHS_{Project}$ % HH reporting money saving due to reduced fuel consumption in project
$HHS_{Baseline}$ % HH reporting money saving due to reduced fuel consumption in baseline

For SDG 3: Good Health and Well Being
Net Benefit (SDG 3) = $SPM_{HH,Project} - SPM_{HH,Baseline}$

Where:
$SPM_{HH,Baseline}$ % HH reporting reduction in smoke/PM emissions while cooking on improved stove in baseline
$SPM_{HH,Project}$ % HH reporting reduction in smoke/PM emissions while cooking on improved stove in project

For SDG 5: Gender Equality
Ex-post Monitoring Surveys Records
Net Benefit (SDG 5) = $HHT_{Project}$ - $HHT_{Baseline}$

Where:
$HHT_{Baseline}$ % HH reporting time saving due to reduced collected fuel consumption / cooking time in baseline
$HHT_{Project}$ % HH reporting time saving due to reduced collected fuel consumption / cooking time in project

For SDG 7: Affordable and Clean Energy
Net Benefit (SDG 7) = $ACS_{Project}$ - $ACS_{Baseline}$

Where:
$ACS_{Baseline}$ Access to affordable and clean energy (% of operating ICS units under Baseline)
$ACS_{Project}$ Access to affordable and clean energy (% of operating ICS units under Project)

For SDG 8: Decent Work and Economic Growth
Net Benefit (SDG 8) = QE $IG_{Project}$ - QE $IG_{Baseline}$

Where:
QE $IG_{Baseline}$ Quantitative Employment and income generation (Number of person (male and female) hired under Baseline)
QE $IG_{Project}$ Quantitative Employment and income generation (Number of person (male and female) hired under Project ~~VPA~~)

For SDG 12: Responsible Consumption and Production
Ex-post Monitoring Survey / Tests Records
Net Benefit (SDG 12) = $FC_{Baseline}$ - $FC_{Project}$

Where:
$FC_{Baseline}$ Average fuel consumption per HH in Baseline
$FC_{Project}$ Average fuel consumption per HH in Project

For SDG 13: Climate Action

Sample Calculation:

The methodology directly provides equation for emission reductions (without separate baseline, projector leakage emission reduction equations).

As per the methodology, and the PoA-DD, emission reductions are calculated as:

$$ER_y = \sum_{0}^{xtoy} N_{P,y} * P_y * U_{P,y} * (f_{NRB,y} * EF_{b,fuel,CO2} + EF_{b,fuel,non\_CO2}) * (1 - DF_{b,Stove,y})$$

Where,

$N_{P,y}$	Number of project cook stoves of each age group operational in the year y
P_y	Quantity of firewood that is saved in the year y (tons per household in year y)
$U_{P,y}$	Usage rate for project cook stoves in year y, based on adoption rate and drop off rate revealed by usage surveys (fraction)
$f_{NRB,b,y}$	Fraction of biomass, used in year y for baseline scenario, which can be established as non-renewable. The project proponents shall estimate project specific national/ regional value or apply the default f_{NRB} value provided by the CDM Executive Board and endorsed by the host country DNA.
$EF_{b,fuel,CO2}$	CO_2 emission factor of firewood that is substituted or reduced. (Default value for wood fuel 1.747 tCO_2/ton of wood
$EF_{b,fuel,non\_CO2}$	Non-CO_2 emission factor of firewood that is substituted or reduced. (Default value for wood fuel 0.530tCO_2/ton of wood)
$DF_{b,Stove,y}$	Usage of baseline cook stove during the year y (fraction) in project scenario
x	y – 1
y	Year of the crediting period

Determination of quantity of biomass saved (P_y):
Quantity of firewood that is saved (P_y)is estimated as follows:

$$P_y = B_{b,y} * (1-\eta_b/\eta_{p,y}) \times LAF$$

$B_{b,y}$	Quantity of firewood consumed in baseline scenario during year y (tones per household per year)
$\eta_{p,y}$	Efficiency of project cook stove in year y (fraction)
η_b	Efficiency of the baseline cook stove being replaced (fraction). A default value of 10% shall be used if the replaced cook stove is a three stone fire, or a conventional device without a grate or a chimney i.e. with no improved combustion air supply or flue gas ventilation
LAF	Default leakage adjustment factor= 0.95 to account for leakages related to non-renewable biomass saved by the project activity

Determination of quantity of firewood consume in the baseline ($B_{b,y}$):
The firewood consumed is the estimated average annual consumption of firewood per household (tons/year), which may be derived using option (a) of the methodology, i.e. historical data. Accordingly, $B_{b,y}$ is referenced from historical data as available in published literature. As per table 2.2 of the World Bank Study, Restoring Balance: Bangladesh's Rural Energy Realities, March 2009, the fuel wood usage per household for cooking is 1.06484 tons per annum.

Determination of project cook stove efficiency ($\eta_{p,y}$):
Efficiency of project cook stove in year y ($\eta_{p,y}$) is estimated as follows:

$$\eta_{p,y} = \eta_p * (DF_\eta)^{y-1} * 0.94.$$

Where,

$\eta_{p,y}$	Efficiency of project cook stove in year y (fraction)
η_p	Efficiency of project cook stove (fraction) determined at the start of the project activity.
DF_η	Discount factor to account for efficiency loss of project cook stove per year of operation (Fraction). The default value for this parameter is 0.99 i.e. 1% efficiency loss/year.
0.94	Adjustment factor to account for uncertainty related to project cook stove efficiency test

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
1 MS1-2018/19	No Poverty	0	94.76%	94.76%
1 MS2-2019/20	No Poverty	0	93.66%	93.66%

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
1 MS1-2018/19	No Poverty	0	% Users reporting money saving: 94.76%	% Users reporting money saving: 94.76%
1 MS2-2019/20	No Poverty	0	% Users reporting money saving: 93.66%	% Users reporting money saving: 93.66%

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
3 MS1-2018/19	Good health and well being	0	% Users reporting reduction in smoke/PM: 94.76%	% Users reporting reduction in smoke/PM: 94.76%
3 MS2-2019/20	Good health and well being	0	% Users reporting reduction in smoke/PM: 93.66%	% Users reporting reduction in smoke/PM: 93.66%

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
5 MS1-2018/19	Gender Equality	0	% Users reporting time saving: 94.76%	% Users reporting time saving: 94.76%
5 MS2-2019/20	Gender Equality	0	% Users reporting time saving: 93.66%	% Users reporting time saving: 93.66%

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
7 MS1-2018/19	Affordable and Clean energy	0	94.64%	94.64%

7 MS2-2019/20	Affordable and Clean energy	0	93.50%	93.50%

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
8 MS1-2018/19	Decent work and economic growth	0	551	551
8 MS2-2019/20	Decent work and economic growth	0	580	580

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
12 MS1-2018/19	Responsible Consumption and Production	1.0648	0.5054	0.5595
12 MS2-2019/20	Responsible Consumption and Production	1.0648	0.5105	0.5544

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13 Climate Action				
(VPA 01)	Amount of CO2e emissions reduced by the project per year	0	17,101	17,101
(VPA 02)		0	16,332	16,332
(VPA04)		0	17,204	17,204
(VPA 05)		0	16,737	16,737
(VPA 06)		0	16,394	16,394
(VPA 07)		0	6,486	6,486
(VPA 08)		0	8,246	8,246
(VPA 09)		0	5,574	5,574
(VPA 10)		0	6,485	6,485
(VPA 11)		0	4,450	4,450
(VPA 12)		0	8,535	8,535
(VPA 13)		0	7,090	7,090
(VPA 14)		0	11,867	11,867
(VPA 15)		0	7,352	7,352
(VPA 16)		0	5,836	5,836
(VPA 17)		0	8,911	8,911
(VPA 18)		0	5,384	5,384
(VPA 19)		0	8,200	8,200
(VPA 20)		0	7,198	7,198
(VPA 21)		0	14,436	14,436
(VPA 22)		0	10,098	10,098
(VPA 23)		0	10,983	10,983
(VPA 24)		0	9,077	9,077
(VPA 25)		0	1,171	1,171
(VPA 26)		0	11,458	11,458
(VPA 27)		0	3,180	3,180
(VPA 28)		0	7,683	7,683
(VPA 29)		0	17,115	17,115
(VPA 30)		0	10,095	10,095
(VPA 31)		0	12,493	12,493
(VPA 32)		0	17,510	17,510
(VPA 33)		0	3,926	3,926
(VPA 34)		0	555	555
(VPA 35)		0	17,808	17,808
(VPA 36)		0	17,861	17,861
Total		**0**	**350,831**	**350,831**

For detailed/sample calculation, please refer ER calculator

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

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values[5] achieved during this monitoring period
13 Climate Action: Amount of CO_2 emissions reduced		
GS 3544 VPA 01	18,373	17,101
GS 3482 VPA 02	18,373	16,332
GS 3619 VPA 04	18,373	17,204
GS 3620 VPA 05	18,373	16,737
GS 3618 VPA 06	18,373	16,394
GS 4372 VPA 07	17,725	6,486
GS 4373 VPA 08	17,750	8,246
GS 4374 VPA 09	17,764	5,574
GS 4375 VPA 10	17,797	6,485
GS 4376 VPA 11	17,810	4,450
GS 4377 VPA 12	17,829	8,535
GS 4378 VPA 13	17,848	7,090
GS 4379 VPA 14	17,869	11,867
GS 4380 VPA 15	17,881	7,352
GS 4381 VPA 16	17,894	5,836
GS 4382 VPA 17	17,915	8,911
GS 4384 VPA 18	17,921	5,384
GS 4383 VPA 19	17,933	8,200
GS 4385 VPA 20	17,940	7,198
GS 4386 VPA 21	17,959	14,436
GS 4387 VPA 22	17,971	10,098
GS 4388 VPA 23	17,987	10,983
GS 4389 VPA 24	18,015	9,077
GS 4390 VPA 25	18,019	1,171
GS 4391 VPA 26	18,037	11,458
GS 4392 VPA 27	18,052	3,180
GS 4393 VPA 28	18,054	7,683
GS 4394 VPA 29	18,086	17,115
GS 4395 VPA 30	18,106	10,095
GS 4396 VPA 31	18,118	12,493
GS 4397 VPA 32	18,139	17,510
GS 4398 VPA 33	18,164	3,926
GS 4399 VPA 34	18,165	555
GS 4400 VPA 35	18,187	17,808
GS 4401 VPA 36	18,209	17,861
Total	**631,007**	**350,831**

For detailed/sample calculation, please refer ER calculator

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

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

>>

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

= Ex-ante ER as per VPA-DD (Section A.4.4) * (Number of Days monitored / No. of days in a year)

A sample calculation For VPA 01[6]:
= Ex-ante ER for Year 2018[7] + Ex-ante ER for Year 2019 + Ex-ante ER for Year 2020
= 9,231*306[8]/365 + 9,148*365[9]/365 + 9,063*60[10]/366
= 18,373

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

>>

Not Applicable, the ERs are lower than ex-ante estimates in the approved PDD.

SECTION F. SAFEGUARDS REPORTING

>>

Refer Transition Annex section B.1

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

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

>>

No negative comments received during the monitoring period

[6] For other VPAs, refer sheet" Monitoring report Table".
[7] As per section A.4.4 of the registered VPA-DDs
[8] No. of Days monitored in Year 2018 = 31 Dec 2018 – 01 Mar 2018 + 1 = 306
[9] No. of Days monitored in Year 2019 = 31 Dec 2019 – 01 Jan 2019 + 1 = 365
[10] No. of Days monitored in Year 2020 = 29 Feb 2020 – 01 Jan 2020 + 1 = 60

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

>>

Not applicable

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

>>

Not applicable, no legal contests occurred during the monitoring period.

APPENDIX 1

Entity responsible for completing the TEMPLATE- Monitoring Report	
Organization name	Climate Secure India Private Limited
Street/P.O. Box	Club Road
Building	Pragati Apartments
City	West Delhi
State/Region	Delhi
Postcode	110063
Country	India
E-mail	info@climate-secure.com
Website	www.climate-secure.com
Contact Person	Rohit Lohia

Revision History

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