



**Verified Carbon
Standard**

GROUPED PROJECTS FOR VIET NAM COOKSTOVE PROGRAM

Project title	Grouped Projects for Viet Nam Cookstove Program
Project ID	2923
Monitoring period	01-December-2022 to 30 -June-2023
Original date of issue	16-July-2023.
Most recent date of issue	19-February-2024
Version	04
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Prepared by	Sustainability Investment Promotion and Development Joint Stock Company (SIPCO)

CONTENTS

1	PROJECT DETAILS	4
1.1	Summary Description of the Implementation Status of the Project	4
1.2	Audit History.....	5
1.3	Sectoral Scope and Project Type	6
1.4	Project Proponent	6
1.5	Other Entities Involved in the Project	6
1.6	Project Start Date	6
1.7	Project Crediting Period	6
1.8	Project Location	7
1.9	Title and Reference of Methodology	13
1.10	Double Counting and Participation under Other GHG Programs	13
1.11	Double Claiming, Other Forms of Credit, and Scope 3 Emissions.....	14
1.12	Sustainable Development Contributions	15
1.13	Commercially Sensitive Information.....	19
2	SAFEGUARDS AND STAKEHOLDER ENGAGEMENT	19
2.1	Stakeholder Engagement and Consultation.....	19
2.2	Risks to Stakeholders and the Environment.....	25
2.3	Respect for Human Rights and Equity	26
2.4	Ecosystem Health	28
3	IMPLEMENTATION STATUS	29
3.1	Implementation Status of the Project Activity	29
3.2	Deviations	53
3.3	Grouped Projects	58
3.4	Baseline Reassessment.....	61
4	DATA AND PARAMETERS.....	62
4.1	Data and Parameters Available at Validation	62
4.2	Data and Parameters Monitored.....	64
4.3	Monitoring Plan.....	68
5	QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS	73

5.1	Baseline Emissions	73
5.2	Project Emissions	74
5.3	Leakage Emissions	74
5.4	GHG Emission Reductions and Carbon Dioxide Removals	74
APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION.....		83
APPENDIX 2: SUPPLY CHAIN.....		84

1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The intention of the grouped project activity involves the installation of energy efficient Improved Cooking Stove (ICS) in the households (hereafter “users”) of Viet Nam for cooking households. For this reason, this proposed project activity aims at reducing the woodfuel consumption of traditional stove users by distributing ICS to households. By reducing the consumption of woodfuel, it can contribute to improving public health problems. Furthermore, this proposed project can contribute to Viet Nam's climate change respond and sustainable development.

The project activity targets households with no previous ICS access. The geographical boundary is in Viet Nam. ICSs are distributed free of cost to users. Sustainability Investment Promotion and Development Joint Stock Company (SIPCO) financed the implementation of the project in full.

The Project activity promote the dissemination of energy efficient ICS. This in turn reduce deforestation and degradation of forests in Viet Nam through participation of the people in adopting energy efficient stoves. This also contribute to improvement in quality of lives of the people from Viet Nam through reduction of drudgery, time and money spent on fuel wood collection and through improvement of indoor air pollution. Globally, the project contributes by reducing emission of GHG into the atmosphere.

The scenario existing prior to the implementation of the project is the actual baseline scenario which is equal to the existing common practice by the households i.e. in absence of the project activity the equivalent amount of thermal energy generated using firewood in three stone open fires to meet the cooking energy demand.

The improved cookstoves (model Ecozen and improved TK90) covered under the project has been manufactured by Viet Charcoal Production Company Limited. The equipment lifetime is 10 years. The credits shall be claimed only till the end of the operational life of the project devices.

Currently, there are 94 project instances under the grouped project¹. The first ICS was distributed on 07 Jan 2022. The first monitoring period is from 07 Jan 2022 to 30 Nov 2022. The second monitoring period is from 01 Dec 2022 to 30 Jun 2023. Till the end of second monitoring period, a total of 850,000 ICSs was reported installed under the project. Detail below:

Table 1: Distribution schedule

Month of installation	Number of ICSs
01/2022	134

¹ The detail of the 94 project instances is mentioned in the section 3.1

04/2022	65,669
05/2022	58,485
06/2022	58,833
07/2022	63,338
08/2022	75,463
09/2022	106,342
10/2022	94,317
11/2022	148,381
12/2022	100,797
01/2023	78,241
Total	850,000

The total GHG emission reductions generated in the second monitoring from 01 Dec 2022 to 30 Jun 2023 is 1,854,496 tCO₂e GHG emission reductions.

1.2 Audit History

Audit Type	Period	Program	VVB Name	Number of years
Validation	06 Jun 2022 (the date of onsite visit for validation)	VCS	Carbon Check (India) Private Ltd.	
Verification	07 Jan 2022 – 30 Nov 2022	VCS	Carbon Check (India) Private Ltd.	0.9
Verification	01 Dec 2022 – 30 Jun 2023	VCS	EPIC Sustainability Services Pvt. Ltd	0.58
Total				1.47

1.3 Sectoral Scope and Project Type

Sectoral scope ²	03 – Energy Demand
Project activity type	Type II – Energy efficiency improvement project

1.4 Project Proponent

Organization name	Sustainability Investment Promotion and Development Joint Stock Company. (SIPCO)
Contact person	Mr. Hoang Anh Dung
Title	Chairman
Address	5th Floor, Sunrise Building, No.25B3, 57 Lang Ha Street, Ba Dinh District, Hanoi, Viet Nam
Telephone	+84 243 519 0955
Email	dung.hoang@carbonvietnam.com

1.5 Other Entities Involved in the Project

Not Applicable

1.6 Project Start Date

Project start date	07-Jan-2022
Justification	The project start date of a non-AFOLU project is the date on which the project began generating GHG emission reductions or removals. The project start date is 07 Jan 2022 which is the distribution date of the first cookstove under the project activity.

1.7 Project Crediting Period

Crediting period	☐ Seven years, twice renewable ☒ Ten years, fixed ☐ Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)
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² Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: <https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

Start and end date of
first or fixed crediting
period

07 Jan 2022 to 06 Jan 2032

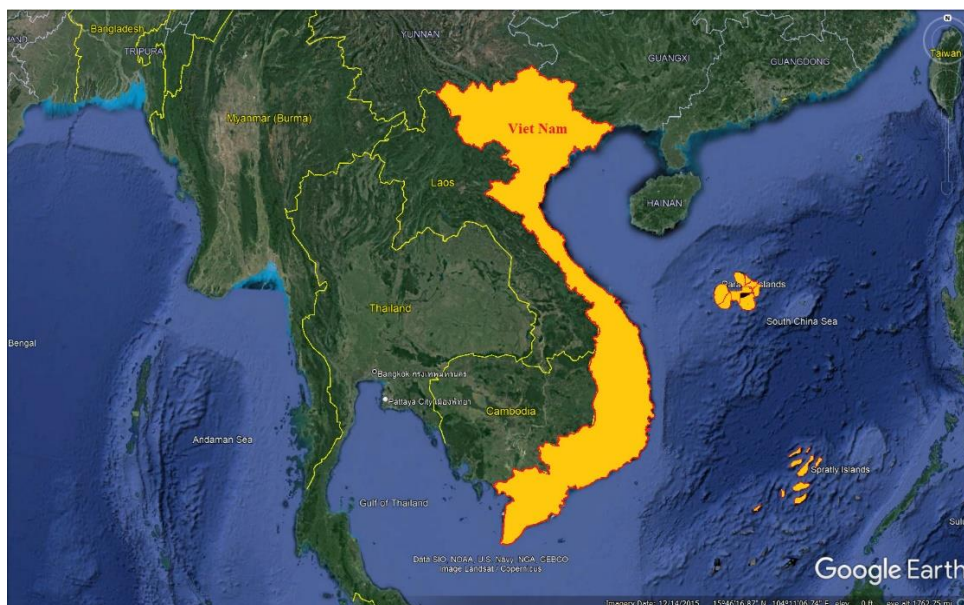
1.8 Project Location

The grouped project is hosted by Viet Nam. The grouped project covers the 30 provinces of Viet Nam bounded between.

Latitudes: 14.315425 N

Longitudes: 108.339537 E

The details of coordinates are being submitted separately as KML file.



Map 1: Map of grouped project

Detail geographic information of the project activity instance is below:

Project activity Instance	Province	Coordinate
PA 1	Lao Cai	22.3381° N, 104.1487° E
PA 4		https://www.google.com/maps/place/L%C3%A0o+Cai,+Vi%E1%BB%87t+Nam/@21.2083468,103.1400565,7z/data=!4m6!3m5!1s0x36cd3b8cbf4c0e07:0x21a2b6b9fb469068!8m2!3d22.3380865!4d104.1487055!16zL20vMDIOczE3?hl=vi-VN

PA 2	Nam Dinh	20.2792° N, 106.2051° E https://www.google.com/maps/place/Nam+%C4%90%E1%BB%8Bnh,+Vi%E1%BB%87t+Nam/@19.7105244,107.5739664,8z/data=!4m6!3m5!1s0x31360c2151521bdf:0xc8eba2bffe25df62!8m2!3d20.2791804!4d106.2051484!16zL20vMDdtMWRq?hl=vi-VN
PA 3		
PA 5	Dien Bien	21.8042° N, 103.1077° E https://www.google.com/maps/place/%C4%90i%E1%BB%87n+Bi%C3%AAn,+Vi%E1%BB%87t+Nam/@21.7191452,102.3094314,9z/data=!3m1!4b1!4m6!3m5!1s0x312d1f0ee0d1fbf3:0x48718c8562df0ef4!8m2!3d21.8042309!4d103.1076525!16zL20vMDJnajJr?hl=vi-VN
PA 6		
PA 7		
PA 8		
PA 10	Lai Chau	22.3687° N, 103.3119° E https://www.google.com/maps/place/Lai+Ch%C3%A2u,+Vi%E1%BB%87t+Nam/@22.2482639,102.8718826,10z/data=!3m1!4b1!4m6!3m5!1s0x312d322c39d1b451:0xe229916091483c2e!8m2!3d22.3686613!4d103.3119085!16zL20vMDJ3aDIs?hl=vi-VN
PA 11		
PA 12	Son La	21.1022° N, 103.7289° E https://www.google.com/maps/place/S%C6%A1n+L%C3%A0,+Vi%E1%BB%87t+Nam/@21.3009206,103.5568492,9z/data=!3m1!4b1!4m6!3m5!1s0x31325990dc3d1dd5:0x582d645a6a0f387b!8m2!3d21.1022284!4d103.7289167!16zL20vMDdtMWpj?hl=vi-VN
PA 13	Quang Ninh	21.0064° N, 107.2925° E https://www.google.com/maps/place/Qu%E1%BA%A3ng+Ninh,+Vi%E1%BB%87t+Nam/@21.1506388,106.992521,10z/data=!3m1!4b1!4m6!3m5!1s0x314b01d79a78852f:0xed0779f4f0a5866a!8m2!3d21.006382!4d107.2925144!16zL20vMDZnX3M5?hl=vi-VN
PA 14	Bac Ninh	21.1214° N, 106.1111° E https://www.google.com/maps/place/B%E1%BA%AFc+Ninh,+Vi%E1%BB%87t+Nam/@21.3386452,105.8196901,10z/data=!4m6!3m5!1s0x31350a5d26af7a51:0xe55920c0c6558f70!8m2!3d21.121444!4d106.1110501!16zL20vMDNxNmZ3?hl=vi-VN
PA 15		
PA 16		

PA 17	Ha Nam	20.5835° N, 105.9230° E https://www.google.com/maps/place/H%C3%A0+Nam,+Vi%E1%BB%87t+Nam/@20.533743,105.8357658,11z/data=!3m1!4b1!4m6!3m5!1s0x3135c511181964e1:0x74a9b90d3b326852!8m2!3d20.5835196!4d105.92299!16zL20vMDdtMTli?hl=vi-VN
PA 18	Vinh Phuc	21.3609° N, 105.5474° E https://www.google.com/maps/place/V%C4%A9nh+Ph%C3%BAC,+Vi%E1%BB%87t+Nam/@21.3629465,105.4178304,11z/data=!3m1!4b1!4m6!3m5!1s0x3134e54d82ea2dbb:0xc0d08e3fe11b105f!8m2!3d21.3608805!4d105.5474373!16zL20vMDdtMWtk?hl=vi-VN
PA 19		
PA 20	Quang Binh	17.6103° N, 106.3487° E https://www.google.com/maps/place/Qu%C3%A0ng+B%C3%ACnh,+Vi%E1%BB%87t+Nam/@17.5049575,106.0197994,10z/data=!3m1!4b1!4m6!3m5!1s0x3138b0f638296f2d:0x901f872e6223598f!8m2!3d17.6102715!4d106.3487474!16zL20vMDdsX3h2?hl=vi-VN
PA 21		
PA 22		
PA 23	Phu Yen	13.0882° N, 109.0929° E https://www.google.com/maps/place/Ph%C3%BA+Y%C3%AAn,+Vi%E1%BB%87t+Nam/@13.2011058,108.7842812,10z/data=!3m1!4b1!4m6!3m5!1s0x316f70bf634caeff:0xfe6ebe1c1c171a80!8m2!3d13.0881861!4d109.0928764!16zL20vMDdtMWhu?hl=vi-VN
PA 24		
PA 25		
PA 26	Dak Lak	12.7100° N, 108.2378° E https://www.google.com/maps/place/%C4%90%E1%BA%AFk+L%E1%BA%AFk,+Vi%E1%BB%87t+Nam/@12.7877909,107.9590977,10z/data=!3m1!4b1!4m6!3m5!1s0x3171f7daf7307157:0x8ef97694d9883315!8m2!3d12.7100116!4d108.2377519!16zL20vMDUzZDU3?hl=vi-VN
PA 27		
PA 28		
PA 29		
PA 30		
PA 31	Kon Tum	14.6612° N, 107.8389° E https://www.google.com/maps/place/Kon+Tum,+Vi%E1%BB%87t+Nam/@14.6686635,107.3793971,9z/data=!3m1!4b1!4m6!3m5!1s0x316be72358aad1d:f0x619b11aacc88a54!8m2!3d14.661167!4d107.83885!16zL20vMDU3cTAz?hl=vi-VN
PA 32		

PA 34	Lam Dong	11.5753° N, 108.1429° E https://www.google.com/maps/place/L%C3%A2m+%C4%90%E1%BB%93ng.+Vi%E1%BB%87t+Nam/@11.7651411,107.7169621,10z/data=!3m1!4m6!3m5!1s0x3171132659f3db7d:0xbb5ad2df5f54f56c!8m2!3d11.5752791!4d108.1428669!16zL20vMDdi-anox?hl=vi-VN
PA 35		
PA 36		
PA 33	Ha Tinh	18.2944° N, 105.6745° E https://www.google.com/maps/place/H%C3%A0+T%C4%A9nh.+Vi%E1%BB%87t+Nam/@18.3600801,105.5234041,10z/data=!3m1!4b1!4m6!3m5!1s0x313828a1eee9c3c7:0x1ac77b26b87d106b!8m2!3d18.2943776!4d105.6745247!16zL20vMDdmc3N5?hl=vi-VN
PA 37		
PA 38		
PA 39		
PA 40		
PA 41		
PA 42		
PA 43		
PA 44		
PA 92		
PA 93		
PA 98		
PA 45	Quang Tri	16.7943° N, 106.9634° E https://www.google.com/maps/place/Qu%E1%BA%A3ng+Tr%E1%BB%8B.+Vi%E1%BB%87t+Nam/@16.7345587,106.6717562,10z/data=!3m1!4b1!4m6!3m5!1s0x3140e4abaa1df129:0xe471fae020d54d28!8m2!3d16.7943472!4d106.963409!16zL20vMDVyd3Jq?hl=vi-VN
PA 46		
PA 47		
PA 48	Tuyen Quang	22.1727° N, 105.3131° E https://www.google.com/maps/place/Tuy%C3%AA+n+Quang.+Vi%E1%BB%87t+Nam/@22.0969536,104.9422137,10z/data=!3m1!4b1!4m6!3m5!1s0x3134adfba5491ee1:0x7f5401719284787f!8m2!3d22.1726708!4d105.3131185!16zL20vMDdjZHMx?hl=vi-VN
PA 49		
PA 97		
PA 51	Bac Kan	22.3033° N, 105.8760° E https://www.google.com/maps/place/B%E1%BA%AFc+K%E1%BA%A1n.+Vi%E1%BB%87t+Nam/@22.272135,105.5579457,10z/data=!3m1!4b1!4m6!3m5!1s0x36cae0484a85eb4d:0xbf0390482b496ed0!8m
PA 52		

		21.8564° N, 106.6291° E n?hl=vi-VN
PA 53	Lang Son	21.8564° N, 106.6291° E https://www.google.com/maps/place/L%E1%BA%A1ng+S%C6%A1n,+Vi%E1%BB%87t+Nam/@21.8928274,106.4485828,10z/data=!3m1!1e3!1s0x36b5543eb745256f:0xfa3d34da85826e5a!8m2!3d21.8563705!4d106.6291304!16zL20vMDZuMnhx?hl=vi-VN
PA 54	Ha Giang	22.7662° N, 104.9389° E https://www.google.com/maps/place/H%C3%A0+Gi-ang,+Vi%E1%BB%87t+Nam/@22.7788949,104.6736905,10z/data=!3m1!1e3!1s0x36cc79caead371b1:0x834878b09acb80a8!8m2!3d22.7662056!4d104.9388853!16zL20vMDI0bjdj?hl=vi-VN
PA 55		
PA 56		
PA 57		
PA 59	Hai Duong	20.9386° N, 106.3207° E https://www.google.com/maps/place/H%E1%BA%A3i+D%C6%B0%C6%A1ng,+Vi%E1%BB%87t+Nam/@20.958668,106.2274023,11z/data=!3m1!1e3!1s0x314a7af448e05235:0x82e957d1041d9053!8m2!3d20.9385958!4d106.3206861!16zL20vMDdtMTg1?hl=vi-VN
PA 60		
PA 61		
PA 94		
PA 95		
PA 62	Hung Yen	20.8526° N, 106.0170° E https://www.google.com/maps/place/H%C6%B0ng+Y%C3%AAn,+Vi%E1%BB%87t+Nam/@20.8100609,105.9403332,11z/data=!3m1!1e3!1s0x314a7af448e05235:0x82e957d1041d9053!8m2!3d20.8525711!4d106.0169971!16zL20vMDdtMWZ4?hl=vi-VN
PA 63		
PA 96		
PA 64	Thua Thien Hue	16.4674° N, 107.5905° E https://www.google.com/maps/place/Th%E1%BB%ABa+Thi%C3%AAn+Hu%E1%BA%BF,+Vi%E1%BB%87t+Nam/@16.3686343,107.3230359,10z/data=!3m1!1e3!1s0x31419c87726490f7:0xab1c0fcdf7cb84b5!8m2!3d16.467397!4d107.5905326!16zL20vMDYyNG5j?hl=vi-VN
PA 65		
PA 66		
PA 67		
PA 68		15.5394° N, 108.0191° E https://www.google.com/maps/place/Qu%E1%BA%A3ng+Nam,+Vi%E1%BB%87t+Nam/@15.5095641,108.0191!4d108.0191!16zL20vMDYyNG5j?hl=vi-VN
PA 69		
PA 70		

PA 71	Quang Nam	7.3149508,9z/data=!3m1!4b1!4m6!3m5!1s0x31420dd4e1353a7b:0xe49cabb166747679!8m2!3d15.5393538!4d108.019102!16zL20vMDRsZi9n?hl=vi-VN&entry=ttu
PA 72		
PA 73		
PA 74		
PA 75		
PA 76	Quang Ngai	15.0760° N, 108.7126° E https://www.google.com/maps/place/Quang+Ngai/@15.076,108.7126,10z/data=!3m1!1e3!1s0x31683eeca9160973:0x4da18d6e3239edb1!8m2!3d15.0759838!4d108.7125791!16zL20vMDZmNw1k?hl=vi-VN
PA 77		
PA 78	Binh Thuan	11.0904° N, 108.0721° E https://www.google.com/maps/place/Binh+Thuan/@11.0141029,107.923566,10z/data=!3m1!1e3!1s0x3176c3f2d68f59a1:0x2737428edf34c28e!8m2!3d11.0903703!4d108.0720781!16zL20vMDUzY3Bm?hl=vi-VN
PA 80	Khanh Hoa	12.2585° N, 109.0526° E https://www.google.com/maps/place/Khanh+Hoa/@12.3185715,108.7883157,10z/data=!3m1!1e3!1s0x31701b8ca8dcd395:0x69c20827322308ce!8m2!3d12.2585098!4d109.0526076!16zL20vMDdsX19w?hl=vi-VN
PA 81		
PA 82		
PA 83	Ninh Thuan	11.6739° N, 108.8630° E https://www.google.com/maps/place/Ninh+Thuan/@11.7379248,108.6112455,10z/data=!3m1!1e3!1s0x3170956e17fa09af:0xf8f5929e768e9e45!8m2!3d11.6738767!4d108.8629572!16zL20vMDdtMDFm?hl=vi-VN
PA 84		
PA 85		
PA 86	Dak Nong	12.2646° N, 107.6098° E https://www.google.com/maps/place/Dak+Nong/@12.2799563,107.3798706,10z/data=!3m1!1e3!1s0x3173b5ece644a927:0x7530e130f4a387ad
PA 87		
PA 88		

		!8m2!3d12.2646476!4d107.609806!16zL20vMDVo eGti?hl=vi-VN
PA 89	Gia Lai	13.8079° N, 108.1094° E
PA 90		https://www.google.com/maps/place/Gia+Lai,+Vi%E1%BB%87t+Nam/@13.7989509,107.6002884,9z/d
PA 91		

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	VMR0006	Methodology for installation of High efficiency firewood cookstoves	1.1
Methodology	AMS-I.E	Switch from non-renewable biomass for thermal applications by the user	12.0
CDM Sampling Standard	N/A	Sampling and surveys for CDM project activities and programme of activities	09.0
CDM Sampling Guideline	N/A	Sampling and surveys of CDM project activities and programmes of activities	04.0
Tool	30	Calculation of the fraction of non-renewable biomass	04.0

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

☐ Yes ☒ No

1.10.2 Registration in Other GHG Programs

Is the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

☐ Yes ☒ No

1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☒ Yes ☐ No

If yes:

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☒ Yes ☐ No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, “Carbon credits may be issued through the Verified Carbon Standard project ID 2923 for the greenhouse gas emission reductions and removals associated with TK90 and Ecozen stoves, manufactured by Viet Charcoal Production Company Limited in Di Su commune, My Hao District, Hung Yen Province, Vietnam, distributed by Sustainability Investment Promotion and Development Joint Stock Company (SIPCO)”.

☒ Yes ☐ No

Detail in Appendix 2 in this report.

1.12 Sustainable Development Contributions

The project activity helps in achieving following co-benefits, which contribute in sustainable development in host country.

a) Environment well-being:

- The project activity contributes to the reduction in GHG emission due to reduction in use of non-renewable biomass and it can ensure natural recovery of forests and/or reforestation.
- The project activity leads to reduction in indoor air pollutants from wood smoke and avoid smoke related health disorders.
- The reduction in non-renewable biomass consumption for cooking through efficient use leads to improved ecological balance.
- The project activity support fire prevention in the household kitchen.

b) Socio and Economic Benefits:

- Implementation of the project activity results in employment opportunities for people involved with installation, maintenance and distribution of these household biomass based cookers.
- The project activity improves the status of living of people in households cooking since the community level implementation of units of these kinds can be carried out at considerably lower costs. There be less dependence on firewood and its expenses and time associated with firewood buying and collection.
- Business development component of the project activity has resulted in the enhancement of capacity development and technical knowhow for moderately educated people in the community through workshops, seminars and training programs.
- The project alleviates the work burden of women and children as they have to spend less time to collect firewood for cooking.
- Community health issues such as chronic lung diseases, acute respiratory infections, cataracts, blindness, and adverse effects on pregnancy be decreased due to improvement of indoor air quality.

c) Technological benefit

The introduction of locally manufactured technology with improved energy efficiency helps in technological self-reliance in the area.

The project aligns with and contribute to sustainable development objectives outlined in Table 1 below.

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
Sequential row number	SDG Target number	Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator	Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)	Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.	Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.
1)	1.4	1.4.1. Proportion of population living in households with access to basic services.	Implemented activities to increase.	Provide 850,000 families in this monitoring period with greater access to basic services in the form of clean cooking technology.	The project will allow 850,000 households access to clean cooking technology over the lifetime of the project.

2)	3.9	3.9.1: Mortality rate attributed to household and ambient air pollution	Implemented activities to decrease	Reduce Household Air Pollution (HAP) due to cooking by using 850,000 improved cookstove in these households.	The project will lead to reduction in Household Air Pollution (HAP) thereby resulting in improved health conditions of end users, especially women and children who regularly cook in the kitchen.
3)	5.4	5.4.1. Project specific indicator: Proportion of time spent on unpaid domestic and care work, by sex, age and location	Implemented activities to decrease	Under the project scenario, women see a massive reduction in both the amount of fuelwood required for cook meal, and the amount of time taken to cook meal. They would be able to save 1 to 2 hours daily. They would also have time to engage in other employment opportunities	Under the project scenario, women will see a massive reduction in both the amount of fuelwood required for cooking, and the amount of time taken to cook. They would be able to save 1-2 hours daily. They would also have time to engage in other employment opportunities.
4)	7.1	7.1.2. Proportion of population with primary reliance on clean fuels and technology	Implemented activities to increase	With the installation of 850,000 ICSs in first project activity to replace traditional stove, the project improved energy efficiency in beneficiary homes and greater access to basic services in the form of clean cooking technology	The project will allow 850,000 households to gain access to clean cooking technology over the lifetime of the project
5)	8.3	8.3.1. Proportion of informal employment in total employment, by sector and sex	Implemented activities to increase	The project generated around 50 employment opportunities for assembling of ICSs, distribution of ICSs and post-sale operation & Maintenance of ICSs	The project is expected to employ a total of 50 people over the lifetime of the project

6)	13.0	13.2. Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	Reduce the total fuelwood usage in the project area to generate approximately 1,854,496 tCO ₂ e of emission reductions	The project is expected to achieve GHG emission reduction more than 20 million over the lifetime of 10 years of the project
7)	15.0	15.1.1. Forest area as a proportion of total land area	Implemented activities to increase	By replacing inefficient open cooking fires with 850,000 stoves in this monitoring period and performing energy efficiency improvements in improved cookstoves, the project activity help to save woody biomass.	By distributing 850,000 improved cookstove instead of traditional cookstove, the project help reduction in demand for firewood.

1.13 Commercially Sensitive Information

The project activity involves distribution of improved cookstove to individual household. There is no commercially sensitive information so this section is not applicable

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification

The stakeholders have been identified as individuals or groups that are potentially affected by the project and within each of the following categories: government, international government agencies, non-governmental organizations, religious aid agencies, academic, current, and potential future implementing partners, stove manufactures, carbon sector organizations, partner donors, the media, individuals, and their families.

Stakeholders can be defined by three steps approach as following:

Step 1: The first step is to identify the expected and unforeseen consequences of the project's activities. Once the outcomes are determined, the potential stakeholders affected by these impacts are identified.:

Step 2: Following the holistic perspective on the overall benefits and co-benefits of the project, stakeholder group identification is carried out as each stage of project implementation. The examination for stakeholder identification per different stages are as follows:

- Project Initiation: stakeholders include self-help groups such as Women Union or Youth Group who can assist the project initiator in understanding the project benefits

	and potential impediments, making ingress within the community... • Project Development: At this step, stakeholders include government representatives, community development organisations, investors, NGOs working in defined groups, etc • Project Implementation: End-users, implementing partners, stove manufacturers, training personnel. The PPs has signed contract with Provincial's women Union, this is an agency with all levels from central to local (village, hamlet), they are close the households and can know exactly these households who are using the traditional cookstove and they can select the correct beneficiaries. • Project monitoring (validation and verification): surveyors, database developers, end-users involved in project monitoring. Almost of project stakeholders affected by project activity identified in the step 2 by SIPCO. Step 3: Select representatives from each stakeholder identified in step 2 as the final step of the identification process. The final list of stakeholder includes end users, representative of Women Union, government authorities, local NGOs and business, local vendor, ICS manufacturers. The full list of identified stakeholders has been provided to the VVB as a supportive document.
Legal or customary tenure/access rights	The project activity involves distribution of ICSs to households and it is not involve any legal or customary tenure/access rights to territories and resources. So, this section is not applicable
Stakeholder diversity and changes over time	Each stakeholder is defined as a group composed of individual stakeholders who derive similar income, livelihood, well -being and/or cultural values from the project and whose values are different from those of other groups. There are many stakeholders identified at period of project activity, from starting, development, implementation

	and monitoring. There is insignificant change in stakeholders' diversity and therefore have no real impact on their opinion during the monitoring period. - ICS user: there has been an unquantifiable improvement in their health, livelihood, wellbeing, and income as per exchange during onsite survey. - Women Union: No change in structure & functionality or any organization values. - Local vender: Various local businesses supply wood in the project area. Project activity helps save wood in cooking so influence consumption of these products and could thus negatively affect vendor livelihoods. - Manufacturer: More jobs for their employee in manufacturing, transportation and maintenance ICSs. - Other governmental authority and NGOs: No change was observed in structure & functionality.
Expected changes in well-being	- The project activity is contributing to the reduction in GHG emission due to reduction in use of non-renewable biomass and it can ensure natural recovery of forests and/or reforestation. - Community health issues such as chronic lung diseases, acute respiratory infections, cataracts, blindness, and adverse effects on pregnancy are decreasing due to improvement of indoor air quality. - The introduction of locally manufactured technology with improved energy efficiency helps in technological self-reliance in the area
Location of stakeholders	All the stakeholders are operating and living in the area of project activity which is in the geographical boundary of Vietnam country..
Location of resources	Have no change in location of resource during the monitoring period. - ICS user: they still freely access to local forest around their household to collect wood fuel. - Local vender: They still can supply wood in the project area.

- Women Union and local NGOs and government: They have no change in structure & functionality, they are still operating in Vietnam and access to the same resources

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	The PP is maintaining ongoing communication with stakeholders through different measures. 1) During the monitoring survey, project has taken the chance to update information to different stakeholders, and collected comments through interviews, surveys, direct observations, group discussions. The PP also conducts and reports the monitoring result from the random sampling of to all stakeholders on annually basis. 2) Staff of SIPCO and Women Union of the villages communicates & collects end-users' comments through regular visits to household at least 1 time per year. 3) Through monitoring survey trip, the field team managers also actively organize and conducts group discussions with different stakeholders The data from these interactions is compiled into annual reports and updated to the Women Union & local governmental authority. Through the ongoing communication process, all the implementation information, such as the results of monitoring, the risks, costs and benefits the project and the plan of site visit from verification body has been updated timely to the stakeholders. In addition, the PP also updates workers on relevant law and applicable regulation (if any) and conduct additional educational services as requested by the beneficiary.
Date(s) of stakeholder consultation	30/07/2023, the date of SIPCO send the report of this monitoring period to Women Union.
Communication of monitored results	The monitored results have been shared with Woman Union & relevant stakeholders through annual reports include the information of

	1) The list of households has been selected for survey The summarize of the result of SIPCO's representative sample conduct survey.
Consultation records	All formal consultation are logged in the consultation forms. Forms saved for record of correspondence
Stakeholder input	During this ongoing communication, some household hope the manufacture can increase the size of project stove to cook more thing, And the manufacturer has taken note and research the way to design the cookstove accordingly. However, the change of size of project stove is not suitable at this time due to cost issue.

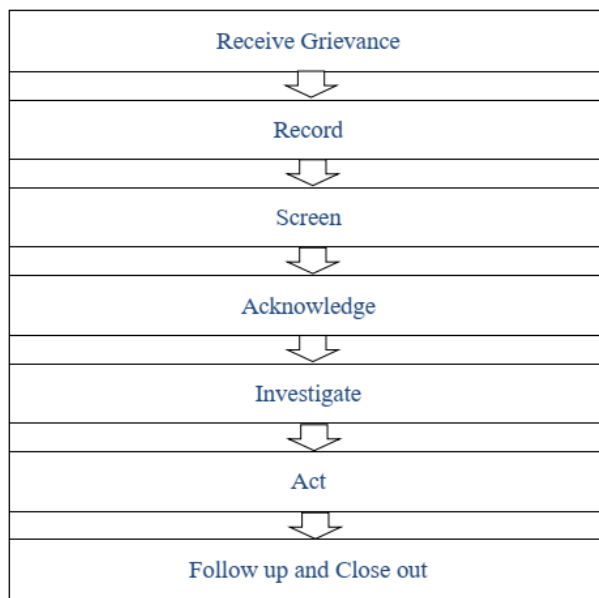
2.1.3 Free, Prior, and Informed Consent

Consent	The project activities take place with the approval of Commune People's Committee in a series of consultation meetings as documented. In addition, ICS is a completely voluntary activity and households in participating villages are free to choose whether they take part or not. Free, prior, and informed consent takes place before installation.
Outcome of FPIC	The project activity involves distribution of improved cookstove to individual households and it has not encroached on land, relocated people. All of information is transparency.

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
There is no the grievance raised during this monitoring period.	Not Applicable.

The grievance mechanism process could be illustrated as below:



- **Receive Grievance**

The grievance could be received by all means, such as in person/over the phone, via email/website.

- **Record**

All formal grievances are logged in the External Grievance Register and Grievance Lodgment Forms were saved for record of correspondence.

- **Screen**

The stakeholder contact officer is responsible for assigning a grievance owner to liaise with the external stakeholders and work on a resolution. Grievances screened depending the level of severity in order to determine who the grievance owner will be and how the grievance is approached.

- **Acknowledge**

A grievance is acknowledged, the grievance owner, within two working days of a grievance being submitted. Communication is made either verbally or in written form.

The acknowledgement of a grievance should include a summary of the grievance, method that is taken to resolve the grievance and an estimated timeframe in which the grievance is resolved. If required, the acknowledgement provides an opportunity to ask for any additional information or to clarify any issues.

- **Investigate**

The grievance owner is responsible for investigating the grievance. The investigation may require the grievance owner to make site visits, consult employees, contact external stakeholders and complete other activities. Records of meetings, discussions and activities all need to be recorded during the investigation. Information gathered during the investigation is analyzed and assist in

determining how the grievance is handled and what steps need to be taken in order to resolve the grievance.

- **Act**

Following the investigation, the grievance owner uses the findings to create an action plan outlining steps to be taken in order to resolve the grievance. The grievance owner is responsible for assigning actions, monitoring actions undertaken and making sure deadlines are adhered to. Once all actions have been completed and the grievance owner feels the grievance has been resolved, they then formally advise the external stakeholder via their preferred method of contact.

- **Follow up and close out**

The grievance owner make contact with the external stakeholder/s three weeks after the grievance is resolved. When contacting the external stakeholder, the grievance owner verify that the outcome was satisfied and also gather any feedback on the grievance process.

Minutes of the meeting is recorded and saved.

If required, the grievance owner may need to follow up with the external stakeholder on numerous occasions to confirm all parties are satisfied.

The procedure is accessible to stakeholders for ongoing consultation, but there is no any grievance received in this monitoring period.

2.1.5 Public Comments

Feedback was requested from local stakeholders for the “Grouped projects for Viet Nam Cookstove program” in period from 01 Dec 2022 to 30 Jun 2023 sent to SIPCO. There were no negative or adverse comments received from stakeholders in this monitoring period

2.2 Risks to Stakeholders and the Environment

Risk identified		Mitigation or preventative measure taken
Risks to stakeholder participation	No risk identified	The project activity involves distribution of improved cookstove to individual household. There is no trade-off or any negative impact to their livelihood, land, food, etc. therefore, no any risk identified to stakeholder participation
Working conditions	No risk identified	Project activities create jobs for local people, help them from unemployed to employed. All of working condition such as working

		hour, clothes, environment... as per Viet Nam's Labor Law. therefore, no any risk identified to working condition
Safety of women and girls	No risk identified	The project activity help reduce the proportion of time rural women spend on unpaid domestic work related to collection of firewood, Therefore, no any risk identified relate to safety of women and girls.
Safety of minority and marginalized groups, including children	No risk identified	The project alleviate the work burden of children and minority and marginalized grouped as they have to spend less time to collect firewood for cooking. Therefore, no any risk identified relate to safety of minority and marginalized grouped
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	No risk identified	The project activity involves distribution of improved cookstove to individual household. The project activity reduce air pollutants from wook smoke and improve the air quality indoor.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

Discrimination and sexual harassment	The project participants do not discriminate based on gender and ensure that an equal number of women and members of other underrepresented groups have the opportunity to apply. As part of our commitment to having a diverse and inclusive workplace, we have zero tolerance for harassment and bullying.
Management experience	SIPCO has many years of experiences in implementing similar project activities and engaging communities. We have policies in place to inform management and employees about the avoidance of corruption, code of conduct, and business ethics. These policies are applied by all project staff, including company management to

	ensure that the organization is run in accordance with all legal requirements and is held to the highest standards of operation
Gender equity in labor and work	The project also encourages women in the local communities to take up employment as per their skills, and I provide training to all staff regardless of gender. The company as per its human resource policy ensures fair opportunity and equal pay for equal work done to both men and women. Furthermore, the project activity provides more opportunities to women through self-help groups, thus helping in overall women empowerment
Human trafficking, forced labor, and child labor	SIPCO does not tolerate child labor or forced, involuntary or trafficked labor in any form. Victimization at work, such as recurring negative actions directed against individual employees, is not permitted. All employees shall treat one another with respect, dignity and common courtesy.

2.3.2 Human Rights

The contractor, synonymous with implementing partner, enters into an independent contractor agreement with SIPCO. The agreement contains details of SIPCO's and the contractor's compliance according to Viet Nam labor laws. Specific information is provided on anti-terrorism and anti-corruption efforts, including a code of conduct. As per the Core Labour Conventions of the International Labour Organization (ILO), SIPCO respects, and works in tandem with the elimination of all forms of forced or compulsory labour, the effective abolition of child labour, minimum age convention, the right to organize, and the elimination of discrimination in respect of paid positions and occupation.

2.3.3 Indigenous Peoples and Cultural Heritage

N/A

The project activity involves distribution of improved cookstove to individual households and it is not involve any indigenous peoples and cultural heritage.

2.3.4 Property Rights

Disputes over rights to territories and resources	Not applicable
Respect for property rights	The project activity involves distribution of improved stove to individual households and it is not involve any property right removal/relocation of property rights holders.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	Not applicable because the project activity does not have any impacts property right
Benefit sharing during the monitoring period	Not applicable because the project activity does not have any impacts property right.

2.4 Ecosystem Health

Risk identified		Mitigation or preventative measure taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	The implementation of the grouped project does not impose any severe impacts on the ecological system in the surrounding areas. This project activity helps in reducing the consumption of fuel wood by efficient fuel combustion thereby reducing deforestation and reducing indoor air pollution. The use of efficient Cooking Stove technology reduce adverse environmental and social impacts associated with the use of non-renewable biomass. The reduced consumption of the stated baseline fuel has sustainable benefit for all household's traditional cook stoves users included in the project activity. The implementation of the project reduce workloads involved in fuel collection, and by reducing indoor air pollution, reduce the risk of respiratory diseases, especially for women and children. Efficient or improved Cooking stoves also contribute to environment protection by reducing biomass consumption and hence greenhouse gas emissions, mainly CO₂, when the combusted biomass originates from non-renewable stocks. Therefore, it has no impact to ecosystem health, so this section is not applicable.
Soil degradation and soil erosion	No risk identified	
Water consumption and stress	No risk identified	
Usage of fertilizers	No risk identified	

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	Not applicable because there is no ecosystem impact were identified during validation
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2.4.2 Introduction of species

It is not applicable since project not introduce any species.

2.4.3 Ecosystem conversion

It is not applicable since project do not involve any ecosystem conversion.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Table 02: Timeline of project activities (PAs)

Project activity	Steps	Timeline
Grouped project	Registration date	25/11/2022
PA 1	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	07/01/2022
	Inclusion date	25/11/2022
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 07th Jan to 06th May 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICSs
PA 2	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	13/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	1,500 ICSs were distributed from 13th to 29th April 2022 8,500 ICSs were distributed from 01st to 09th August 2022

	Total of ICSs have been distributed as on 30/06/2023	10,000 ICSs
PA 3	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	01/08/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 01st to 08th August 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICSs
PA 4	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	14/10/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	5,000 ICSs were distributed from 14th to 16th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	5,000 ICSs
PA 5	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	17/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 17th to 22nd April 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 6	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	20/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 20th April to 12th June 2022

	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 7	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	12/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	6,228 ICSs were distributed from 12th to 20th June 2022 3,772 ICSs were distributed from 16th to 19th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 8	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	14/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	4,000 ICSs were distributed from 14th to 16th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	4,000 ICS
PA 10	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	01/03/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 15th May to 15th Jun 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 11	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	15/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	2,180 ICSs were distributed on 15 Jun 2022 2,820 ICSs were distributed from 09th to 17th Nov 2022

	Total of ICSs have been distributed as on 30/06/2023	5,000 ICS
PA12	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	17/05/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	5,036 ICSs were distributed from 17th to 19th May 2022
	Total of ICSs have been distributed as on 30/06/2023	5,036 ICS
PA13	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	2,860 ICSs were distributed on 05th July 2022
	Total of ICSs have been distributed as on 30/06/2023	2,860 ICS
PA14	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	07/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 07th April to 06th May 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA15	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	14/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 14th to 22nd July 2022

	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA16	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	16/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	3,515 ICSs were distributed from 16th July to 09th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	3,515 ICS
PA17	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	18/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	5,000 ICSs were distributed from 18th July to 05th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	5,000 ICS
PA18	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	08/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 8th July to 4th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA19	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	04/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	7,581 ICSs were distributed from 4th to 6th Sep 2022

	Total of ICSs have been distributed as on 30/06/2023	7,581 ICS
PA20	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	6,000 ICSs were distributed from 05th to 19th June 2022 4,000 ICSs were distributed on 18th July 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA21	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	09/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 9th to 24th July 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA22	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	22/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 22nd to 24th July 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA23	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	11/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	3,580 ICSs were distributed on 11th June 2022 6,420 ICSs were distributed from 3rd to 21st July 2022

	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA24	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	21/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 21st July to 4th Aug 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 25	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	04/08/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 4th to 15th Aug 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 26	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	12/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 12th to 15th April 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 27	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	12/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 12th April to 5th June 2022

	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 28	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 5th to 7th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 29	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	01/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 1st Sep to 1st Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 30	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	01/10/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	5,000 ICSs were distributed from 1st to 7th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	5,000 ICS
PA 31	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	10/05/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 10th May to 2nd Jun 2022

	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 32	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	16/05/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	20 ICSs were distributed on 16th May 2022 3,298 ICSs were distributed from 5th to 11th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	3,318 ICS
PA 33	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	08/01/2023
	Inclusion date	To be included in this monitoring period.
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 8th to 10th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 34	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	10/05/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/11/2022 (number of ICSs distributed)	6,800 ICSs were distributed from 10th May to 2nd Jun 2022 3,200 ICSs were distributed on 2nd Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 35	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	02/01/2023
	Inclusion date	To be included in this monitoring

	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 2nd to 7th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICSs
PA 36	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	02/01/2023
	Inclusion date	To be included in this monitoring
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 2nd to 7th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	10,000
PA 37	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	18/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	4,589 ICSs were distributed from 18th April to 15th May 2022 5,411 ICSs were distributed from 18th to 25th Jul 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 38	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	18/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 18th July to 18th Aug 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 39	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/08/2022

	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 5th to 18th August 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 40	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/08/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 5th to 13th August 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 41	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/08/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 05th August to 11th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 42	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	03/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 3rd to 4th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 43	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	04/09/2022
	Inclusion date	20/04/2023

	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 4th to 13th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 44	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	04/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	2,861 ICSs were distributed from 4th to 13th Sep 2022 7,139 ICSs were distributed from 3rd to 11th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 45	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	22/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	5,100 ICSs were distributed on 22nd April 2022 4,900 ICSs were distributed from 13th to 14th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 46	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	07/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 7th Sep to 22nd Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 47	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	12/10/2022

	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 12th to 22nd Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 48	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	18/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 18th to 22nd Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 49	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	22/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	9,980 ICSs were distributed from 22nd Sep to 14th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	9,980 ICS
PA 51	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	21/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 21st Sep to 14th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 52	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	08/10/2022
	Inclusion date	20/04/2023

	Implementation status as on 30/06/2023 (number of ICSs distributed)	7,000 ICSs were distributed from 8th to 11th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	7,000 ICS
PA 53	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	28/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed is from 28th July to 13th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 54	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	10/05/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 10th May to 13th Jun 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 55	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	13/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	6,150 ICSs were distributed from 13th to 24th Jun 2022 3,850 ICSs were distributed from 6th to 9th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 56	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	06/10/2022
	Inclusion date	20/04/2023

	Implementation status as on 30/06/2023 (number of ICSs distributed)	5,010 ICSs were distributed from 6th to 13th Oct 2022 4,990 ICSs were distributed from 11th to 18th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 57	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	11/12/2022
	Inclusion date	To be included in this monitoring.
	Implementation status as on 30/06/2023 (number of ICSs distributed)	4,010 ICSs were distributed from 11th to 16th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	4,010 ICS
PA 59	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/08/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 5th Aug to 14th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 60	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	10/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 10th Sep to 10th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 61	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	07/11/2022
	Inclusion date	20/04/2023

	Implementation status as on 30/06/2023 (number of ICSs distributed)	9,725 ICSs were distributed from 7th to 11th Nov 2022 275 ICSs were distributed on 5th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 62	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	20/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	200 ICSs were distributed on 20th July 2022 6,644 ICSs were distributed from 12th to 15th Dec 2022 3,156 ICSs were distributed from 3rd to 6th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 63	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	02/01/2023
	Inclusion date	To be included in this monitoring
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 02nd to 06th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 64	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	04/07/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 4th July to 21st Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
	Start date of second crediting period	01/12/2022

PA 65	Project start date (the first equipment distributed)	14/10/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 14th Oct to 27th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 66	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	21/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 21st to 27th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 67	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	21/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 21st to 22nd Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 68	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	23/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 23 to 26th April 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
	Start date of second crediting period	01/12/2022

PA 69	Project start date (the first equipment distributed)	23/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	• 2,480 ICSs were distributed from 23rd April to 15th Jun 2022 • 7,520 ICSs were distributed from 1st to 10th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	• 10,000 ICS
PA 70	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	08/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	• 10,000 ICSs were distributed from 8th to 23rd Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	• 10,000 ICS
PA 71	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	10/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	• 10,000 ICSs were distributed from 10th to 19th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	• 10,000 ICS
PA 72	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	03/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	• 10,000 ICSs were distributed from 3rd to 16th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	• 10,000 ICS

PA 73	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	07/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 7th to 19th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 74	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	01/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	8,376 ICSs were distributed from 1st to 17th Nov 2022 1,624 ICSs were distributed from 15th to 19th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 75	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	15/12/2022
	Inclusion date	To be included in this monitoring
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 15th to 19th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 76	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	16/08/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 16th Aug to 10th Sep 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS

PA 77	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	06/09/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 6th Sep to 8th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 78	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	30/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	528 ICSs were distributed on 30th June 2022
	Total of ICSs have been distributed as on 30/06/2023	528 ICS
PA 80	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	18/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	5,460 ICSs were distributed from 18th to 26th June 2022 4,540 ICSs were distributed from 1st to 3rd Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 81	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	06/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 6th to 19th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS

PA 82	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	03/11/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 3rd to 16th Nov 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 83	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	16/06/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	8,200 ICSs were distributed on 16th Jun 2022 1,800 ICSs were distributed on 27th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 84	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	21/12/2022
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 21 st to 27 th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 85	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	21/12/2022
	Inclusion date	To be included in this monitoring period

	Implementation status as on 30/06/2023 (number of ICSs distributed)	3,302 ICSs were distributed on 21st Dec 2022 6,354 ICSs were distributed from 1st to 3rd Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	9,656 ICS
PA 86	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	09/05/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	8,250 ICSs were distributed from 9th to 26th May 2022 1,750 ICSs were distributed from 16th to 20th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 87	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	16/12/2022
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 16th to 20th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 88	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	16/12/2022
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	2,793 ICSs were distributed from 16th to 20th Dec 2022 5,551 ICSs were distributed from 8th to 9th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	8,344 ICS
	Start date of second crediting period	01/12/2022

PA 89	Project start date (the first equipment distributed)	11/05/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 11th May to 3rd Jun 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 90	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	04/10/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 4th to 24th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 91	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	09/10/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 9th to 28th Oct 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 92	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	08/12/2022
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 8th to 11th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
	Start date of second crediting period	01/12/2022

PA 93	Project start date (the first equipment distributed)	06/12/2022
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	6,470 ICSs were distributed from 6th to 8th Dec 2022 3,530 ICSs were distributed from 13th to 14th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 94	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	01/12/2022
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 1st to 6th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 95	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	05/12/2022
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 5th to 8th Dec 2022
	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 96	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	03/01/2023
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	10,000 ICSs were distributed from 3rd to 6th Jan 2023

	Total of ICSs have been distributed as on 30/06/2023	10,000 ICS
PA 97	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	29/04/2022
	Inclusion date	20/04/2023
	Implementation status as on 30/11/2022 (number of ICSs distributed)	1,020 ICSs were distributed from 29th April to 6th May 2022
	Total of ICSs have been distributed as on 30/11/2022	1,020 ICS
PA 98	Start date of second crediting period	01/12/2022
	Project start date (the first equipment distributed)	13/01/2023
	Inclusion date	To be included in this monitoring period
	Implementation status as on 30/06/2023 (number of ICSs distributed)	3,152 ICSs were distributed on 13th Jan 2023
	Total of ICSs have been distributed as on 30/06/2023	3,152 ICS

3.2 Deviations

3.2.1 Methodology Deviations

There has been a change about the value of f_{nr} “Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass”. The f_{nr} is 0.8813 according to the independent report by third Party. Since the result is quite high so PPs want a conservative approach so the uncertainty deduction for f_{nr} of 0.26 is applied as per the latest version of methodology VMR 0006 “Energy efficiency and fuel switch measures in thermal applications”. Version 1.2, So, the updated value = $0.8813 * (1-0.26) = 0.6522$ is applied for ER calculations and monitoring report from this monitoring period.

The deviation reduces the emission reduction; it does not negatively impact on the conservativeness of the quantification of reduction or removals.

3.2.2 Project Description Deviations

There has been a change about the value of f_{nr} “Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass”. The f_{nr} is 0.9403, was

calculated as per tool30 “Calculation of the fraction of non-renewable biomass” version 03 as per the independent report by third Party. This value was approved in registered PD on 25/11/2022. Since the result is quite high so PPs want a conservative approach. Currently, the tool has been updated to version 04, according to the updated tool, the f_{NRB} was recalculated and resulted as 88.13%. The analysis was independently completed by C4 Ecosolutions (Pty) Ltd, below:

The fraction of harvested biomass that can be established as non-renewable biomass is the f_{nrB} . This fraction ranges between 0 and 1, where 0 indicates that 100% of harvested biomass is renewable (0% is non-renewable) and 1 indicates that 100% is non-renewable. The following equation is used to calculate f_{NRB} :

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

Where:

f_{NRB} = Fraction of non-renewable biomass

NRB = Non-renewable biomass (t/yr)

RB = Renewable biomass (t/yr)

The quantity of non-renewable biomass (NRB) is the difference between the annual biomass consumption (H) and the quantity of renewable biomass (RB), calculated by the following equation:

$$NRB = H - RB$$

Where:

H = Total woody biomass consumption in the absence of project activity (t/yr)

Renewable biomass is the product of the mean annual increment of woody biomass growth and the total extent of the forest and other wooded areas of the country where wood extraction is not prohibited or geographically remote, calculated by the following equation:

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

Where:

MAI = Mean annual increment of woody biomass in tonnes per hectare per year (t/ha/year)

F_{forest} = Extent of forest in the relevant period (ha)

F_{other} = Extent of other land in the relevant period (ha)

P_{forest} = Extent of non-accessible area within forest areas (ha)

P_{other} = Extent of non-accessible area within other land areas (ha)

i = Sub-category i of forest areas and other land areas

- ***Estimating Viet Nam's woody biomass consumption***

The total woody biomass consumption in a country comprises its domestic and non-domestic energy and non-domestic non-energy consumption. For Vietnam, this total is estimated using United Nations Statistics Division consumption data and World Bank population statistics.

The reported volumes of fuelwood consumed in cubic meters are converted to metric tonnes using the FAO default conversion factor. Finally, consumed volumes of commercial forest products — including manufacturing, construction and non-fuel industry — are converted to metric tonnes using a biomass conversion and expansion factor provided for the region

Table 1: Total 2021 population, woody biomass consumption, and per capita consumption estimates for Vietnam³.

³ United Nations Statistics Division. UN Data.
<https://data.un.org/Data.aspx?d=EDATA&f=cmID%3AFW> (2020)

FAO. *Global Forest Resources Assessment - Vietnam*.
<https://www.fao.org/3/cb0089en/cb0089en.pdf> (2020).

FAO. *Global Forest Resources Assessment - Vietnam*.
<https://www.fao.org/3/cb0089en/cb0089en.pdf> (2020)

FAO. *The charcoal transition. Greening the charcoal value chain to mitigate climate change and improve local livelihoods*. (2017)

Variable	Value	Source
Population		
Total	98,168,829	The World Bank ¹¹
Domestic woody biomass consumption		
Fuelwood consumption by households (t/yr)	5,415,879	Calculated
Domestic per capita consumption rates		
Fuelwood households (m ³ /capita/yr)	0.076	Calculated – UN STAT ⁷
Total Non-domestic (energy) wood consumption		
Fuelwood for transformation in charcoal plants (t/yr)	3,410,141	Calculated
Total Non-domestic (non-energy) wood consumption		
Total non-domestic (non-energy) (t/yr)	28,200,198	Calculated
Manufacturing, construction and non-fuel industry (m ³ /yr)	21,509,000	Calculated
Non-domestic per capita consumption per category		
Transformation in charcoal plants (m ³ /capita/yr)	0.076	Calculated – UN STAT ⁷
Manufacturing, construction and non-fuel industry (m ³ /capita/year)	0.221	Calculated – UN STAT ⁷
Conversion factors		
Wood density (t/m ³)	0.725	FAO ¹²
Biomass conversion and expansion factor (t/m ³)	1.300	FAO ¹⁰
Charcoal to wood biomass factor	4	CDM ⁹
Total woody biomass consumption (t/yr)	37,026,218	Calculated

- *Estimating renewable biomass (RB)*

Geospatial data products for Vietnam were analysed in to estimate the country's renewable biomass. The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the IPCC, were used for this calculation.

Table 2: Total, protected and remote forest cover extent, mean annual increment (MAI) and renewable biomass (RB) by Global Ecological Zone for Viet Nam.

Ecological Zone	Total forest cover (ha)	Protected cover (ha)	Remote cover (ha)	MAI (t/ha/yr)	Renewable biomass (t/yr)
Subtropical humid forest	449,647	13,536	112,574	0.85	274,021
Subtropical mountain system	74,563	327	16,967	0.52	29,494
Tropical dry forest	428,482	61,861	131,524	1.29	304,114
Tropical moist forest	5,105,505	1,236,174	1,373,969	0.84	2,096,596
Tropical mountain system	1,807,758	224,585	786,494	0.27	211,188
Tropical rainforest	3,179,349	501,257	1,598,386	1.31	1,413,108
Tropical shrubland	172,131	28,234	84,494	1.12	66,711
Total	11,217,436	2,065,975	4,104,408		4,395,232

- *The fraction of non renewable biomass (fnrb)*

The fraction of non-renewable biomass is the quotient of the non-renewable and the total biomass. The fraction of non-renewable biomass for Vietnam is, therefore, estimated to be 0.8813.

Table 3: Summary of the fraction of non renewable biomass (fnrb) calculation for Viet Nam

Variable	Value	Source
Total woody biomass consumption (t/yr)	37,026,218	Table 1
Renewable biomass (t/yr)	4,395,232	Table 2
Non-renewable biomass (t/yr)	32,630,986	Calculated
Fraction of non-renewable biomass	0.8813	Calculated

The resulting fNRB value is higher than the expected fNRB values determined using the WISDOM method, as reported by Bailis et al., 2015⁴ for the same region. While direct comparisons between the WISDOM and CDM methodologies are only sometimes appropriate, given the different approaches of the methodologies, the following factors can contribute to variations in the fNRB estimates between the two methods:

- More recent population statistics (2021) for Viet Nam were used in the present study. The more recent data represents an increase in population numbers since the 2009 data utilised by Bailis et al., 2015.
- Updated 2019 FAO forest products statistics were used in the present study, whereas the study conducted by Bailis et al., 2015 used 2013 FAO forest products statistics.
- Different methods are used to determine the accessibility which can result in significant differences in the estimated renewable biomass and consequently the fNRB value.
- Mean annual increments (MAI) were calculated using a weighted average based on the forest area of three categories (i.e. primary forests, above 20-year secondary forest, below 20-year secondary forest). Data from the 2019 Refinement of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories for 'Above-ground biomass growth rates for different ecological zones' was utilised. As per the Bailis et al., 2015 study, MAI values were derived from a combination of field observations and IPCC values, followed by an estimation of growth rates as a percentage of standing stock. This approach often yields higher MAIs compared to using only IPCC values and may lead to lower estimations of non-renewable biomass (NRB).

The deviation does not impact the applicability of the methodology, additionality, or the appropriateness of the baseline scenario, the project remains in conformance with the applied methodology.

⁴) Bailis, R.; Drigo, R.; Ghilardi, A. & Masera, O. (2015). The carbon footprint of traditional woodfuels. Nature Climate Change, 5(3), pp. 266–272

3.3 Grouped Projects

New project activity instances included under this grouped project ensure that it meets the eligibility criteria below.

No.	Eligibility criterion - Category	How the new project activity instances to comply	Supporting evidence for inclusion
1	Meet the applicability conditions set out in the methodology applied to the project.	The new project activity instance meet all applicability conditions of VMR0006: “Methodology for installation of high efficiency firewood cookstoves”, version 1.1, set out in section 3.2 of this project description.	The new project activities including PA33, PA35, PA36, PA57, PA63, PA75, PA84, PA85, PA87, PA88, PA92, PA93, PA94, PA95, PA96, PA98 meet all applicability conditions listed in section 3.2 of the final PD.
2	Use the technologies or measures specified in the project description	Each Instance under this Grouped project consist of the distribution of ICS with a thermal efficiency of at least 25% to household users cooking with non-renewable biomass in the baseline scenario. The instance consists of replacement of conventional firewood cookstoves for biomass fired ICS as defined in the Grouped project.	Only Ecozen and TK90 cookstoves, with the efficiency is 38.44% and 30.25% respectively to be adopted in the grouped project.
3	Apply the technologies or measures in the same manner as specified in the project description	Each instance under this grouped project shall consist of the distribution of ICSs with efficiency improvements in thermal applications of non-renewable biomass. ICS shall have a thermal efficiency of at least 25%.	Both TK90 and Ecozen Cookstove with efficiency of 30.25% and 38.44% respectively are included in the grouped project and these replace traditional cookstoves in household.
4	Are subject to the baseline scenario determined in the project description for the specified project	Are installed within the geographic area specified in Section 1.12, thus subject to the same baseline scenario determined in Section 3.3. The baseline scenario is	The new project activities have been implemented in the households of 30 provinces in Viet Nam, detail below: • Ha Tinh Province: PA33, PA92, PA93, PA98 • Lam Dong Province: PA35,

	activity and geographic area.	continued use of non-renewable wood fuel (firewood) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity. The baseline cookstoves are traditional cookstoves or three stone fires using firewood or conventional device with no improved combustion air supply or gas ventilation.	PA36 • Ha Giang: PA57 • Hung Yen: PA63, PA96 • Quang Nam: PA75 • Ninh Thuan: PA84, PA85 • Dak Nong: PA87, PA88 • Hai Duong: PA94, PA95 Each household in new project activity instances must sign a beneficiary agreement to commit that they are using traditional stove or three stone fires using firewood to cook meal. Therefore, the criteria is satisfies
5	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	All new project activity instances use the activity method for demonstration of additionality. Step 1: Regulatory Surplus There is no mandated government programme or policy in host country of this project ensuring the distribution of new project activity instances. Step 2: Positive List The inclusion of new project activity instances comply with positive list as it satisfies criterion 1 where it meets all the applicability conditions of the methodology	The new project activities eligible when the CME have provided the confirmation that the ICSs are distributed for free to the Users.
6	Conditions that avoid double counting of emission reductions.	The new project activity instances are: 1. Apply a unique system (i.e. conformity letter) for ICS in each project instance, assigning a unique ID to each ICS and allowing to clearly identify each ICS and to which project instance it belongs. 2. Each ICS installed include project instance assignment and have corresponding end user details (i.e. name, address). This data was recorded as part of the	Each ICS in project activity instance is uniquely identifiable and not part of any other CDM registered project or CPA of other PoA. The ICS carry unique IDs comprised of the project instance number, ICS number and household subscribed to each ICS. The labels are below: PA33: ICS-N033-00001 to ICS-N033-10000

		beneficiary agreement and Project database. The CME has an agreement in place with residents who use ICS in the project instance in which the owner transfers the rights to the emissions reductions exclusively to the CME as part of the Carbon Rights Waiver within the Beneficiary agreement..	PA35: ICS-N035-00001 to ICS-N035-03515 PA36: ICS-N036-00001 to ICS-N036-10000 PA57: ICS-N057-00001 to ICS-N057-04010 PA63: ICS-N063-00001 to ICS-N063-10000 PA75: ICS-N075-00001 to ICS-N075-10000 PA84: ICS-N084-00001 to ICS-N080-10000 PA85: ICS-N085-00001 to ICS-N085-08344 PA87: ICS-N087-00001 to ICS-N087-10000 PA88: ICS-N088-00001 to ICS-N088-08344 PA92: ICS-N092-00001 to ICS-N092-10000 PA93: ICS-N093-00001 to ICS-N93-10000 PA94: ICS-N094-00001 to ICS-N094-10000 PA95: ICS-N095-00001 to ICS-N095-10000 PA96: ICS-N096-00001 to ICS-N096-10000 PA98: ICS-N098-00001 to ICS-N098-03152
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7	Capacity Limit	Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows: 1) Each project activity instance that exceeds one percent of the capacity limit shall be identified. 2) Such instances shall be divided into clusters, where by each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters. 3) None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit	The new project activities have energy saving do not exceed the applicable limit, which is 180 GWhth/y. - For CPAs use TK90 stove: The maximum energy saving is 99 GWhth/PA (Detail in ER sheet) - For CPAs use Ecozen stove, the maximum energy saving 141 GWhth/PA (Detail in ER Sheet) The annual energy saving for each ICS of project activity instance is below 1% (1.8 GWhth) of the limit. Detail below: - For TK90 stove: 0.0099 GWhth <1.8 GWhth - For Ecozen stove: .0.014 GWhth<1.8 GWhth Therefore, no project activity instance is identified and divided into clusters and thus the limit does not apply to the proposed grouped project.
8	Target group	Each project instance target end users which includes households who use traditional cookstove to cook meal.	The new project activity instance satisfies the criteria. Each households in project activity instances must sign a beneficiary agreement to commit that they are using traditional cookstove to cook meal.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	η_{old}
Data unit	Percentage
Description	Efficiency of pre project device
Source of data	Default value as per applied methodology
Value applied	10
Justification of choice of data or description of measurement methods and procedures applied	The default value of 10% is used as the replaced system is a three stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, i.e. without a grate or a chimney.
Purpose of Data	Calculation of emission reduction
Comments	The value is fixed ex - ante

Data / Parameter	$f_{NRB,y}$
Data unit	%
Description	Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass
Source of data	Independent Report by third Party
Value applied	65.22
Justification of choice of data or description of measurement methods and procedures applied	Tool30 "Calculation of fraction of non- renewable biomass" version 04.0 was used to calculate f_{NRB} values. Project proponents considered the area where biomass is sourced and justify the selection of the area in project design documents. For this project, secondary data is used to determine the parameter as per the calculation of the fraction of non-renewable biomass, Version 04. The analysis was independently completed by third party. With regards to the calculations, the third party analyze the f_{NRB} based on satellite data availability, Geographic Information System (GIS) and data modelling which provided the most reliable measuring method.

	The value is calculated as 0.8813, however the uncertainty deduction for fnrb of 0.26 is applied as per the latest version of methodology, So, the value of 0.6522 is applied for ER calculations as a conservative approach from this monitoring period, this reduce risk of over crediting, the applied fNRB is the lowest value ever in Viet Nam in several carbon registries.
Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	NCV _{wood fuel}
Data unit	TJ/Tonne
Description	Net calorific value of the non-renewable woody biomass that is substituted or reduced
Source of data	2006 IPCC default for wood fuel
Value applied	0.0156
Justification of choice of data or description of measurement methods and procedures applied	IPCC Default value
Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	EF _{wf,CO2}
Data unit	tCO2/TJ
Description	CO2 emission factor for the use of wood fuel in baseline scenario.
Source of data	2006 IPCC
Value applied	112
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value

Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	$EF_{wf,nonCO2}$
Data unit	tCO ₂ /TJ
Description	Non-CO ₂ emission factor for the use of wood fuel in baseline scenario.
Source of data	2006 IPCC
Value applied	26.23
Justification of choice of data or description of measurement methods and procedures applied	IPCC default value
Purpose of Data	Calculation of baseline emission
Comments	This parameter shall remain fixed for the monitoring periods

Data / Parameter	η_p
Data unit	fraction
Description	Efficiency of the project device at the start of project activity
Source of data	Manufacturer's specification
Value applied	- TK 90: 0.3025 - Ecozen: 0.3844
Justification of choice of data or description of measurement methods and procedures applied	This parameter shall be determined ex ante
Purpose of Data	Calculation of $n_{new,i,j}$
Comments	-

4.2 Data and Parameters Monitored

Data / Parameter	$N_{y,i,j}$
Data unit	Number
Description	Number of project devices of type i and batch j operating during year y .
Source of data	Monitoring
Description of measurement methods and procedures to be applied	Measured directly or based on a representative sample.
Frequency of monitoring/recording	At least once every two years
Value applied	850,000
Monitoring equipment	Monitoring survey
QA/QC procedures to be applied	Sampling standard was used for determining the sample size to achieve 95/10 confidence precision according to the latest version of Standard for sampling and surveys for project activities and programme of activities.
Purpose of data	Calculation of baseline emissions
Calculation method	Proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value. Proportion of operational stoves: 100% $N_{y,i,j} = 100\% * 850,000 = 850,000$
Comments	Proportion of operational stoves obtained from the survey is multiplied by the total commissioned stoves to arrive at this value

Data / Parameter	$\eta_{new,y,i,j}$
Data unit	Fraction
Description	Efficiency of the device of each type i and batch j implemented as part of the project activity
Source of data	Calculation

Description of measurement methods and procedures to be applied	To adopt Option 5 given in the methodology: “Efficiency of the improved cookstoves to be estimated using equation 5 above where loss in efficiency per year is calculated, and therefore this parameter does not need to be monitored”									
Frequency of monitoring/recording	Annually									
Value applied	The value below is applied <table><tr><th>Year (y)</th><th>$\eta_{new,i,j}$, TK90</th><th>$\eta_{new,i,j}$, Ecozen</th></tr><tr><td>1</td><td>0.2844</td><td>0.3613</td></tr><tr><td>2</td><td>0.2815</td><td>0.3577</td></tr></table>	Year (y)	$\eta_{new,i,j}$, TK90	$\eta_{new,i,j}$, Ecozen	1	0.2844	0.3613	2	0.2815	0.3577
Year (y)	$\eta_{new,i,j}$, TK90	$\eta_{new,i,j}$, Ecozen								
1	0.2844	0.3613								
2	0.2815	0.3577								
Monitoring equipment	Calculated value									
QA/QC procedures to be applied	-									
Purpose of data	Calculation of baseline emission									
Calculation method	-									
Comments	Calculation to be performed using equation below: $\eta_{new,y,i,j} = \eta_p \times (DF_n)^{y-1} \times 0.94$ For vintage of 1 of TK90: $\eta_{new,1,i,j} = 0.3025 \times 0.99^{1-1} \times 0.94 = 0.2844$ For vintage 2 of TK90 $\eta_{new,2,i,j} = 0.3025 \times 0.99^{2-1} \times 0.94 = 0.2815$ For vintage 1 of Ecozen: $\eta_{new,1,i,j} = 0.3844 \times 0.99^{1-1} \times 0.94 = 0.3613$ For vintage 2 of Ecozen: $\eta_{new,2,i,j} = 0.3844 \times 0.99^{2-1} \times 0.94 = 0.3577$									
Data / Parameter	$B_{y=1,new,i,j,survey}$									
Data unit	Tonnes									
Description	Quantity of woody biomass used by project devices in tonnes per device of type i.									

Source of data	Monitoring survey
Description of measurement methods and procedures to be applied	Sampling standard “sampling and surveys for CDM project activities and programme of activities” version 9 was used for determining the sample size This value was determined within the first year of the introduction of the devices through sample surveys.
Frequency of monitoring/recording	Determined in the first year of project implementation.
Value applied	1.242
Monitoring equipment	Weighing scale
QA/QC procedures to be applied	Calibration of weighing scales used for measuring the fuel wood was done in house before start using on site.
Purpose of data	Calculation of baseline emissions
Calculation method	-
Comments	At the time of first monitoring survey, the surveyor enquired for firewood consumption for each stove installed in the household. During the first monitoring period, sampling survey has been conducted across all batches available during the monitoring period (e.g 78 PAs within 30 provinces). The value, sampling method, etc has been provided & approved in the first MR. This is already the second years of project implementation so there is no requirement to conduct the monitoring survey again for this parameter as per applied methodology & registered VCS PD.

Data / Parameter	Life span
Data unit	Number of years
Description	The operating lifetime of the project device. The life span should be reported if the methodology equation 5 is adopted to determine the project stove efficiency
Source of data	Manufacture’s specification
Description of measurement methods and procedures to be applied	PP conduct periodic audits and surveillance of the stoves that were distributed under the project activity to ensure their proper functioning throughout the project lifetime. This along with spot audits and after installation maintenance services, ensure that

	the project stoves continue to work at efficiencies as specified by the manufacturer.
Frequency of monitoring/recording	Once at the time of project stove installation
Value applied	10
Monitoring equipment	
QA/QC procedures to be applied	
Purpose of data	For calculation of baseline emission
Calculation method	-
Comments	

4.3 Monitoring Plan

(a) Sampling Methodology

Representative sampling is undertaken that is designed in line with the requirements of the VMR0006 methodology applied and the “Standard for sampling and surveys for CDM project activities and programme of activities”, version 09.0. This sampling plan follows the recommended outline as contained in “Guidelines for sampling and surveys for CDM project activities and programme of activities”, version 04.0.

Monitoring Parameters

Parameter	Description	Parameter type /frequency	Methods to be applied
$N_{y,i,j}$	Number of commissioned project devices of type i and batch j operating during year y	Proportion/biennially	Visits to the premises, visual inspection and interview with ICS end-user

To monitor the required parameters data was collected from a statistically valid sample of ICS in the database for the monitoring period, as per this sampling plan. The method of collecting data was field surveys and the frequency of data collection is as per the frequency defined for each parameter in the above section. Data was collected from the field surveys, entered in the database and included in the monitoring report.

As per approved methodology, the following guidance is being used for the representative sampling method:

“A statistically valid sample of the locations where the devices are deployed, with consideration, in the sampling design, of occupancy and demographic differences can be used to determine parameter values used to calculate emission reductions, as per the relevant requirements for sampling in the “Standard for sampling and surveys for CDM project activities and programmes of activities”. When biennial inspection is chosen a 95 per cent confidence interval and a 10 per cent margin of error shall be achieved for the sampling parameter. On the other hand, when the project proponent chooses to inspect annually, a 90 per cent confidence interval and a 10 per cent margin of error shall be achieved for the sampled parameters. In cases where survey results indicate that 90/10 precision or 95/10 precision are not achieved, the lower bound of the 90 per cent or 95 per cent confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 or 95/10 precision.”

As per “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 09, the following Sampling plan has been developed:

As per para 3 of “Standard: Sampling and Surveys for CDM project activities and programme of activities”, version 09” The general requirements of sampling methods shall be applicable to PoAs with any requirement specified in the applicable methodologies having precedence”.

Additional requirement for grouped project as per sampling standard, version 09, para 21 to 23, EB 110 is followed:

In case a single sampling plan for more than one instance is used, “parameter values shall be estimated by sampling in accordance with the requirements in the applied methodology separately and independently for each of the instance project activity included in the grouped project except when a single sampling plan covering a grouped project is undertaken applying 95/10 confidence/precision for the sample size calculation”.

(b) Sample Frame

The sampling frame refers to all the information in the database. The grouped project is open to different instance Implementers and different models of ICS. As explained below, to take the different characteristics of different project proponent and ICS models and other factors that may affect estimates into consideration, the instances shall be either sampled separately and independently, or grouped together under a single sampling plan across instances, in each case using strata that have unique combinations of these factors.

(c) Target Population

The target population is total ICS population served under the project instance in the monitoring database. The ICS to be sampled was drawn from the list of individual ICS serial ID numbers contained in the sales record database, which is maintained by the distributor

(d) Sampling method

Sampling was conducted using Stratified random sampling techniques, and detailed calculations are provided within the monitoring plan as per CDM guidelines “Sampling and surveys for CDM project activities and programmes of activities”. Optionally, other sampling approaches may be used in accordance with “Sampling and surveys for CDM project activities and programmes of activities” and Guideline for Sampling and Surveys for CDM Project. Activities when sampling techniques or statistical analysis necessitates it.

The improved cookstoves (ICSs) were selected randomly after arranging them in chronological order of date of distribution and assigning a sampling number to each ICS in each strata. To ensure a random selection of ICSs, samples are drawn by using the random number generator. The populations of each strata are combined together, the sample size is determined, and a single survey was undertaken across the project activities to collect data. To ensure the survey result is representative of the entire population, the dissimilarity (such as ICSs type, vintage in which they are operating) among the strata’s are taken into account in the sample size calculation. The ICSs of same type, vintage in which they are operating were grouped in the same strata.

(e) Sample size

The sample size are calculated using the EB 86, “Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 04.0.

According to the “Standard for sampling and surveys for CDM project activities and programme of activities”, if there is more than one parameter to be estimated, then a sample size calculation should be done for each of them. Then either the largest number for the sample size is chosen as sampling effort with one common survey, or separate sampling efforts and surveys are undertaken for each parameter.

In order to calculate the required sample size estimates, values for the proportions, mean values, and standard deviations are required. As per Guidelines for Sampling and surveys for CDM project activities and programmes of activities (version 04.0) Appendix 1 paragraph 5, there are different ways available to obtain the estimates of the parameter of interest:

- (a) Refer to the result of previous studies and use these results;
- (b) In a situation where information from previous studies is not available, a preliminary sample as a pilot could be conducted and use that sample is used to provide the estimates;
- (c) Use best guesses based on the researcher’s own experiences.

For the registration/inclusion purpose of instance, option C shall be applied. Thus, there are different equations to calculate a required sample size for different situations. Different equation that are used, depends on the type of parameter of interest, that is either:

- (a) A percentage – retention rate of improved cookstoves

(b) A numeric value –the mean value of operating efficiency of improved cookstoves.

For all of the parameters 95% confidence is required that the margin of error in the estimate is not more than $\pm 10\%$ in relative terms.

Parameter $N_{y,i,j}$

For population who use improved cookstove serviced by the project activity in year y ($N_{y,i,j}$), the equation that is used is:

$$n \geq \frac{1.96^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.96^2 p(1-p)}$$

Where:

- n : Sample size
- $N=N_y$: Population who consumes the improved cookstove serviced by the project activity in year y
- p : Our expected proportion of the installed improved cookstove will be in use and operating at the specified efficiency)
- 1.96 : Represents the 95 % confidence required
- 0.1 : Represents the 10 % relative precision

Based on the above assumptions, the resulting sampling size for a 95/10 confidence/precision is calculated for total population size, the result below:

Monitoring parameter(s)		Stove Operating Fraction for determination of N_y			
Sampling frame(s)		Given stove model and age population			
Sampling approach		Stratified random sampling across stove model and age			
Sampling Population (Batch)	Age	Stove population	Expected operational proportion	Calculated Sample Size (n)	Actual Monitored sample size
Ecozen	2	101,007	0.90	5	6
Ecozen	1	448,991	0.90	23	29
TK90	2	82,114	0.90	4	5
TK90	1	217,888	0.90	11	14
Sample size determination					
Estimated Operation (p)				0.90	

$V_{operation} = p(1-p)/p^2$	0.111	
Sample Size required (SOF)	43	

Additionally, as per registered sampling plan, it's recommended that the CME may choose to use the same samples to monitor more than one parameter, where parameters have same units. Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs. At the same time this approach ensures the random selection of samples for every parameter. Also, oversampling is strongly encouraged, not only to compensate for any attrition, outliers or nonresponse associated with the sample, but also to prevent a situation at the analysis stage where the required reliability is not achieved and additional sampling efforts would be required. We expect the response rate from the sampled households to be 80%. Thus, we would decide to sample $43/0.8 = 54$ samples. A total of 54 samples were selected.

Therefore the sample size for parameters $N_{y,i,j}$ is 35 samples for Ecozen Cookstove and 19 samples for TK90 cookstove

(a) Analysis of data collected and confidence/precision achieved

Analysis of the data monitored through sampling revealed the following results

Parameter $N_{y,i,j}$

ANALYSIS for parameter N_y	
Samples Monitored	54
Survey result	1.000
Standard Error of operation	0.000
Upper Boundary Level	100.00%
Lower Boundary Level	100.00%
Relative precision (Margin of error)	0.00%
Check precision	0.00%
Result	Ok, reliability level met
Lower Bound confidence value	Not applicable

For detailed calculations refer ER calculator sheet.

(b) Implementation plan

Survey Implementation Schedule:

The survey for collecting the details of monitoring parameters was conducted from 26th Jun to 30th Jun 2023.

The overall monitoring and the implementation of the sampling was co-ordinated by the project proponent and the management staff. They ensure successful monitoring of the emission reductions of the proposed project during its crediting period. Furthermore, the survey of the representative sample for the parameters was carried out by the distributor together with the project proponent.

The survey method has been used by project proponent include:

(a) Hard-copy questionnaires

(b) Face to face interview

All sampling efforts were conducted by qualified personnel who have undergone training as part of the grouped project. Any samplers were required to speak the native language(s) in which improved cookstoves have been implemented, allowing for full understanding of any responses given by users, and any questions therein.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

In accordance with the applied methodology, the baseline scenario is continued use of non-renewable wood fuel (firewood) by the target population to meet similar thermal energy needs as provided by project cookstoves in absence of project activity

The actual baseline scenario is the use of non-renewable biomass. The quantity of biomass used in absence of the project activity for target consumers were determined at the Instance level. Assessments, information used in initial instances may be used in subsequent instances in lieu of conducting fresh assessments at each instance level.

The methodology does not account for baseline emissions separately, but instead quantifies net emission reductions achieved by the project. Please refer to Section 4.4

5.2 Project Emissions

The operation of project stove does not involve consumption of fossil fuels and electricity, So, there is no project emissions considered.

5.3 Leakage Emissions

As detailed in section 8.3 of the methodology VMR0006, Version 1.1, leakage shall be considered as default 0.95

5.4 GHG Emission Reductions and Carbon Dioxide Removals

Emission reductions are calculated as:

$$ER_y = \sum_i \sum_j ER_{y,i,j}$$

Where:

i	Indices for the situation where more than one type/model of improved cookstove is introduced to replace three stone fire.
j	Indices for the situation where there is more than one batch of improved cookstove of type i
ER _y	Emission reductions during year y in t CO ₂ e
ER _{y,i,j}	Emission reductions by improved cookstove of type i and batch j during year y in t CO ₂ e

Since the project activity instance involves the deployment of improved cookstove, the following equation is applicable as per VMR0006, Version 1.1:

$$ER_{y,i,j} = B_{y,savings,i,j} \times NCV_{wood\ fuel} \times f_{NRB,y} \times (EF_{wf,CO_2} + EF_{wf,non\ CO_2}) \times N_{y,i,j} \times 0.95$$

- **Quantity of woody biomass $B_{y,savings,i,j}$**

$B_{y,savings,i,j}$ is calculated using the following formula in accordance with equation 4 of the approved methodology VMR0006 Version 1.1:

$$B_{y,savings,i,j} = B_{y=1,new,i,survey} \times (\eta_{new,i,j} / \eta_{old} - 1)$$

Where:

$B_{y=1,new,i,survey}$: Annual quantity of woody biomass used by improved cookstoves in tonnes per device of type i and batch j , determined in the first year of the implementation of the project through a sample survey, the value is 3.403 kg/day = 1.242 tons/year (refer 1st monitoring report)

η_{old} : Efficiency of baseline cookstove, the value is 10%

$\eta_{new,i,j}$: Efficiency of the improved cookstove type i and batch j determined through water boiling test (WBT) during year y

In first year ($y=1$)

- For Ecozen stove: $\eta_{new,i,j} = 36.13\%$ so $B_{1,savings,Ecozen} = 3.245$ tones
- For TK90 stove: $\eta_{new,i,j} = 28.44\%$ so $B_{1,savings,TK90} = 2.290$ tones

In second year ($y=2$)

- For Ecozen stove: $\eta_{new,i,j} = 35.77\%$ so $B_{1,savings,Ecozen} = 3.201$ tones
- For TK90 stove: $\eta_{new,i,j} = 28.15\%$ so $B_{2,savings,TK90} = 2.254$ tones

Detail for data ex ante and ex post of each project instance is description in table below:

PA	Parameter										
	$B_{y=1,new,i,survey}$	$f_{NRB,b,y}$	$NCV_{biomass}$	$E_{wf,CO2}$	$EF_{WF,non CO2}$	η_{old}	$B_{1,saving,TK90}$	$B_{2,saving,TK90}$	$B_{1,saving,Ecozen}$	$B_{2,saving,Ecozen}$	Leakage factor
PA 1	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 2	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 3	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 4	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 5	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 6	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 7	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 8	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 10	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 11	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 12	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 13	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 14	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 15	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 16	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 17	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 18	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95

PA 19	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 20	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 21	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 22	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 23	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 24	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 25	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 26	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 27	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 28	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 29	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 30	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 31	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 32	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 33	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 34	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 35	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 36	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 37	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 38	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 39	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 40	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 41	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 42	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 43	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 44	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 45	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 46	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 47	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245		0.95
PA 48	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 49	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 51	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 52	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 53	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 54	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 55	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 56	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 57	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 58	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 59	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 60	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 61	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 62	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 63	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 64	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 65	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 66	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95

PA 67	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 68	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 69	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 70	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 71	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 72	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 73	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 74	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 75	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 76	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 77	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 78	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 80	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 81	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 82	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 83	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 84	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 85	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 86	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 87	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 88	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 89	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	3.201	0.95
PA 90	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 91	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 92	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 93	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95
PA 94	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 95	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 96	1.242	0.6522	0.0156	112	26.23	10%	2.290	-	-	-	0.95
PA 97	1.242	0.6522	0.0156	112	26.23	10%	2.290	2.254	-	-	0.95
PA 98	1.242	0.6522	0.0156	112	26.23	10%	-	-	3.245	-	0.95

Result calculation for each PA depend on number of distributed ICS and proportion activity days in a year as below detail in ER sheet.

PA	Age	Quantity	Start date of distribution ICSs	End date of distribution ICSs	Vintage 1 (From 01/12/2022 to 31/12/2022)				Vintage 2 (From 01/01/2023 to 30/06/2023)			
					The start date of monitoring period	End date of monitoring period	Equivalent Operational year in the monitoring period	ERs	Start date of monitoring period	End date of monitoring period	Equivalent Operational year in the monitoring period	ERs
001	2	10,000	7-Jan-22	6-May-22	1-Dec-22	31-Dec-22	0.08	2,558	1-Jan-23	30-Jun-23	0.50	14,935
002	2	1,500	13-Apr-22	29-Apr-22	1-Dec-22	31-Dec-22	0.08	384	1-Jan-23	30-Jun-23	0.50	2,240
002	1	8,500	1-Aug-22	9-Aug-22	1-Dec-22	31-Dec-22	0.08	2,209	1-Jan-23	30-Jun-23	0.50	12,898

003	1	10,000	1-Aug-22	8-Aug-22	1-Dec-22	31-Dec-22	0.08	2,599	1-Jan-23	30-Jun-23	0.50	15,174
004	1	5,000	14-Oct-22	16-Oct-22	1-Dec-22	31-Dec-22	0.08	1,299	1-Jan-23	30-Jun-23	0.50	7,587
005	2	10,000	17-Apr-22	22-Apr-22	1-Dec-22	31-Dec-22	0.08	2,558	1-Jan-23	30-Jun-23	0.50	14,935
006	2	10,000	20-Apr-22	12-Jun-22	1-Dec-22	31-Dec-22	0.08	2,558	1-Jan-23	30-Jun-23	0.50	14,935
007	2	6,228	12-Jun-22	20-Jun-22	1-Dec-22	31-Dec-22	0.08	1,593	1-Jan-23	30-Jun-23	0.50	9,302
007	1	3,772	16-Nov-22	19-Nov-22	1-Dec-22	31-Dec-22	0.08	980	1-Jan-23	30-Jun-23	0.50	5,724
008	1	4,000	14-Nov-22	16-Nov-22	1-Dec-22	31-Dec-22	0.08	1,040	1-Jan-23	30-Jun-23	0.50	6,070
010	2	10,000	15-May-22	15-Jun-22	1-Dec-22	31-Dec-22	0.08	2,558	1-Jan-23	30-Jun-23	0.50	14,935
011	2	2,180	15-Jun-22	15-Jun-22	1-Dec-22	31-Dec-22	0.08	558	1-Jan-23	30-Jun-23	0.50	3,256
011	1	2,820	9-Nov-22	17-Nov-22	1-Dec-22	31-Dec-22	0.08	733	1-Jan-23	30-Jun-23	0.50	4,279
012	2	5,036	17-May-22	19-May-22	1-Dec-22	31-Dec-22	0.08	1,288	1-Jan-23	30-Jun-23	0.50	7,521
013	1	2,860	5-Jul-22	5-Jul-22	1-Dec-22	31-Dec-22	0.08	743	1-Jan-23	30-Jun-23	0.50	4,340
014	2	10,000	7-Apr-22	6-May-22	1-Dec-22	31-Dec-22	0.08	2,558	1-Jan-23	30-Jun-23	0.50	14,935
015	1	10,000	14-Jul-22	22-Jul-22	1-Dec-22	31-Dec-22	0.08	2,599	1-Jan-23	30-Jun-23	0.50	15,174
016	1	3,515	16-Jul-22	9-Sep-22	1-Dec-22	31-Dec-22	0.08	913	1-Jan-23	30-Jun-23	0.50	5,334
017	1	5,000	18-Jul-22	5-Oct-22	1-Dec-22	31-Dec-22	0.08	1,299	1-Jan-23	30-Jun-23	0.50	7,587
018	1	10,000	8-Jul-22	4-Sep-22	1-Dec-22	31-Dec-22	0.08	2,599	1-Jan-23	30-Jun-23	0.50	15,174
019	1	7,581	4-Sep-22	6-Sep-22	1-Dec-22	31-Dec-22	0.08	1,970	1-Jan-23	30-Jun-23	0.50	11,503
020	2	6,000	5-Jun-22	19-Jun-22	1-Dec-22	31-Dec-22	0.08	2,179	1-Jan-23	30-Jun-23	0.50	12,723
020	1	4,000	18-Jul-22	18-Jul-22	1-Dec-22	31-Dec-22	0.08	1,473	1-Jan-23	30-Jun-23	0.50	8,601
021	1	10,000	9-Jul-22	24-Jul-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
022	1	10,000	22-Jul-22	24-Jul-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
023	2	3,580	11-Jun-22	11-Jun-22	1-Dec-22	31-Dec-22	0.08	1,300	1-Jan-23	30-Jun-23	0.50	7,592
023	1	6,420	3-Jul-22	21-Jul-22	1-Dec-22	31-Dec-22	0.08	2,364	1-Jan-23	30-Jun-23	0.50	13,804
024	1	10,000	21-Jul-22	4-Aug-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
025	1	10,000	4-Aug-22	15-Aug-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
026	2	10,000	12-Apr-22	15-Apr-22	1-Dec-22	31-Dec-22	0.08	3,632	1-Jan-23	30-Jun-23	0.50	21,206
027	2	10,000	12-Apr-22	5-Jun-22	1-Dec-22	31-Dec-22	0.08	3,632	1-Jan-23	30-Jun-23	0.50	21,206
028	1	10,000	5-Sep-22	7-Sep-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
029	1	10,000	1-Sep-22	1-Oct-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
030	1	5,000	1-Oct-22	7-Oct-22	1-Dec-22	31-Dec-22	0.08	1,841	1-Jan-23	30-Jun-23	0.50	10,751
031	2	10,000	10-May-22	2-Jun-22	1-Dec-22	31-Dec-22	0.08	3,632	1-Jan-23	30-Jun-23	0.50	21,206
032	2	20	16-May-22	16-May-22	1-Dec-22	31-Dec-22	0.08	7	1-Jan-23	30-Jun-23	0.50	42
032	1	3,298	5-Jan-23	11-Jan-23	-	-	-	-	11-Jan-23	30-Jun-23	0.47	6,700

033	1	10,000	8-Jan-23	10-Jan-23	-	-	-	-	10-Jan-23	30-Jun-23	0.47	20,433
034	2	6,800	10-May-22	2-Jun-22	1-Dec-22	31-Dec-22	0.08	2,470	1-Jan-23	30-Jun-23	0.50	14,420
034	1	3,200	2-Jan-23	2-Jan-23	-	-	-	-	2-Jan-23	30-Jun-23	0.49	6,843
035	1	10,000	2-Jan-23	7-Jan-23	-	-	-	-	7-Jan-23	30-Jun-23	0.48	20,789
036	1	10,000	2-Jan-23	7-Jan-23	-	-	-	-	7-Jan-23	30-Jun-23	0.48	20,789
037	2	4,589	18-Apr-22	15-May-22	1-Dec-22	31-Dec-22	0.08	1,667	1-Jan-23	30-Jun-23	0.50	9,731
037	1	5,411	18-Jul-22	25-Jul-22	1-Dec-22	31-Dec-22	0.08	1,993	1-Jan-23	30-Jun-23	0.50	11,635
038	1	10,000	18-Jul-22	18-Aug-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
039	1	10,000	5-Aug-22	18-Aug-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
040	1	10,000	5-Aug-22	13-Aug-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
041	1	10,000	5-Aug-22	11-Sep-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
042	1	10,000	3-Sep-22	4-Sep-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
043	1	10,000	4-Sep-22	13-Sep-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
044	1	2,861	4-Sep-22	13-Sep-22	1-Dec-22	31-Dec-22	0.08	1,054	1-Jan-23	30-Jun-23	0.50	6,152
044	1	7,139	3-Dec-22	11-Dec-22	11-Dec-22	31-Dec-22	0.06	1,781	1-Jan-23	30-Jun-23	0.50	15,350
045	2	5,100	22-Apr-22	22-Apr-22	1-Dec-22	31-Dec-22	0.08	1,852	1-Jan-23	30-Jun-23	0.50	10,815
045	1	4,900	13-Sep-22	14-Sep-22	1-Dec-22	31-Dec-22	0.08	1,805	1-Jan-23	30-Jun-23	0.50	10,536
046	1	10,000	7-Sep-22	22-Oct-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
047	1	10,000	12-Oct-22	22-Oct-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
048	1	10,000	18-Sep-22	22-Sep-22	1-Dec-22	31-Dec-22	0.08	1,078	1-Jan-23	30-Jun-23	0.50	6,294
049	1	9,980	22-Sep-22	14-Nov-22	1-Dec-22	31-Dec-22	0.08	2,594	1-Jan-23	30-Jun-23	0.50	15,144
051	1	10,000	21-Sep-22	14-Oct-22	1-Dec-22	31-Dec-22	0.08	2,599	1-Jan-23	30-Jun-23	0.50	15,174
052	1	7,000	8-Oct-22	11-Oct-22	1-Dec-22	31-Dec-22	0.08	1,819	1-Jan-23	30-Jun-23	0.50	10,622
053	1	10,000	28-Jul-22	13-Nov-22	1-Dec-22	31-Dec-22	0.08	2,599	1-Jan-23	30-Jun-23	0.50	15,174
054	2	10,000	10-May-22	13-Jun-22	1-Dec-22	31-Dec-22	0.08	2,558	1-Jan-23	30-Jun-23	0.50	14,935
055	2	6,150	13-Jun-22	24-Jun-22	1-Dec-22	31-Dec-22	0.08	1,573	1-Jan-23	30-Jun-23	0.50	9,185
055	1	3,850	6-Oct-22	9-Oct-22	1-Dec-22	31-Dec-22	0.08	1,001	1-Jan-23	30-Jun-23	0.50	5,842
056	1	5,010	6-Oct-22	13-Oct-22	1-Dec-22	31-Dec-22	0.08	1,302	1-Jan-23	30-Jun-23	0.50	7,602
056	1	4,990	11-Dec-22	18-Dec-22	18-Dec-22	31-Dec-22	0.04	586	1-Jan-23	30-Jun-23	0.50	7,572
057	1	4,010	11-Dec-22	16-Dec-22	16-Dec-22	31-Dec-22	0.04	538	1-Jan-23	30-Jun-23	0.50	6,085
059	1	10,000	5-Aug-22	14-Sep-22	1-Dec-22	31-Dec-22	0.08	2,599	1-Jan-23	30-Jun-23	0.50	15,174
060	1	10,000	10-Sep-22	10-Nov-22	1-Dec-22	31-Dec-22	0.08	2,599	1-Jan-23	30-Jun-23	0.50	15,174
061	1	9,725	7-Nov-22	11-Nov-22	1-Dec-22	31-Dec-22	0.08	2,527	1-Jan-23	30-Jun-23	0.50	14,757
061	1	275	5-Dec-22	5-Dec-22	5-Dec-22	31-Dec-22	0.07	62	1-Jan-23	30-Jun-23	0.50	417

062	1	200	20-Jul-22	20-Jul-22	1-Dec-22	31-Dec-22	0.08	52	1-Jan-23	30-Jun-23	0.50	303
062	1	6,644	12-Dec-22	15-Dec-22	15-Dec-22	31-Dec-22	0.05	947	1-Jan-23	30-Jun-23	0.50	10,082
062	1	3,156	3-Jan-23	6-Jan-23	-	-	-	-	6-Jan-23	30-Jun-23	0.48	4,657
063	1	10,000	2-Jan-23	6-Jan-23	-	-	-	-	6-Jan-23	30-Jun-23	0.48	14,755
064	1	10,000	4-Jul-22	21-Oct-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
065	1	10,000	14-Oct-22	27-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
066	1	10,000	21-Nov-22	27-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
067	1	10,000	21-Nov-22	22-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
068	2	10,000	23-Apr-22	26-Apr-22	1-Dec-22	31-Dec-22	0.08	3,632	1-Jan-23	30-Jun-23	0.50	21,206
069	2	2,480	23-Apr-22	15-Jun-22	1-Dec-22	31-Dec-22	0.08	901	1-Jan-23	30-Jun-23	0.50	5,259
069	1	7,520	1-Nov-22	10-Nov-22	1-Dec-22	31-Dec-22	0.08	2,769	1-Jan-23	30-Jun-23	0.50	16,169
070	1	10,000	8-Nov-22	23-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
071	1	10,000	10-Nov-22	19-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
072	1	10,000	3-Nov-22	16-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
073	1	10,000	7-Nov-22	19-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
074	1	8,376	1-Nov-22	17-Nov-22	1-Dec-22	31-Dec-22	0.08	3,085	1-Jan-23	30-Jun-23	0.50	18,010
074	1	1,624	15-Dec-22	19-Dec-22	19-Dec-22	31-Dec-22	0.04	251	1-Jan-23	30-Jun-23	0.50	3,492
075	1	10,000	15-Dec-22	19-Dec-22	19-Dec-22	31-Dec-22	0.04	1,544	1-Jan-23	30-Jun-23	0.50	21,502
076	1	10,000	16-Aug-22	10-Sep-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
077	1	10,000	6-Sep-22	8-Oct-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
078	2	528	30-Jun-22	30-Jun-22	1-Dec-22	31-Dec-22	0.08	192	1-Jan-23	30-Jun-23	0.50	1,120
080	2	5,460	18-Jun-22	26-Jun-22	1-Dec-22	31-Dec-22	0.08	1,983	1-Jan-23	30-Jun-23	0.50	11,578
080	1	4,540	1-Nov-22	3-Nov-22	1-Dec-22	31-Dec-22	0.08	1,672	1-Jan-23	30-Jun-23	0.50	9,762
081	1	10,000	6-Nov-22	19-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
082	1	10,000	3-Nov-22	16-Nov-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
083	2	8,200	16-Jun-22	16-Jun-22	1-Dec-22	31-Dec-22	0.08	2,978	1-Jan-23	30-Jun-23	0.50	17,389
083	1	1,800	27-Dec-22	27-Dec-22	27-Dec-22	31-Dec-22	0.01	107	1-Jan-23	30-Jun-23	0.50	3,870
084	1	10,000	21-Dec-22	27-Dec-22	27-Dec-22	31-Dec-22	0.01	594	1-Jan-23	30-Jun-23	0.50	21,502
085	1	3,302	21-Dec-22	21-Dec-22	21-Dec-22	31-Dec-22	0.03	431	1-Jan-23	30-Jun-23	0.50	7,100
085	1	6,354	1-Jan-23	3-Jan-23	-	-	-	-	3-Jan-23	30-Jun-23	0.49	13,511
086	2	8,250	9-May-22	26-May-22	1-Dec-22	31-Dec-22	0.08	2,996	1-Jan-23	30-Jun-23	0.50	17,495
086	1	1,750	16-Dec-22	20-Dec-22	20-Dec-22	31-Dec-22	0.03	249	1-Jan-23	30-Jun-23	0.50	3,763
087	1	10,000	16-Dec-22	20-Dec-22	20-Dec-22	31-Dec-22	0.03	1,426	1-Jan-23	30-Jun-23	0.50	21,502
088	1	2,793	16-Dec-22	20-Dec-22	20-Dec-22	31-Dec-22	0.03	398	1-Jan-23	30-Jun-23	0.50	6,005

088	1	5,551	8-Jan-23	9-Jan-23	-	-	-	-	9-Jan-23	30-Jun-23	0.47	11,408
089	2	10,000	11-May-22	3-Jun-22	1-Dec-22	31-Dec-22	0.08	3,632	1-Jan-23	30-Jun-23	0.50	21,206
090	1	10,000	4-Oct-22	24-Oct-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
091	1	10,000	9-Oct-22	28-Oct-22	1-Dec-22	31-Dec-22	0.08	3,683	1-Jan-23	30-Jun-23	0.50	21,502
092	1	10,000	8-Dec-22	11-Dec-22	11-Dec-22	31-Dec-22	0.06	2,495	1-Jan-23	30-Jun-23	0.50	21,502
093	1	6,470	6-Dec-22	8-Dec-22	8-Dec-22	31-Dec-22	0.07	1,845	1-Jan-23	30-Jun-23	0.50	13,912
093	1	3,530	13-Jan-23	14-Jan-23	14-Jan-23	-	-	-	14-Jan-23	30-Jun-23	0.46	7,045
094	1	10,000	1-Dec-22	6-Dec-22	6-Dec-22	31-Dec-22	0.07	2,180	1-Jan-23	30-Jun-23	0.50	15,174
095	1	10,000	5-Dec-22	8-Dec-22	8-Dec-22	31-Dec-22	0.07	2,012	1-Jan-23	30-Jun-23	0.50	15,174
096	1	10,000	3-Jan-23	6-Jan-23	-	-	-	-	6-Jan-23	30-Jun-23	0.48	14,755
097	2	1,020	29-Apr-22	6-May-22	1-Dec-22	31-Dec-22	0.08	261	1-Jan-23	30-Jun-23	0.50	1,523
098	1	3,152	13-Jan-23	13-Jan-23	-	-	-	-	13-Jan-23	30-Jun-23	0.46	6,328

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCUs (tCO ₂ e)	Removal VCUs (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-December-2022 to 31-Dec-2022	236,068	0	0	236,068	0	236,068
01-Jan-2023 to 30-Jun-2023	1,618,428	0	0	1,618,428	0	1,618,428
Total	1,854,496	0	0	1,854,496	0	1,854,496

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-Dec-2022 to 31-Dec-2022	283,045	236,068	17%	- Parameter $B_{y=1,new,i,j,survey}$ is estimated value in registered PD, when do monitoring, this value is decrease.
01-Jan-2023 to 30-Jun-2023	1,652,617	1,618,428	2%	- The number of stoves distributed in many months, not fully distributed on the first day of distribution.
Total	1,935,661	1,854,496	4%	- Efficiency of cookstove reduce annually

				- The updated fnrb value is decrease.
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APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

The project involves distribution ICSs to individual households, there are no commercially sensitive information so this section is not applicable

APPENDIX 2: SUPPLY CHAIN

<https://www.carbonvietnam.com/public-announcement-on-grouped-projects-for-viet-nam-cookstove-program-project-id-2923>

1. Public statement has been posted on SIPCO's website.

