



Verified Carbon Standard

GROUPED PROJECTS FOR MEKONG RIVER DELTA WATER PURIFIER

Document Prepared by

(Carbon Check (India) Private Ltd.)



Project Title	<i>Grouped projects for Mekong River Delta Water Purifier</i>
Version	06
Report ID	CC IPL975/VCS/VAL/GPMRDWP/20210816

Report Title	Grouped projects for Mekong River Delta Water Purifier
Client	Sustainability Investment Promotion and Development Joint Stock Company
Date of Issue	20/07/2022
Prepared By	Carbon Check (India) Private Ltd
Contact	Carbon Check (India) Private Ltd. 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi – 110005 projects@carboncheck.co.in

	https://carboncheck.co.in/
Approved by	Amit Anand, CEO 
Work carried out by	Vikash Kumar Singh (Team Leader, Technical Expert) Aparna Choudhary (Acting Team Leader) Indumathi C (Technical Reviewer)

Summary:

A brief description of the validation and the project

Validation: Sustainability Investment Promotion and Development Joint Stock Company has appointed Carbon Check (India) Private Ltd., to carry out the validation of the project “Grouped projects for Mekong River Delta Water Purifier”, with regards to the relevant requirements of VCS Standard Version 4.1 (dated 22/04/2021).

Project: The project “Grouped projects for Mekong River Delta Water Purifier”, is a grouped project which employs CDM methodology AMS-III.AV. (Version 08.0) /B02/. The project involves distribution/construction of SDWPs in Viet Nam. The grouped project activity (“hereafter “proposed project activity”) involves the distribution of low greenhouse gas emitting safe drinking water purifier (SDWP) to provide clean drinking water to the households/communities/Small and Medium Enterprises (SMEs) (hereafter “users”) of Viet Nam. For this reason, this proposed project activity aims at reducing the wood fuel consumption of traditional stove users by distributing water purifiers to households and/or SMEs.

The grouped project activity reduces the use and demand for fossil fuels and non-renewable biomass that would have been used to boil water as a means to purify water in the absence of this project activity. This directly leads to reduced greenhouse gas emissions

Purpose: The purpose of a validation is to have a thorough and independent assessment of the proposed project activity against the applicable VCS requirements, in particular, the project's baseline, monitoring plan and compliance with the relevant VCS and host Party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions. Carbon Check’s objective is to perform a thorough, independent assessment of the validation of the project activity.

Scope: Validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria and guidance documents provided by VCS which include the following: VCS Program Guide (v4.0, dated 19/09/2019), VCS Standard (v4.1, dated 22/04/2021), Program Definitions (v4.1, dated 22/04/2021), Registration & Issuance Process (v4.0, dated 19/09/2019) VCS Validation and Verification Manual (v3.2, dated 19/10/2016) applicable at the time in order to confirm that the project meets the applicability conditions of the selected baseline and monitoring CDM methodology AMS-III.AV. (Version 08.0),

also assess the claims and assumptions made in the PD without limitation on the information provided by the project participants.

The method and criteria used for validation

The validation consists of the following four phases:

- I. A desk review of the project description documents
 - A review of data and information.
 - Cross checks between information provided in PD and information from sources with all necessary means without limitations to the information provided by the project proponent.
- II. Remote interviews with project stakeholders
 - Interviews with relevant stakeholders in host country with personnel having knowledge with the project development via telephone, email or direct on-site visits.
 - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent.
- III. Reference to available information relating to projects or technologies similar to project under validation and review based on the approved methodology being applied for the appropriateness of formulae and accuracy of calculations.

The resolution of outstanding issues and the issuance of the final validation report and opinion.

The number of findings raised during validation

During the course of validation, a total of 10 findings were raised, which include:

08 Corrective Action Requests (CARs);

02 Clarification Requests (CLs);

00 Forward Action requests (FARs).

All the raised findings have been successfully closed by the Project Proponent.

Any uncertainties associated with the validation

There are no uncertainties associated with the validation of the project activity. The validation has been done with a reasonable level of assurance.

Summary of the validation conclusion

Carbon Check (India) Private Ltd. concludes the validation with a positive opinion that the VCS Grouped Project “Grouped projects for Mekong River Delta Water Purifier” as described in the PD (version 07, dated 20/07/2022) /01-c/, meets all applicable VCS requirements, including those specified in the VCS Standard (v4.1, dated 22/04/2021), relevant methodology, tools and guidelines.

The selected baseline and monitoring methodology (AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08.) is applicable to the project and correctly applied. Carbon Check (India) Private Ltd. therefore requests the registration of the project as a VCS grouped project, with a reasonable level of assurance.

CONTENTS

1	INTRODUCTION	5
1.1	Objective	5
1.2	Scope and Criteria	5
1.3	Level of Assurance	5
1.4	Summary Description of the Project	6
2	VALIDATION PROCESS	7
2.1	Method and Criteria	7
2.2	Document Review	8
2.3	Interviews	8
2.4	Site Inspections	9
2.5	Resolution of Findings	10
3	VALIDATION FINDINGS	11
3.1	Project Details	11
3.2	Safeguards	11
3.3	Application of Methodology	18
3.4	Non-Permanence Risk Analysis	36
4	VALIDATION CONCLUSION	36

1 INTRODUCTION

1.1 Objective

Sustainability Investment Promotion and Development Joint Stock Company has appointed the VVB, Carbon Check (India) Private Ltd. to perform a validation of the VCS Grouped Project “Grouped projects for Mekong River Delta Water Purifier”. This report summarizes the findings of validation of the project, performed on the basis of the VCS Program Guide (v4.0, dated 19/09/2019), VCS Standard (v4.1, dated 22/04/2021), Program Definitions (v4.1, dated 22/04/2021), Registration & Issuance Process (v4.0, dated 19/09/2019), VCS Validation and Verification Manual (v 3.2, dated 19/10/2016). Validation is required for all VCS project activities intending to register a grouped project under the VCS program. This report contains the findings and resolutions from the validation of the grouped project.

The purpose of a validation is to have a thorough and independent assessment of the proposed grouped project against the applicable VCS requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions, VCU's.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the Project Description (PD), project design, the project's baseline study and monitoring plan and other relevant documents. The PD is reviewed against the relevant criteria and decisions by the VCS Program, and against the approved baseline and monitoring methodology. Carbon Check has employed a risk-based approach in the validation, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The validation is carried out on the basis of the following requirements, applicable for this grouped project:

- VCS Program Guide (v4.0, dated 19/09/2019)
- VCS Standard (v4.1, dated 22/04/2021)

- Program Definitions (v4.1, dated 22/04/2021)
- Registration & Issuance Process (v4.0, dated 19/09/2019)
- VCS Validation and Verification Manual (v 3.2, dated 19/10/2016)
- CDM Methodology: AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08.
- Other relevant rules, including the host country legislation

1.3 Level of Assurance

☒ Reasonable level of assurance

☐ Limited level of assurance

1.4 Summary Description of the Project

The project “Grouped projects for Mekong River Delta Water Purifier”, is a grouped project which employs of the CDM methodology; AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08 /B02/. The grouped project involves distribution of safe drinking water purifier (SDWP)s in Viet Nam. The project activity targets households in rural communities with no previous water purifiers access. The geographical boundary is in Viet Nam. Water purifiers are distributed free of cost to users.

The grouped project activity reduces the use and demand for fossil fuels and non-renewable biomass that would have been used to boil water as a means to purify water in the absence of this project activity. This directly leads to reduced greenhouse gas emissions

As per the VCS PD /01-c/, the Project activity will promote the dissemination of Safe drinking water purifier with tank capacity 23 liters and removal of e. coli is greater than 99.999%. Lifespan of SDWPs is 10 years. Each water purifier shall confirm to the technology standards as per paragraph 4(b) of approved methodology AMS-III.AV Version 08. The outlet quality water shall meet microbes defined in QCVN 6-1:2010/BYT for drinking waters and meet the technology standards as per paragraph 4(b) of approved methodology AMS-III.AV Version 08.

As per the VCS PD and interviews with the representative of project proponent, each SDWP under project is uniquely identifiable /10/ and would be assured that it is not part of any other VCS registered project. Each project activity instance is uniquely identifiable /10/ by unique system to avoid the double counting. The measures to avoid double counting is deemed acceptable to the validation team. Project proponent has also submitted declaration /17 and /18/ to confirm the following:

- that the project is not creating any other form of environmental credit under any specific program.
- that the project has not or shall not claim carbon credits on any other scheme after Registration of the project under VCS.

The project proponent for the project activity is Sustainability Investment Promotion and Development Joint Stock Company, owns the rights to VERs /05/

The total estimated GHG emission reductions from 28,000 SDWPs expected from project activity 1 of the grouped project are 579,660 tCO₂e for the ten years fixed crediting period and average of 57,966 tCO₂e/year.

2 VALIDATION PROCESS

2.1 Method and Criteria

Sustainability Investment Promotion and Development Joint Stock Company has appointed the VVB, Carbon Check (India) Private Ltd., to carry out the validation of the project “Grouped projects for Mekong River Delta Water Purifier”, with regards to the relevant requirements of VCS Standard Version 4.1 (dated 22/04/2021)/B01-a/.

The validation includes a thorough and independent assessment of the proposed grouped project against the applicable VCS requirements, the project's baseline, additionality, monitoring plan and the project's compliance with relevant VCS and host party criteria. The validation involves assessment of the project and to confirm that the project meets the applicability conditions of the selected methodology, AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08 /B02/ and also assess the claims and assumptions made in the PD /01-b/ without limitation on the information provided by the project participants.

The validation team of the DOE *has applied* a sampling approach, *acceptance sampling* for the remote interviews as part of validation in accordance with the paragraph 26 of the Standard: Sampling and surveys for CDM project activities and programmes of activities, (Version 09.0). In accordance with the paragraph 28 of the sampling standard, acceptance sampling has been chosen by the validation team and accordingly steps listed in paragraph 29 and 39 of the sampling standards shall be followed.

Validation team has opted for AQL of 0.5 % and UQL of 20 %; producer risk of 10 % and consumer risk of 10 % in determining the DOE's sample size. Accordingly, the sample size to be interviewed for the *above-mentioned* parameters are 11, with acceptance number (c) as 0

The overall validation was conducted using Carbon Check's internal procedures.

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques including but not limited to document reviews and remote interviews, review of the applicable/applied methodology and its underlying formulae and calculations to assess the quality of information provided.

This report contains the findings and resolutions from the validation and a validation opinion on the proposed grouped project thus confirming the project design as document is sound and reasonable and meets the stated requirements and identified criteria.

The VCS project description, emission reduction calculation spread sheet and supporting documents related to the project design and baseline were reviewed as per VCS standard version 04.1 /B01 a/ requirements. The desk review included:

- A review of the data and information presented to verify completeness and consistency in accordance with VCS standard version 04.1 requirements.
- A review of the project description and monitoring methodology, paying particular attention to the applicability conditions of the methodology and baseline and additionality related requirements.
- A review of the monitoring plan and the project's compliance with relevant VCS criteria.

Furthermore, the validation team used additional documentation by third parties like host-party legislation, technical reports referring to the project design or to the basic conditions and technical data.

The VCS PD version 01 dated 20/08/2021 /01-a/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents. The documents reviewed by CCIPL are listed below in Appendix 1. Through the process of the validation, the revised VCS PD and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the validation team.

The table in Appendix 1 outlines the documentation reviewed during the validation.

2.3 Interviews

The table below describes the remote interview process and further identifies personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description /01/ and any supporting documents.

	Date	Name	Organisation	Topic
--	------	------	--------------	-------

/1/	30/11/2021	Viet Anh Ngo (Ms), Quynh Nguyen Thi Nhu (MS) and Ha Dinh Thi Thuy (Ms)	Sustainability Investment Promotion and Development Joint Stock Company (SIPCO)	• Project Design • Project Implementation status • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality • Qualification and Training • Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Compliance with relevant laws • Roles and responsibility
2	30/11/2021	Lê Thị Thái	Household representative	Cross-check of a sample of project participants' samples (Questionnaire, operation surveys/interviews)
		Lê Thị Nữ		
		Đỗ Thị Dành		
		Hồ Đức Em		
		Nguyễn Thành Trung		
		Lý Thị Mẫn		
		Nguyễn Văn Bắc		
		Trần Thị Xuyên		
		Trần Thị Cho		
		Nguyễn Hồng Sơn		
		Thị Kim Hoàng		

2.4 Site Inspections

Carbon Check has not conducted an on-site inspection due to the recent pandemic COVID19 and due to its related policy measures created restrictions all over the world impacting travel activities on an

international level and even for in-country travel. A reasonable level of assurance has been maintained through the alternative means used for the purpose of validation as follows:

- An assessment of the implementation and operation of the proposed grouped project through remote interviews with the representatives of project proponent.
- Confirmation of the pre-project scenario
- Confirmation of the applicability of the methodology and monitoring and controlling instruments and operational arrangements.
- Assessment of the project boundaries

Assessment of the monitoring provisions by checking the monitoring arrangement.

2.5 Resolution of Findings

This section summarizes the findings from the validation of the project activity. In this section the findings from the document review, assessments and remote interviews are provided.

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

Corrective action requests (CAR) are issued, where:

- i. mistakes have been made with a direct influence on project results requiring adjustments of the VERs/VCUs monitoring report;
- ii. applicable methodological specific requirements have not been met.

A **Clarification request (CL)** may be used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

A total 08 CAR, and 02 CLs had been raised and successfully closed. Please refer to Appendix 4 below for the details of the CARs/CLs and their closure-

2.5.1 Forward Action Requests

No Forward action request has been raised during the validation.

A **forward action request (FAR)** should be issued, where:

- i. the actual project monitoring and reporting practices requires attention and /or adjustment for the consecutive verification period, or
- ii. an adjustment of the MP is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high quality emissions reductions in the future, i.e. by deviations from standard procedures as defined by the MP. As a consequence, such aspects should receive a special focus during the consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions

3 VALIDATION FINDINGS

3.1 Project Details

The project “Grouped projects for Mekong River Delta Water Purifier”, is a grouped project which employs baseline and monitoring methodology; AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08/B02/. To achieve the initial targeted volume of emission reductions, the project proponent aims to disseminate 28,000 SDWP in an Giang Province Province during the project activity 1 of this grouped project. The project results in reducing the amount of non-renewable biomass used for boiling water. Through reduction in non-renewable biomass consumption, the programme will decrease greenhouse gas emissions. By reducing the consumption of wood fuel, it can contribute to improving public health problems. Section 1.1. of the VCS PD contains a clear summary description of the projects. The completeness and accuracy of the project description was validated through remote interviews.

The project proponent is Sustainability Investment Promotion and Development Joint Stock Company which will be holding the carbon credits generated from the project activity/05//12/.

The start date for the grouped project is 10/11/2021. /03/ which is the date of installation of first stove under this project activity-

The crediting period starts on 10/11/2021 /03/ which coincides with the starting date of the project activity, and last for 10 years, fixed. This is in accordance with paragraph 3.8.1 of the VCS standard version 4.1 /B01-a/ for non-AFOLU projects.

The indication of the project activity instance location and the geographic boundaries is provided in section 1.12. of the VCS PD. They are in accordance with paragraph 3.10.1 of the VCS Standard and can confirm that the project activity boundary is uniquely defined. The grouped project location and geographic boundaries of the project are those of Viet Nam. This is in accordance with paragraph 3.5.8 of the VCS standard version 4.1 /B01-a/, which requires grouped projects to have one or more clearly defined geographic areas within which new project activity instances may be developed.

The VCS PD clearly indicates the project scope, which is scope 3: Energy demand, and more specifically demand -side energy efficiency project. The project is a grouped project, this is indicated in section 1.2. of the VCS PD.

The proposed grouped project is an energy efficiency project activity and is located in a non-Annex I country. Therefore, the ER generated would not be part of an emission trading program, nor it is located in a jurisdiction or sector with binding limits. The project proponent intends to claim carbon credits under

the VCS programme only for the emission reductions achieved. The PP states in the VCS PD that the emission reductions generated by this project will not be used for compliance with an emission-trading program or to fulfil binding commitments. In fact, at the time of validation, no binding targets have been set by Viet Nam under the Kyoto protocol, as indicated in the UNFCCC website /B04/.

The project proponent has declared that the project is not in registration under any other GHG program. The validation team has checked the UNFCCC database of registered projects or projects under validation and was able to confirm that the listed projects are not the proposed project activity

The proposed project activity instances do not generate another form of environmental credit. The project proponent indicates in the VCS PD that the project does not intend to generate any other form of GHG related environmental credit other than those claimed under this VCS project.

Verification team confirms that the project activity is not lead to violation of any applicable laws, also there is no law in Vietnam which enforced the implementation of project activity. This has been validated on the basis of the web searching on Vietnam's related law and interviews with the PP.

SDWP reduces nonrenewable consumption and emissions savings but also has many other benefits for the household. It contributes to sustainable development in Viet Nam through:

- Project can contribute to improving public health problems. Increase in disposable income due to reduced spending on fuels.
- It helps stimulate economic empowerment by creating jobs and entrepreneurs in construction of SDWP.
- Over the long-term, this project activity is anticipated to reduce deforestation and the emission of greenhouse gas caused by using the burning of wood fuel.

Validation team has noted that the PP has calculated the parameter “QPWpp, BLfueli, fi, and Xboil” as provided in section 5.1 of the PD/01-b/ on the basis of the survey of local usage that was conducted for the target consumer group included in this instance. /07/. To validate the appropriateness of the parameters, validation team has used the acceptance sampling approach.

In accordance with the paragraph 28 of the sampling standard (Version 09), acceptance sampling has been chosen by the validation team and accordingly steps listed in paragraph 29 and 39 of the sampling standards shall be followed.

Validation team has opted for AQL of 0.5 % and UQL of 20 %; producer risk of 10 % and consumer risk of 10 % in determining the DOE's sample size. Accordingly, the sample size to be interviewed for the above-mentioned parameters are 11, with acceptance number (c) as 0

Validation team has conducted remote audit and interviewed sample households; validation team inquire for the below mentioned points.

1. Household size

2. If there is any public water supply in area.
3. How many liters of water is consumed by a family and from there they get drinking water?
4. What water treatment do they use and if boiling, which device is used for boiling.
5. Type of fuel used and from where they collect/buy fuel.

On the basis of the information provided by household representatives, validation team confirms that the information data shared by the PP matched with the information provided by the household representatives.

During the review of PD, validation team observed PP has calculated fi, “Factor to determine amount of non-renewable fuels”, which is fixed ex ante. It is confirmed by validation team that the value applied by PP is calculated as per Tool 30 “Calculation of fraction of non-renewable biomass” version 03.0. and is deemed acceptable.

Eligibility criteria of the grouped project activity

The eligibility criteria have been provided clearly in section 1.3 of the PD /01-c/ and then justification provided for inclusion of project activity instances for the CDM methodology. AMS – III.A.V: “Low greenhouse gas emitting safe drinking water production systems”, version 08.0

Sl. No.	Eligibility criteria for the inclusion of new project activity instances	Applicability	Assessment by the validation team
1.	Meet the applicability conditions set out in the methodology applied to the project.	Only low greenhouse gas emitting water purifiers will be distributed to households; - Proof that a public distribution network supplying SDWP does not exist in the project boundary; - The drinking water supply households use various water treatment filters according to the water quality of water sources to	The validation team on the basis of documents review, Manufacturer specification, /04/ Microbiological test report from an accredited laboratory /11/ and remote interview confirms that the project activity 1 met the applicability conditions set out in the methodology applied to the project. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.

		meet the national standard or guideline of Viet Nam - If the lifespan of the equipment is shorter than the crediting period, equipment shall be replaced at the end of its lifespan free of charge for Users. - Each SDWP shall confirm to the technology standards as per paragraph 4(b) of approved methodology AMS-III.AV (Version 08). - The use of this methodology in project activity 1 under a grouped project is legitimate if the leakage is estimated and accounted for as per the relevant provisions of AMS-I.E under the section for grouped project. Use the technologies or measures specified in the	
2.	Use the technologies or measures specified in the project description.	The water purification technologies include a low greenhouse gas emitting technology as per section 1.11 of this PD,	The Validation team through document review and remote interviews analyze that PP will be using only the SDWP with the technology as mentioned in section 1.11 of this PD. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.
3.	Apply the technologies or measures in the same manner as specified in the project description.	Technologies that use fossil fuels are not eligible. Technologies shall meet minimum criteria for specific instance type, as outline below: - Technologies shall be deployed Natural Osmosis	The Validation team through document review and remote interviews analyze that PP will be using only SDWP with the technology in the same manner as specified in the project description. and no other water purifier will be used under this project. Which is also been mentioned in the PD.

		systems with the components illustrated in section 1.11 of this PD - Technologies for community water consumption, with project emissions - Flow rate: 2 – 3l/hr Other key features of the design of the systems. Type of service, as well as performance specification based on, inter alia testing/certification: - Each unit must achieve water quality for microbes defined in QCVN 6-1:2010/BYT for drinking water - Lifespan is 10 years.	Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.
4.	Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.	The project boundary corresponds to the boundaries of the Host Country Viet Nam. All installed SDWP in each instance shall be located within geographical boundary of Viet Nam.	The Validation team through document review and remote interviews analyze that the baseline is demonstrated in the section 3.4 of the PD. PP will install SDWP within the project boundary of Vietnam. This has also been mentioned in the PD. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.
5.	Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area.	The additionality of the project activity is demonstrated by simple cost analysis that is in line with paragraph 10 (a) of Tool21 “Demonstration of additionality of small-scale project activities” (version 13.1) and paragraph 33 and 34 of TOOL01 “Tool for the	The Validation team through document review and remote interviews analyze that PP has demonstrated additionality as per the 10 (a) of Tool21 “Demonstration of additionality of small-scale project activities” (version 13.1) and paragraph 33 and 34 of TOOL01 “Tool for the demonstration and assessment of additionality (version 07.0) This has also been mentioned in the PD.

		demonstration and assessment of additionality”(version 07.0). To demonstrate additionality by Simple cost analysis, each the instance project activity shall confirm and demonstrate that the SDWPs are distributed for free to the Users at community centers.	Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.
6	Conditions that avoid double counting of emission reductions	The new project activity instances will: Apply a unique system (i.e. conformity letter) for SDWP in each project instance, assigning a unique ID to each SDWP and allowing to clearly identify each SDWP and to which project instance it belongs. Each SDWP installed will include project instance assignment and will have corresponding end user details (i.e. name, address). This data will be recorded as part of the beneficiary agreement and Project database. The CME has an agreement in place with residents who use drinking water from SDWPs 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	Validation team on the basis of review of the unique identification number system submitted by the PP/10/ and interview with the PP confirms that Each User will be provided a safe drinking water purifier (SDWP) with a unique identification number CPA XXX –MRD - YYYYYY put on each SDWP, the label is as following: - CPA XXX= Number of project instance - MRD = Grouped Project for MeKong River Delta - YYYYY = continuous number of User from 00001. Moreover, each SDWP installed will include project instance assignment and will have corresponding end user details (i.e., name, address). This data will be recorded as part of the beneficiary agreement and Project database. Thus, the required condition is applied appropriately and meets the eligibility criteria.

		Waiver within the Beneficiary agreement	
7	Capacity Limit	Each project instance will have a maximum capacity of 60,000tCO ₂ e per year throughout the project instance crediting period.	Validation team on the basis of review of the VSC PD, emission reduction sheet and interview with the PP confirms that the emission reduction is smaller than 60,000 tCO ₂ /year for project activity 1 under the grouped project. Thus meets the eligibility criteria.
8	Target Group	Each project instance will target end users which includes households who use traditional cookstove to boil water	Validation team on the basis of review of the beneficiary agreement submitted by the PP, interview with the PP and review of the VCS PD confirms that each household representative in the project activity 1 commit that they are using traditional cookstove to boil the water.

3.2 Safeguards

3.2.1 No Net Harm

As identified by PP project has no negative impact. The potential negative environmental and socio-economic impacts identified by the project proponent and have been listed in section 2.1 of the PD.

Every additional project activity instance to be added to this Grouped Project will summarize any potential negative environmental and socio-economic impacts and the steps taken to mitigate them.

The validation team confirms that for the project does not pose any potential negative environmental and socio-economic impacts. A local stakeholders meeting was conducted for the project and there was no negative feedback.

3.2.2 Local Stakeholder Consultation

The stakeholder consultation meeting was held on 18/04/2021 at the head of office of Viet Nam's Women Union.

The key comments made by the local stakeholders were all answered during the local stakeholder consultation meetings and have also been provided in the section of 2.2 the PD /01-b/. The stakeholder meeting conducted by the PP have been listed in the section 2.2 of the PD/01-b/ summary of the local stakeholder participation has been provided along with the mechanism for mechanism for ongoing communication for the project The local stakeholder consultation meetings with the list of participants have been provided to the validation team/08/.

The validation team confirms on the procedure and method for engagement, method for documenting the outcomes of local stakeholders' consultation and account of all inputs received. The validation team confirms that the project proponent has taken due account of all input (no negative comments were received for the project). Hence the validation team deemed the local stakeholders meeting procedure including the inputs received as appropriate.

3.2.3 Environmental Impact

As per the need for an EIA, Environmental Impact Assessments in Viet Nam are regulated through, and no environmental impacts have been identified by the project proponent.

3.2.4 Public Comments

The public commenting period for the project was from 22/10/2021 to 21/11/2021. During the public comment period the project receives 5 comments and details of the comments are mentioned under section 2.4 of the VCS PD . Validation team on the basis of review of the VCS PD, public comments summary, response to public comments by PP, supporting documents in response to comments namely 4G_Exclusive Certificate and Ecozen-25 Water Final EN /22/ concludes that the response on all the comments are appropriately addressed and deemed acceptable to validation team

3.2.5 AFOLU-Specific Safeguards

Not Applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

The Grouped Project provides for projects that use one of the CDM approved methodology:

- ; AMS-III.AV. "Low greenhouse gas-emitting safe drinking water production systems", version 08)"

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

- CDM Guideline "Sampling and surveys of CDM project activities and programmes of activities" version 04.0
- CDM Standard "Sampling and surveys for CDM project activities and programmes of activities" version 09.0
- AMS-I.E. - Switch from non-renewable biomass for thermal applications by the user - Version 12.0
- TOOL03 - Tool to calculate project or leakage CO2 emissions from fossil fuel combustion. Version 03

- TOOL05- Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation. Version 03
- TOOL30 - Calculation of the fraction of non-renewable biomass. Version 03.

3.3.2 Applicability

The project applies CDM methodology; AMS–III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08. /B02/. Applicability criteria for the baseline line methodology and tools are assessed by the validation team by means of document review and interview. Validation team confirms that the project activity meets the criteria of the applied methodology and tools

Sl. No.	Eligibility criteria for the inclusion of new project activity instances	Applicability	Assessment by the validation team
2	This methodology comprises introduction of low greenhouse gas emitting water purification systems to provide safe drinking water (SDWP). Water purification technologies that involve point-of use (POU) or point-of-entry (POE) treatment systems for residential or institutional applications such as systems installed at a school or a community centre are included. The examples include, but are not limited to, water filters (e.g. membrane, activated carbon, ceramic filters), solar energy powered ultraviolet (UV) disinfection devices, solar disinfection techniques, photocatalytic	Under project activity 1 and grouped Project, low greenhouse gas emitting water purification will be distributed to households/SMEs. Detail of technology has been detailed in section 1.11 of this grouped VCS	On the basis of the document review /04/ and the PD section 1.11 /01-b/ and the interview with the stakeholders, validation team confirms the technology used in the project activity 1 and grouped project is in line with the methodology requirement Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.

	disinfection equipment, pasteurization appliances, chemical disinfection methods (eg. chlorination), combined treatment approaches (eg. Flocculation plus disinfection). The methodology is also applicable to water kiosks that treat water using one or more of the following disinfection. In case the water kiosk is using solar disinfection powders and solar implement measures to prevent recontamination (e.g. disinfecting containers, sealing containers and hygiene trainings).		
2	Soil filtration schemes (boreholes, wells) that include container disinfection (e.g. chlorination) may be applied. Project proponents shall demonstrate ex ante that rehabilitation and/or construction of the wells complies with relevant national and/or international standards and that measures are taken to ensure that water and well are not contaminated.	This is not applicable for this proposed project.	The project activity 1 involves the distribution of SDWP and thus this eligibility criteria is not applicable for this project activity and grouped project.

3	Prior to the implementation of the project activity, a public distribution network supplying SDWP) to the project boundary does not exist..	For each project activity instance shall proof that a public distribution network supplying SDWP does not exist in the project boundary. If during the crediting period SDWP is made available through a public distribution network, the emission reductions pertaining to the households, communities or SMEs supplied by the public system area cannot be claimed from that point onwards. This condition will be checked annually during the crediting period.	The validation team has cross checked for the presence of public distribution network supplying SDWP from the baseline survey conducted by PP and also cross check the same by interviewing the sample household during the remote audit dated 30/11/2021 and found that no public distribution network is supplying SDWP to households. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.
4	It shall be demonstrated based on laboratory testing or official notifications (for example notifications from the national authority on health) that the application of the project technology/equipment achieves compliance either with: (i) the “interim” performance target as per “Evaluating household water treatment options: Health based targets and microbiological performance specifications” (WHO, 2011); and “International Scheme to Evaluate Household	The drinking water purifier supply use various water treatment filters according to the water quality of water sources to meet the national standard or guideline of Viet Nam. The outlet quality water shall meet microbes defined in QCVN 6-1:2010/BYT for drinking waters.,	The Validation team on the basis of document (Microbiological test report) provided by the PP confirms that the outlet water quality of SDWP meets microbes define in QCVN 6-1:2010/BYT for drinking waters. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.

	Water Treatment Technologies” (WHO, 2014) or (ii) an applicable national standard or guideline. Applicable national standard should be based on laboratory efficacy testing that, at a minimum, includes quantitative microbial measures of pre- and post-treatment challenge waters that are representative of potential drinking water sources, and that includes measured reductions based on at least one pathogen class (bacteria, viruses, protozoa).		
5	In cases where the life span of the water treatment technologies is shorter than the crediting period of the project activity, there shall be documented measures in place to ensure that end users have access to replacement purification systems of comparable quality.	The lifespan of the water purifier is 10 years, which is the length of the crediting period of the instance.	The Validation team through document review (Technical specification of SDWP provided by the manufacturer confirms that the life span of SDWP is 10 years. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.
6	It should be demonstrated that the project appliances use technologies that meet the technology	Each water purifier shall confirm to the technology standards as per paragraph 4(b) of approved methodology AMS-III.AV	The Validation team on the basis of document (Microbiological test report) provided by the PP confirms that the outlet water quality of SDWP meets microbes define in QCVN 6-1:2010/BYT for drinking waters.

	standards as per paragraph 4(b) of approved methodology AMS-III.AV Version 08, and that they deliver microbiologically safe drinking Water	Version 08. The outlet quality water shall meet microbes defined in QCVN 6-1:2010/BYT for drinking waters.	Thus, the eligibility criteria have been met for the new (project activity 1) under this group project.
7	TOOL01 “Tool for the demonstration and assessment of additionality”.	The use of the “Tool for the demonstration and assessment of additionality” is not mandatory for project participants when proposing new methodologies. Project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board. They may also submit revisions to approved methodologies using the additionality tool.	Validation team on the basis of document review, remote interviews and review of equipment contract submitted by the PP, confirms that the project is to free distribution of SDWPs to the Household, the PP has no other income from VER revenue, therefore the simple cost analysis is applied to demonstrate additionally. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project
		Once the additionally tool is included in an approved methodology, its application by project participants using this methodology is mandatory	
8	TOOL 21 - “Demonstration of additionality of small-scale project activities	The use of the methodological tool “Demonstration of additionality of small-scale Project activities” is not mandatory for project participants when proposing new methodologies. Project participants and coordinating/managing entities may propose alternative methods to demonstrate additionality for	It has been observed by the validation team that the additionality of the project is demonstrated by barrier analysis in line with Tool 21. The investment barrier exists in the project and the same has been confirmed by the validation team on the basis of review of the PD, interview with the PP and the end-users during remote audit. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project

		consideration by the Executive Board	
		Project participants and coordinating/managing entities may also apply “TOOL19: Demonstration of additionality of microscale project activities” as applicable	Not applicable as the project instance is a small scale project
9	TOOL30: Calculation of the fraction of non-renewable biomass	This tool may be used by: (a) DNAs to submit region/country-specific default fNRB values, following the procedures for development, revision, clarification and update of standardized baselines (SB procedures); or (b) Project proponents to calculate project or PoA-specific fNRB values.	It has been observed by the validation team that the project uses Tool 30 to calculate project specific value of fNRB in line with the option (b) of the applicability condition 1 of tool 30. It was cross checked by the validation team on the basis of review of the fNRB report prepared by C4 Ecosolutions (Pty) Ltd, submitted to VVB by PP. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project
		For project or PoA specific fNRB values, project proponents shall assess the area where biomass is sourced and justify the selection of the area in CDM project design documents.	The area where the biomass is sourced is described by the PP and the same is reviewed from the fNRB report submitted by the PP. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project
10	AMS-I.E.: “Switch from non-renewable biomass for thermal applications by the user	The use of this methodology in a project of activity under a grouped project is legitimate if the leakage is estimated and accounted for as per the relevant provisions of AMS-I.E under the section for grouped project	Validation team observed that the project uses the AMS I.E for the value of leakage emission for the calculation of emission reduction. In line with paragraph 24 of the methodology AMS I.E version 12 “By is multiplied by a net to gross adjustment factor of 0.95 to account for leakages. The same is considered by the PP for this project. Thus, the eligibility criteria have been met for the new (project activity 1) under this group project

3.3.3 Project Boundary

The Grouped Project boundary is defined as per the methodology AMS-III.AV (Version 08.0)

The sources of greenhouse gas identified in the PD/01-b/ are deemed to be appropriate and assessed below:

The project boundary for the grouped Project consists of the physical, geographical locations of the distributed SDWP limited to within the Viet Nam.

3.3.4 Baseline Scenario

The project activity will use methodology AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, Version 08.0. This is the most recent valid version available on the UNFCCC website at the time of validation. Since the project activity that apply the indicative simplified and standardized approach. It is assumed that the fossil fuel or nonrenewable biomass (NRB) is used to boil water as means of water purification in the absence of project activity. The emissions are calculated based on the energy demand for boiling water, and in case of displacement of NRB, the baseline emissions are corrected for the fraction of the biomass that can be demonstrated to be non-renewable. Only purified water consumed for drinking purposes can be used in the baseline calculation.

The baseline described in the PD complies with the requirements of the methodology, as the energy baseline is the existing level of consumption of non-renewable biomass used for boiling water currently in use and which is used in the absence of the project activity.

Validation team based on review of the VCS PD/01-b/ confirms that the documentary evidence used in determining the above baseline scenarios are relevant, and correctly quoted and interpreted in the project description. The baseline scenarios for the applied methodology were also confirmed through remote interviews with the end users of technologies and representatives of PP.

Validation team confirms that the baseline scenario opted by the project activity is in accordance with the requirements of the applied methodology/B02/ and is justified.

3.3.5 Additionality

The additionality of the grouped project has been demonstrated by the PP as per the methodology section 5.2 /B02/. As per the methodology under this grouped project, the additionality of the project activity is demonstrated by a barrier analysis that is in line with the Tool 21 - “Demonstration of additionality of small-scale project activities” (Version 13.1).

In accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Standard and it can be confirmed that the project is not mandated by any law, statute, or other

regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework.

The project demonstrates the existence of an Investment Barrier. Procuring, installing SDWPs requires capital, which is a barrier to the end user of the Project due to difficulties in accessing capital, a wide dissemination of such technology in the Host Country is unlikely. The actions under the Project will alleviate these barriers by distributed free SDWPs to households.

Furthermore, the project activity 1 and the grouped project meets all the applicability conditions of the applied methodology AMS-III.AV: Version 08 and distributes SDWP at zero cost to the end-users and has no other source of revenue other than the sale of GHG credits. Hence, in line with paragraph 33 and 34 TOOL01 “Tool for the demonstration and assessment of additionality”, the project faces an investment barrier and is additional. Validation team confirms that simple cost analysis is deemed acceptable on the basis of review of the above-mentioned tools, PD /01-b/ and the equipment contract as documentary evidence to show the cost of SDWPs /21/

Therefore, the validation team confirms that the project activity 1 and the grouped project are additional, and all the project activity instances that will be included in the grouped project will meet the eligibility criteria. Distribution of Safe drinking water purifiers in Viet Nam is additional – the emission reductions achieved by the project would be below those that would have occurred without the implementation of the project.

3.3.6 Quantification of GHG Emission Reductions and Removals

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the PD/01-c/. The emission reductions of the project instances of the grouped project would be calculated using the formulae mentioned in the applied methodology; AMS–III.AV (version 08)/B02/.

Validation team based on the review of the PD /01-c/, confirms that the formulae are correctly presented for the determination of emissions reductions at project activity 1. The parameters and equations presented in the PD/01-c/, as well as other applicable documents, have been compared with the information and requirements presented in the methodology respectively. An equation comparison has also been made to ensure consistency between all the formulae presented in the PD/01-c/ and ER spreadsheet/02/ and methodology ; AMS–III.AV (version 08)/B02/.

According to applied methodology ; AMS–III.AV (version 08)/B02/. the emissions are calculated as below:

$$BE_y = QPW_y \times m \times X_{boil} \times SEC \times \sum_i (BL_{fuel,i} \times f_i \times EF_{projected_fossil\ fuel,i} \times 10^{-9}) \quad \text{Equation (1)}$$

Where:

BE_y	=	Baseline emissions during the year y in (t CO ₂ e)
QPW_y	=	Total quantity of water purified by the project in year y (L)
m	=	Fraction of functional appliances that are providing the SDW (%). Only project appliances that (i) use technologies that meet the technology standards as per paragraph 4b and (ii) are operating or replaced by an equivalent in service appliance and (iii) deliver microbiologically safe drinking water, are counted for emission reductions
X_{boil}	=	Fraction of the population served by the project activity for which the common practice of water treatment is or would have been water boiling. It is determined ex ante through surveys
SEC	=	Specific energy consumption required to boil one litre of water (kJ/L), to be calculated according to paragraphs below
$BL_{fuel,i}$	=	Proportions of baseline fuel type i (NRB and/or fossil fuels) used in the absence of the project activity (fraction)
f_i	=	Fraction of non-renewable fuel type i used in the absence of the project activity in year y . For biomass, it is the fraction of woody biomass that can be established as non-renewable biomass (f_{NRB}). If the baseline fuel is fossil fuel, the value to be applied is 1
$EF_{projected_fossil\ fuel,i}$	=	Emission factor of the fuel type i substituted (t CO ₂ /TJ)

Leakage for the project has been taken into account by the PP in line with the paragraph 24 of the methodology AMS I.E version 12 i.e... “By is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, on the basis of interview with the PP and end-users’ validation team confirms that the equipment used is transferred from outside the project boundary and hence the leakage is considered in line with paragraph 24 of the methodology AMS I.E. The project emission for the project is considered as zero because the project is based on solar technology hence PE=0. While the values of ex ante parameters used for the calculation is mentioned in the appendix 5.

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad \text{Equation (2)}$$

Where:

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂/yr)

PE_y = Project emissions in year y (t CO₂e/yr)

LE_y = Leakage emissions in year y (t CO₂e/yr)

Determination of the quantity of purified water serviced by the project activity in year y

As per paragraph 16 of the applied methodology AMS-III.AV (Version 08.0), the quantity of purified water in a year should be monitored and calculated based on the following options:

The population serviced by the project activity and an average volume of drinking water per person per day, as follows:

$$QPWy = P_y \times \min(QPWpp; 5.5) \times 365 \quad \text{Equation (3)}$$

Where:

P_y = Population who consumes the purified water serviced by the project activity in year y

$QPWpp$ = Average volume of drinking water per person per day (L/person/day) determined ex ante of the crediting period through a baseline survey

The average volume of drinking water per person per day is 5.1/person/day which is less than the maximum quantity of drinking water person per day of 5.5l/person/day which is in line with the paragraph 18 of the methodology. and the same is calculated in section 4.1.1 of the PD and was verified by the validation team during the remote interview. On the basis of the average of daily drinking water usage per person per day i.e., 5.1 the value of purified water in year y has been calculated as 234,549,000l/year and the same is well described under section 4.1.1 of the PD and deemed acceptable to the validation team.

Determination of the fraction of fuel type (Non - renewable biomass)

PP has contracted an independent party "C4Ecosolutions" for a study and calculation of fNRB as per CDM Methodological Tool: "Calculation of fraction of non- renewable biomass" (v03.0). Validation team confirms that it has checked fNRB calculation report/spread sheet /19/ prepared by C4Ecosolutions

Assessment of fNRB_{i,y}

As per the applied methodological tool, In the case of ex ante calculation of fNRB, the parameter fNRB shall be estimated using the most recent historical year for which data is available. Review of fNRB report

/19/ prepared by C4Ecolution revealed that all the data used for the calculation is latest available data at the time of validation.

Review of fNRB calculation report/spread sheet /19/ prepared by C4Ecosolutions reveals that the estimation of non-domestic fuel consumption was derived from the UN Statistics Division wood consumption and population statistics, in combination with the national average per capita woody biomass consumption (Table 1). The non-domestic fuelwood consumption estimates provided by the UN Statistics Division have been conservatively applied (Table 1), disregarding the additional deforestation likely occurring as a result of shifting agriculture and from informal or illegal harvesting. Other categories of non-domestic consumption reported by UN Statistics Division have been conservatively excluded due to apparent double accounting with domestic consumption. The total woody biomass consumption for VietNam is as per the fNRB report /19/ prepared by C4Ecolution is estimated to be 48,669,292 t/yr, which is deemed appropriate to the VVB.

In VietNam seven ecological zone has been found i.e. subtropical humid forest, subtropical mountain system, tropical dry forest, tropical moist forest, tropical mountain system, tropical rainforest, tropical shrubland and the same was verified by referring the FAO data through web-research. VVB has noted that in the report /19/ geospatial data products for VietNam were analysed in R11-15 to estimate Vietnam renewable biomass. The woody cover from all areas defined as “forest” (>10%) cover “other wooded land” (5-10% cover) as well as “other land” (<5% cover), according to the FAO definitions for 2000 and 2020 was estimated using Hansen/UMD/Google/USGS/NASA spatial data, which is derived from Hansen et al.

As no woody cover was excluded from the analysis based on a threshold of minimum cover, disaggregation into the FAO forest categories would have been superfluous. The woody cover was disaggregated according to the FAO global ecological zones and the total woody cover extent was calculated for each ecological zone, within the protected areas and within areas that are either accessible or geographically remote. The woody cover is estimated as a percentage for the whole country within 30 x 30 m resolution grid cells. The woody cover extent for each cell is therefore calculated as the woody cover percentage multiplied its area (0.9 ha).

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the IPCC, was used for the study, checked and confirmed by the VVB. The proportion of forest stand ages above and below 20 years old were estimated for each ecological zone by extrapolating the observed forest gain extents between 2000 and 2012 to a 20-year period. Where primary forest growth rates are available, they were applied based on the primary forest extent data published by Turubanova et al. The resulting average MAI estimates for Vietnam are 1.05,0.52,1.71,0.87,0.37,1.41,1.78 t/ha/year for the

subtropical humid forest, subtropical mountain system, tropical dry forest, tropical moist forest, tropical mountain system, tropical rainforest, tropical shrubland respectively.

As per paragraph 13 of the Tool 30 version 03.0,

“If the fNRB value is estimated at the national level, as a cross check, project proponent shall compare the value of estimated NRB with the product of: i) total average above ground biomass tonnage of the area of forest areas deforested in recent past (tonnes/ha), and ii) most recent available observed annual rate of deforestation (ha/yr). If the estimated NRB value is more than 10% above the value calculated as per the product of biomass and deforestation rate, justification shall be provided for the higher value for NRB.”

CC IPL based on review of fNRB report prepared by C4 EcoSolutions (Pty) Ltd /19/ confirms that the above requirement of tool 30 has been followed and the justification has been provided, which is deemed acceptable to the validation team. The excerpt of fNRB report /19/ is as below:

“The resulting non-renewable biomass (NRB) value was compared with the top-down product of average above-ground biomass (62.71 t/ha) and the most recent annual deforestation data (185,504 ha/year). NRB, as calculated in this report according to the latest CDM Tool 30, was found to be 45,765,690 t/year, which is significantly greater than the cross-check results based on deforestation (11,632,954 t/year). It is expected that the cross-check estimate of biomass loss from deforestation would grossly underestimate the actual extent of non-renewable biomass consumption as it only considers the average biomass stocks from areas that are completely deforested. Unsustainable wood harvesting that results in forest degradation, and significant reductions in biomass stocks, but not complete deforestation are not considered in the cross-check.”

Ecological Zone	Total forest cover (ha)	Protected cover (ha)	Remote cover (ha)	MAI (t/ha/yr)	Renewable biomass (t/yr)
Subtropical humid forest	435,626	14,390	187,363	1.05	245,952
Subtropical mountain system	70,662	4,826	24,899	0.52	21,337
Tropical dry forest	451,166	79,667	255,096	1.71	198,849
Tropical moist forest	5,360,918	1,547,386	2,279,808	0.87	1,342,008

Tropical mountain system	1,936,862	344,036	952,287	0.37	234,460
Tropical rainforest	3,334,696	841,437	1,693,967	1.41	1,128,284
Tropical shrubland	173,451	37,463	108,506	1.78	49,008
Total	11,083,642	2,812,526	5,181,159	-	2,903,601

Table below provides the validated total, protected and remote forest cover extent, mean annual increment and renewable biomass by ecological zone for the Vietnam.

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable. Non-renewable biomass utilisation in **Vietnam** is, therefore, validated as **45,765,690 t/yr**. 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, validated as 0.9403

From the review of this report/fNRB calculation sheet /19/ and interviews with the CME and C4 EcoSolutions (Pty) Ltd, validation teams confirm the following:

- The report has been prepared by an independent party (i.e., C4 EcoSolutions (Pty) Ltd.), who is experienced in conducting such study and the value of fNRB is calculated as 0.9403
- The detailed methodology (including the calculation) of conducting the study has been provided in the report /spread sheet /19/.
- The study has been done in accordance with the CDM Methodological Tool: “Calculation of fraction of non- renewable biomass” (v03.0) including the equitation used and the data source as required by the tool.
- All the reference and links used for the calculation/study has been listed and assessed by the VVB/19/

For biomass, the fraction is 0.9403 which is determined at the instance level as per TOOL30 “Calculation of the fraction of non – renewable biomass”, version 03.

Determination of the efficiency of the water boiling systems.

Efficiency of the water boiling systems being replaced. Use one of the options below:

(a) The efficiency of the water boiling system shall be established using representative sampling methods or based on referenced literature values (fraction), use weighted average values if more than one type of systems is encountered;

(b) 0.10 default value may be optionally used if the replaced system or the system that would have been used is a three stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system that is without a grate as well as a chimney; for the rest of the systems using woody biomass 0.2 default value may be optionally used;

(c) 0.5 default value may be used if the replaced system or the system that would have been used is a fossil fuel combusting system.

The project proponents will distribute the SDWPs for the households who have used the traditional cookstove to boil water. Therefore, the efficiency of the water boiling systems is 0.1. The same has been confirmed by the validation team on the basis of the remote interview and the beneficiary agreement template to be signed between the PP and the Beneficiaries.

Specific energy consumption required to boil one litre of water is to be calculated as follows:

$$SEC = [WH \times (T_f - T_i) + 0.01 \times WHE] / \eta_{wb} \quad \text{Equation (4)}$$

Where:

WH	=	Specific heat of water (kJ/L °C). Use a default value of 4.186 kJ/L °C
T_f	=	Final temperature (°C). Use a default value of 100 °C ¹
T_i	=	Initial temperature of water (°C). Use annual average ambient temperature; ² or use a default value of 20 °C
WHE	=	Latent heat of water evaporation (kJ/L). Use a default value of 2260 kJ/L. The latent heat required to boil one litre of water for five minutes is assumed to be equivalent to latent heat for the evaporation of 1% of the water volume (WHO recommends a minimum duration of five minutes of water boiling) ³
η_{wb}	=	Efficiency of the water boiling systems being replaced, estimated ex ante. Default values in Data / Parameter table 3 may be used

¹ Boiling point of water at standard conditions.

² Ambient temperature data must be from globally accepted data sources, for example data published by the National Aeronautics and Space Administration (NASA) or the National Renewable Energy Laboratory (NREL). Data can be used only if they are for a location that can be demonstrated to be representative of the project location.

³ WHO guidelines for emergency treatment of drinking water at point of the use <http://www.searo.who.int/LinkFiles/List_of_Guidelines_for_Health_Emergency_Emergency_treatment_of_drinking_water.pdf>.

The value of the specific consumption is calculated in section 4.1.4 of the PD and it is confirmed by the validation team that the same value is used by the PP for the calculation of emission reduction.

Determining the fraction of functional appliances that are meeting the SDWP standards (%).

The value for this parameter has been described by PP under section 4.1.5 of the PD and the value assumed is 1 which will be monitoring annually for each monitoring and shall be checked by the VVB assigned during the verification.

Determining the fraction of the population served by the project activity for which the common practice of water purification is or would have been water boiling.

The value of Xboil is 0.9818 and the same has been checked by the validation team on the basis of review of the baseline survey of households done at Tuyen Quang province

The Proportions of baseline fuel type i (NRB and/or fossil fuels) used in the absence of the project activity is 91.98% and it has been checked by the validation team that this is described in line with the methodology applied.

Project activity 1 under this grouped project would achieve a total emission reduction of 579,660 tCO₂e in the 10-year crediting period and an average of 57,966 tCO₂e per year as indicated in the final VCS PD /01-c/ and also in the ER spread sheet /02/. The emission reduction of the project activity is summarised in the table below.:

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
Year 1	57,966	0	0	57,966
Year 2	57,966	0	0	57,966
Year 3	57,966	0	0	57,966
Year 4	57,966	0	0	57,966
Year 5	57,966	0	0	57,966

Year 6	57,966	0	0	57,966
Year 7	57,966	0	0	57,966
Year 8	57,966	0	0	57,966
Year 9	57,966	0	0	57,966
Year 10	57,966	0	0	57,966
Total	579,660	0	0	579,660

In conclusion, all values used in the VCS PD to calculate emission reductions are considered reasonable in the context of the proposed grouped project and Project Activity 1 under “Grouped projects for Mekong River Delta Water Purifier” and calculation approach is correct.

3.3.7 Methodology Deviations

No methodology deviations have been applied to the project activity.

3.3.8 Monitoring Plan

The grouped project employs baseline and monitoring methodology namely AMS–III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08 /B02/. According to section 5.1 and 5.2 of PD/01-c/ the monitoring parameter determined ex post ex post as per the requirements of the methodology are given below.

Parameters monitored ex-post

Details of all the parameters monitored ex-post is stated in section 5.2 of the PD

Sl.No.	Parameters/01/	Methodology(B02)	Description/01/	Validation Assessment
1	<i>Py</i>	AMS – III.AV, Version 08.0	Population who consumes the purified water serviced by the project activity in year y	The parameter is in line with the methodology and is based on the survey records that shall be

				checked annually.
2	<i>QPW_y</i>	AMS – III.AV, Version 08.0	Quantity of purified water in year y	This parameter is in line with the methodology will be calculated based on the equation as provided in the PD and shall be checked annually.
3	<i>m</i>	AMS – III.AV, Version 08.0	Fraction of functional appliances that are providing the SDWP	This parameter is in line with the methodology and shall be checked annually on the basis of Microbiological testing reports to ensure the conditions mentioned in the PD for the parameter.
4	Check for SDWP public distribution network	AMS – III.AV, Version 08.0	Annual check if there is a public distribution network supplying SDWP is installed	This parameter is in line with the methodology and shall be checked annually by confirmation from the local authorities.
5	Quality of safe drinking water	AMS – III.AV, Version 08.0	The quality of safe drinking water	This parameter is in line with the methodology and shall be checked once in two years

				on the basis of the test that should be conducted by the accredited laboratory on sample basis.
--	--	--	--	---

In accordance with section 3.21.1 of the VCS Standard (version 4.1) /B01-a/ all documents and records will be kept in a secure and retrievable manner for at least two years after the end of the project crediting period. The data collecting and management methods as provided in section 5.3 of the VCS PD/01/ are acceptable to the validation team. The validation team interviewed representatives of PP and it was established that the database of all the project equipment distributed by PP is created and maintained. The entire database will be kept with protected by PP for a period of more than two years. In addition, two samples of equipment invoices were studied and was found to contain information in compliance with the monitoring requirements of the methodology AMS – III.AV, Version 08.0 /B02-a/.

The validation team considers that the means of implementation of the monitoring plan, including the data management, monitoring equipment and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed grouped project therein can be reported ex post and verified. In addition, the sampling plan meets the requirements of the monitoring methodology AMS – III.AV, Version 08.0 /B02-a/ and the Standard of Sampling and Surveys of CDM project activities and Programme of Activities (version 09.0) /B03-a/ and Guidelines for sampling and surveys for CDM project activities and Programme of Activities (version 04) /B03-b/.

Validation team confirms that the overall monitoring plan complies with the requirements of the methodology AMS – III.AV, Version 08.0 /B02-a/, the monitoring arrangements describes in the monitoring plan are feasible within the project design and the project proponents will be able to implement the described monitoring plan.

3.4 Non-Permanence Risk Analysis

This is not applicable to the project activity as the project is not an AFOUL (Agriculture, Forestry and other Land use) project.

4 VALIDATION CONCLUSION

The Project Participant, Sustainability Investment Promotion and Development Joint Stock Company, has commissioned the VVB, Carbon Check (India) Private Ltd. to perform an independent validation of the VCS Project Activity “Grouped projects for Mekong River Delta Water Purifier”. This report summarizes the findings of the validation of the project, performed on the basis of VCS criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation process was performed on the basis of all guidance and criteria as provided in VCS Standard version 4.1/B01-a/, VCS Program Guide version 4.0/B01-b/, VCS Validation and Verification Manual version 3.2/B01-c/ and Registration & Issuance Process version 4.0/B01-d/.

The project activity provides the information in PD/01-c/ as required by the VCS Standard /B01-a/ and Validation and Verification Manual /B01-c/ and in Carbon Check’s opinion meets the requirements of the applied baseline and monitoring methodology AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08/B02/and is likely to achieve the estimated emission reductions. The validation has been performed using a risk- based approach, as described above. The expected annual average emission reductions from the project activity 1 are 57,966 tCO₂e/year and the total for the crediting period is 579,660 tCO₂e.

Carbon Check (India) Private Ltd concludes the validation with a positive opinion that the VCS Project Activity “Grouped projects for Mekong River Delta water purifiers ”, in Viet Nam as described in the PD (version 07., dated 20/07/2022) /01-c/, meets all the applicable VCS requirements, including those specified in the Project Standard, relevant methodology, tools and guidelines.

The selected baseline and monitoring methodology AMS-III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08 is applicable to the project and correctly applied. Carbon Check (India) Private Ltd therefore requests the registration of the project as a VCS project activity.

CCIPL’s validation opinion is purely based on the information made available to us by the project proponent during the course of validation and hence CCIPL cannot guarantee the accuracy or correctness of the information. Keeping this in mind, no party can hold CCIPL liable for any decisions made or not made in this report.

APPENDIX 1.1: REFERENCE DOCUMENTS

Ref	Document
/01/	Project description titled: a) Grouped projects for Mekong River Delta Water Purifier (version 01; dated:20/08/2021) b) Grouped projects for Mekong River Delta Water Purifier (version 06; dated: 15/46/2022) c) Grouped projects for Mekong River Delta Water Purifier (version 07; dated: 20/07/2022)
/02/	- ER estimated spread sheet correspond to /01-a/ - ER estimated spread sheet correspond to /01-b/ - ER estimated spread sheet correspond to /01-b/
/03/	Evidence for the start date of project activity 1 and the grouped project
/04/	Technical specifications of the SDWP from manufacturer including the life span.
/05/	Proof of right of relinquishment of VERs from the end users to the project proponent.
/06/	Beneficiary agreement confirming that the traditional wood stoves were used for boiling water in the baseline situation.
/07/	Baseline survey records (for the parameters QPWpp, BLfuel,I, Xboil) implemented at Mekong River Delta in VietNam.
/08/	Local stakeholders' consultation meeting records.
/09/	Project implementation schedule.
/10/	Evidence of unique identification system of the SDWP.
/11/	Microbiological test report from an accredited laboratory.
/12/	Evidence to demonstrate water purifiers as free of cost to the users.
/13/	Sample survey or reference literature used to determine the types of stoves and fuel used in the baseline scenario.
/14/	Monitoring survey questionnaire template
/15/	SDWP distribution agreement
/16/	Training plan/ records of personnel appointed for surveys.
/17/	Declaration from the project proponent that the project is not creating any other form of environmental credit under any specific program.
/18/	Declaration from the project proponent that the project has not or shall not claim carbon credits on any other scheme after Registration of the project under VCS.
/19/	fNRB calculation report from a third-party C4 EcoSolutions (Pty) Ltd. 1.FAO. Global Forest Resources Assessment. (2020).

	2. FAO. Achieving emission reductions in the central highlands of Vietnam to support National REDD+ Action Programme goals. https://www.unredd.net/documents/un-redd-partner-countries-181/asia-the-pacific-333/a-p-partner-countries/viet-nam-183/16479-provincial-redd-action-plans-viet-nam.html http://www.gemcopelletmills.com/biomass-energy-in0vietnam.html (2012) 3. The World Bank Group. World Development Indicators. DataBank https://databank.worldbank.org/source/world-development-indicators (2021) 4. IPCC. Chapter 4: Forest land. in Guidelines for national greenhouse gas inventories. Volume 4: Agriculture, forestry and other land use (2006). 5. Khuc, Q. Van, Tran, B. Q., Meyfroidt, P. & Paschke, M. W. Drivers of deforestation and forest degradation in Vietnam: An exploratory analysis at the national level. For. Policy Econ. 90, 128–141 (2018)
/20/	Evidence for the values used for the ex-ante VER estimation.
/21/	Equipment contract as evidence of the cost for Safe Drinking Water Purifiers.
/22/	1. Public comment Summary 2. Public comments Response 3. 4G_Exclusive certificate 4. Ecozen- 25 Water Final EN.

APPENDIX 1.2: BACKGROUND DOCUMENTS

Ref	Document
/B01/	VCS Requirements a. VCS Standard (v4.1, dated 19/09/2019) b. VCS Program Guide (v4.0, dated 19/09/2019) c. VCS Validation and Verification Manual version (v3.2, dated 19/10/2016) d. Registration & Issuance Process (v4.0, dated 19/09/2019) e. VCS Programme Definitions version (v4.1, dated 19/09/2019) f. VCS PD template version 4.0
/B02/	Applied baseline and monitoring methodology 1) AMS–III.AV: “Low greenhouse gas-emitting safe drinking water production systems”, version 08”
/B03/	a. “Standard for sampling and surveys for CDM project activities and programme of activities” (version 09.0) b. Guidelines for sampling and surveys for CDM project activities and Programme of

	Activities (version 04)
/B04/	Website and links: 1. IPCC (http://www.ipcc-nggip.iges.or.jp) 2. http://cdm.unfccc.int 3. http://www.v-c-s.org

APPENDIX 2: ABBREVIATIONS

CDM	Clean Development Mechanism
BE	Baseline Emission
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CL	Clarification Request
CO ₂	Carbon Dioxide
CO _{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DPR	Detailed project report
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FVR	Final validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MW	Mega Watt

MWh	Mega Watt Hour
NA	Not Applicable
OSV	On Site Visit
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
WM	Validation and Verificatoin Manual
VS	Validation and Verification Standard

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon Check (India) Private Ltd.

Vikash Kumar Singh

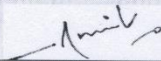
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☒
Verifier	☒	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☒	TA 4.1	☒	TA 9.1	☐	TA 13.1	☒
TA 1.2	☒	TA 5.1	☐	TA 9.2	☐	TA 13.2	☒
TA 3.1	☒	TA 5.2	☐	TA 10.1	☐	TA 14.1	☐



Mr. Amit Anand
CEO

Date of Approval
24/12/2021

Valid Till
23/12/2022

Revision History of the Document

01/03/2020 ²	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision

¹ India, South Africa, Spanish speaking countries

² Please refer to previous version of competency certificates for the revision history.

CARBON CHECK (INDIA) PRIVATE LIMITED

CIN: U74930DL2012PTC232495

Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005

Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh

Tel: +91 120 4373114 | URL: www.carboncheck.co.in | e-mail: info@carboncheck.co.in



Carbon Check (India) Private Ltd.

Ms. Aparna Choudhary

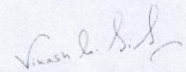
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

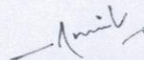
Validator	☒	Team Leader	☒	Technical reviewer	☐
Verifier	☒	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☐	TA 3.1	☒	TA 5.2	☐	TA 9.2	☐	TA 13.2	☐
TA 1.2	☒	TA 4.1	☐	TA 8.1	☐	TA 10.1	☐	TA 14.1	☐
TA 2.1	☐	TA 5.1	☐	TA 9.1	☐	TA 13.1	☐		



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
29/11/2021

Valid Till
28/11/2022

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2017	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision
01/03/2020	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
23/12/2021	Annual Revision
29/11/2021	Revision in response to qualification as team leader and technical expert.

¹ India

CARBON CHECK (INDIA) PRIVATE LIMITED

CIN: U74930DL2012PTC232495

Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005

Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh

Tel: +91 120 4373114 | URL: www.carboncheck.co.in | e-mail: info@carboncheck.co.in



Carbon Check (India) Private Ltd.

Ms. Indumathi. C

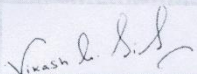
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

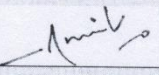
For following functions:

Validator	☐	Team Leader	☒	Technical reviewer	☒
Verifier	☐	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☒	TA 4.1	☐	TA 9.1	☐	TA 13.1	☒
TA 1.2	☒	TA 5.1	☐	TA 9.2	☐	TA 13.2	☒
TA 3.1	☒	TA 5.2	☐	TA 10.1	☐	TA 14.1	☐


Mr. Vikash Kumar Singh
Compliance Officer


Mr. Amit Anand
CEO

Date of Approval
24/12/2021

Valid Till
23/12/2022

Revision History of the Document

01/03/2020 ²	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision

¹ India.

² Please refer to previous version of competency certificates for the revision history.

CARBON CHECK (INDIA) PRIVATE LIMITED
CIN: U74930DL2012PTC232495

Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005

Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh
Tel: +91 120 4373114 | URL: www.carboncheck.co.in | e-mail: info@carboncheck.co.in

APPENDIX 4: FINDINGS LOG

Finding	CAR 01
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE)	In line with the filling guideline of Project Description VCS Version 0.4, In section 1.3 (Project Eligibility) of PD, it is required to “Describe and justify how the project is eligible under the scope of the VCS Program.” And in section 1.4 Project Design the eligibility criteria are required to be demonstrated as per paragraph 3.5.15 and 3.5.16 of VCS standard version 4.1. However, PP has mentioned the eligibility criteria referring section 3.5.15 of VCS standard version 0.4 in section 1.3 of PD. Moreover, the eligibility criteria for inclusion of New Project Activity Instances provided in section 1.4 of PD does not match the eligibility criteria mentioned in paragraph 3.5.16 of VCS Standard version 0.4
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The eligibility criteria for inclusion of New Project Activity Instances has been updated in section 1.4 of the updated PD according to the eligibility criteria mentioned in paragraph 3.5.16 of VCS Standard version 0.4.1
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	.As per the finding raised, section 1.4 Project Design the eligibility criteria are required to be demonstrated as per paragraph 3.5.15 and 3.5.16 of VCS standard version 4.1. Further, the eligibility criteria shall include the following conditions that all new instances shall comply with: 1) must meet the SSC threshold of 60,000 tCO2 maximum per year (given that the project proponent applies a SSC methodology), 2) shall include the requirements set out in section 1.16.1 of the project description regarding the unique serial number, and 3) shall include a requirement that the baseline situation shall be the use of traditional cookstove (as the default value of 0.1 is applied for all baseline cookstoves). Hence the finding is still open.
Corrective Action or clarification #2 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The eligibility criteria in section 1.3 and 03 eligibility criteria about capacity limit, double counting ERs and target Group have been added in section 1.4 of the updated PD, version 03.

Finding	CAR 01
DOE Assessment #2 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	On the basis of review of revised PD validation team confirms that the required eligibility criterias has been added under section 1.3 of the revised PD. Hence the finding is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 02
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE) 	As per the PD section 3.5, project shall demonstrate additionality by simple cost analysis. For the first project activity please demonstrate the cost analysis by mentioning the cost of filter. Submit the evidence. Moreover, it is mentioned in the PD that “Currently no similar technology penetration is there in the host country”. PP is requested to provide the reference for the same.
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The project is to free distribution SDWPs to the Household, the PP has no other income from VER revenue, therefore the simple cost analysis is applied to demonstrate additionally. The equipment contract for first project activity has been provided to DOE for checking the cost of SDWPs The sentence “Currently no similar technology penetration is there in the host country” has been removed from revised PD for misunderstanding.

Finding	CAR 02
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	On the basis of review of the purchase agreement dated 11/10/2021 and beneficiary agreement submitted by the PP, validation team confirms that the distribution of SDWP is free of cost under the project. Moreover, PP has mentioned the additionality of project activity 1 under the section 3.5 of the PD. The same is acceptable to the validation team on the basis of review of the purchase agreement and beneficiary agreement submitted by the PP. Furthermore, PP has removed the statement “Currently no similar technology penetration is there in the host country” to avoid any misunderstanding. Hence the finding is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 03
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE) 	PP has referred to VCS Standard version 04 in the PD, while the latest version for VCS standard is version 4.1. Moreover, version number of Tool21 used in the PD is not latest version. Kindly update. PP is requested to check the same throughout the PD.
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The latest version for VCS Standard (version 4.1) and Tool21 have been updated in the revised PD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	PP has revised the versions of VCS standard and tool 21 to the latest versions and hence the finding is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☒ Outstanding finding (not closed) ☐ The finding is closed

Finding	CAR 04		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (DOE)	Under Section 5.1 for the parameters fi “Factor to determine amount of non-renewable fuel” the used tools 30 is not latest version. Kindly update the version of the tool. Under section 5.3 the “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities” used is not latest version. Kindly update. PP is requested to check the version number of tools and standard used throughout the PD.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	Tool 30, version 03 “Calculation of the fraction of non-renewable biomass” and the “Standard for sampling and surveys for CDM Project Activities and Programme of Activities”, version 09.0 have been updated in the revised PD.		
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has revised the version of Tool 30 and version of the Standard for sampling and surveys for CDM Project Activities and Programme of Activities” to the latest versions available. Hence the finding is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 05		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (DOE)	As per the VCS Standard v4.1, section 3.6.1, the project description shall be accompanied by one or more of the types of evidence listed to establish project ownership. However, Section 1.7 of the project description document, on project ownership, states: “The Project Ownership is with “Sustainability Investment Promotion and Development Joint Stock Company. (SIPCO).” Who is also the Coordinating & Managing Entity of the project”. Providing no justification on the project ownership or evidence in line with the VCS Standard requirement. PP is requested to justify the project ownership based on one of the types of evidence mentioned in the standard v4.1, section 3.6.1		

Finding	CAR 05
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The beneficiary agreement between SIPCO and households prove that SIPCO's proof of ownership of the credits. This information has been updated in the revised PD, version 04 and the beneficiary agreement has been provided to DOE for review.
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	On the basis of review of the revised VCS PD, and beneficiary agreement submitted by the PP, validation team confirms that the project ownership belongs to SIPCO. Hence this finding is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 06
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE)	As per section 3.1 of the VCS Project Description Template v4.0, the project proponent shall provide the title and version number of any tools applied by the project. Also, as per section 3.2, the project proponent shall demonstrate and justify how the project activity meets each of the applicability conditions of the tools applied by the project. However, it was noted that the project did not provide the title and version number of the Tools applied by the project activity. Also, the project proponent did not address the applicability conditions of the Tools applied. Under section 3.2. PP is requested to add the required information.
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	Title and version number of the Tools applied has been provide in section 3.1 of updated PD, version 03 The demonstration the project meets each of the applicability conditions of the applied tools has added in section 3.2 of updated PD, version 03

Finding	CAR 06
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	On the basis of review of the revised VCS PD validation team confirms that all the tools with the latest versions have been updated in section 3.1 and the applicability criteria of the tools has been added under section 3.2 of the revised VCS PD submitted to the DOE. Hence the finding is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 07
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE)	As per the VCS Standard v4.1, section 3.12.1, the baseline scenario for the project shall be determined in accordance with the requirements set out in the methodology applied to the project, and the choice of baseline scenario shall be justified. However, it was noted that Section 4.1 of the project description document does not include information on the determination of the fraction of non-renewable biomass based on Tool 30. Also, no information was provided in the project description document regarding the baseline sampling applied to determine the average volume of drinking water per person and the fraction of people using woody biomass in the baseline. PP is requested to provide the proper justification of all baseline parameters applied by the project activity, such as the fraction of non-renewable biomass, the average volume of drinking water per person, and the fraction of people using woody biomass in the baseline.
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The detailed information about the baseline parameters in project activity have been added in the section 4.1 of the updated PDs, version 03
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	On the basis of review of section 4.1 of the revised PD submitted to DOE, validation team confirms that all the baseline parameters have been mentioned appropriately under section 4.1 of the VCS PD. Hence the finding is closed.

Finding	CAR 07
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 08
Classification	☒ CAR ☐ CL ☐ FAR
Description of finding (DOE)	Under section 1.1 of the PD The calculation is for 6 lakh units which is to be distributed in the entire grouped project. But the ER estimation should be for the 1st instance of the project activity, which is included in the PD Moreover, each project activity (being small scale) should not cross 60,000 tCO ₂ /year. Also mention how much units to be distributed under PA1?
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The ER estimation has been re-calculated for the project activity 1 and updated in the revised PD. PPs has noted that ER of each project activity do not exceed 60,000 tCO ₂ /year in revised PD. The project proponent aims to disseminate 28,000 SDWPs in An Giang Province in the project activity 1 of this grouped project. This information has been updated in the revised PD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	On the basis of review of the revised PD and revised ER sheet validation team confirms that the value of the emission reduction does not cross the limit 60,000tCO ₂ per year being a small scale project activity. And thus acceptable by the validation team. Hence the finding is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 01
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding (DOE)	In line with the filling guideline of Project Description VCS Version 04, In section 2.4, (Public Comments) it is required to "Demonstrate how due account of all and any comments received during the public comment period has been taken." However, PP has mentioned the Local stakeholder comments in the public comment section. PP is requested to clarify the same.

Finding	CL 01
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The project was received 05 comments during the public comment period 21 October–21 November 2021. The response by PP for these comments has been described in revised PD and provided to DOE for review.
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has revised the section 2.4 of the PD and added all the public comments received during the commenting period from 21/10/2021 to 21/11/2021. Hence the finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 02
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding (DOE)	It has been observed by the validation team that the value of “factor to determine amount of non-renewable fuels” mentioned in the PD and the value used in the ER spreadsheet for the calculation of emission reduction is not consistent with the value in the fNRB report by C4 EcoSolutions (Pty) Ltd shared as a supporting document. Kindly clarify the inconsistency.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The fNRB calculated by C4 Ecosolutions (Pty) Ltd has been updated in the revised ER sheet PD for consistency.
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	PP has revised the value of the “factor to determine amount of non-renewable fuels” in the PD and the ER spreadsheet with the correct value as per the report of the fNRB calculated by C4 Ecosolutions (Pty), the values mentioned in the PD and ER spreadsheet is now consistent with the fNRB calculated by C4 Ecosolutions (Pty). Hence the finding is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

APPENDIX 5: PARAMETERS DETERMINED EX-ANTE

The following parameters are determined ex-ante and mentioned in section 5.1 of the PD:

S.No	Parameter	Unit	Value	Assessment
1	QPWpp	Litres	5.1	Validation team on the basis of document review (baseline survey) and interview with the end users confirms the acceptability of the value.
2	LS	Years	10	Validation team on the basis of review of Manufacturers specifications of SDWP confirms the acceptability of value.
3	n_{wb}	%	10	On the basis of document review and remote audit validation team confirms that the value applied is acceptable.
4	BLfuel,i	Fraction	0.9198	Validation team on the basis of document review, baseline survey and remote audit confirms that the value applied is acceptable.

5	fi	Fraction	0.9403	-Fixed ex-ante -The value is calculated by PP (SIPCO) in line with the applicable methodological CDM Tool 30, version 3.0
6	EF _{projected fossilfuel}	tCO ₂ /TJ	85.7	AMS – III.AV, Version 08.0 IPCC, chapter 2, table 2.2
7	X _{boil}	%	0.9818	The value applied is acceptable and cross checked from the baseline survey and remote audit.