

Project Title	Nazava Water Filter Project
ERM CVS Project Reference	2782.V1
Client Name	Nexus Carbon for Development Ltd.
Client Address	352 Tanglin Road #02-02 Singapore 247671 Singapore

Gold Standard Validation Report

ERM Certification and Verification Services
2nd Floor, Exchequer Court
33 St Mary Axe
London EC3A 8AA

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Table of Contents

1	Project Information.....	4
1.1	Key project information	4
2	Summary and Validation Opinion.....	6
3	Introduction.....	8
3.1	Validation Objectives	8
3.2	Scope	8
3.3	Contract Review	8
3.4	Validation Personnel.....	8
3.5	Summary of CVs of the validation personnel.....	9
4	Validation Approach.....	10
4.1	Document Review.....	10
4.2	Site visit and Interviews	10
4.3	Preparation of Draft Validation Report.....	11
4.3.1	Remediation requests	11
4.4	Final Validation Report and Validation Opinion.....	12
4.5	Internal Quality Control	12
5	Validation findings – PDD and Project Description.....	13
5.1	Project Design Document (PDD)	13
5.2	Project Description.....	13
5.2.1	Description of the project activity.....	13
5.2.2	Project Location and Status	13
5.2.3	Description of baseline scenario	15
5.3	Activity eligibility.....	16
6	Validation findings – Baseline and Monitoring Methodology.....	18
6.1	Validity of selected methodology and methodological tools.....	18
6.2	Applicability of the selected methodology to the project activity.....	18
6.2.1	Small scale project eligibility criteria.....	21
6.3	Project Boundary	22
6.3.1	Emission sources	22
6.3.2	Physical delineation of the project.....	23
6.4	Baseline identification	24
6.5	Algorithms and/or formulae used to determine emission reductions.....	25
6.5.1	Ex Ante Data and Parameters.....	26
6.5.2	Equations and calculations used to calculate emission reductions	28
7	Validation findings – Additionality	31
7.1	Starting date and prior consideration of carbon finance.....	31
7.1.1	Consideration of carbon revenues in the decision to implement the project activity.....	33
7.2	Identification of alternatives	34
7.3	Additionality Analysis	34
8	Validation Findings - Monitoring Plan.....	36
8.1	Compliance of the monitoring plan with the approved methodology.....	36
8.1.1	Completeness of monitoring parameters.....	36
8.1.2	Compliance of monitoring.....	37
8.2	Implementation of the monitoring plan.....	39
8.3	Sampling plan.....	40
9	Validation Findings –Local Stakeholder Consultation and Environmental Impact.....	42
9.1	Environmental Impacts	42
9.2	Local Stakeholder Consultation	42
9.3	Sustainability assessment	44
9.4	Sustainability Monitoring Plan.....	46
	Appendix A: Documents and Interviewees.....	48
A.1	DOCUMENT LIST	48
	Appendix B: Remediation Form	51

Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification request
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COP	Conference of the Parties
DNA	Designated National Authority
FAR	Forward Action Request
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GS	Gold Standard
GSP	Global Stakeholder Process
GWP	Global Warming Potential
GWh	Giga Watt hour
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LoA	Letter of approval
MOP	Meeting of the Parties
MP	Monitoring Plan
MW/MWh	Mega Watt/Mega Watt hour
NCV	Net Calorific Value
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PPA	Power Purchase Agreement
PSD	Project Starting Date
SCE	Standard coal equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added tax
VVS	CDM Validation and Verification Standard

1 Project Information

1.1 Key project information

Project Title	Nazava Water Filter Project
Project Location(s)	Indonesia
Host Party	Indonesia
Other Party(ies)	N/A
Project participants	PT Holland For Water

Methodology used	AMS III.A.V: Low greenhouse gas emitting safe drinking water production systems, Version 04.0
Methodological tool(s) used	<p>Methodological Tool on Demonstration of additionality of small scale project activities, Version 10.0, EB 83, Annex 14</p> <p>Other applicable guidelines/standards:</p> <p>Guidelines for sampling and surveys for CDM project activities and programme of activities, Version 03.0, EB 75, Annex 08</p> <p>Standard: Sampling and surveys for CDM project activities and programme of activities Version 04.1, EB 74, Annex 06</p>
Sectoral Scope (as per http://cdm.unfccc.int/DOE/scopes.html)	Sectoral Scope: 3.0


Project Design Document GSP Version	Date: 01 May 2015	Project Design Document Final Version	Date: 14 December 2015
	Version Number: 02		Version Number: 2.4

Starting date of the project activity	<p>09 November 2011*</p> <p>*This project is a retroactive project (crediting period start date: 01 January 2014) and therefore is required to submit the required documents to the Gold Standard (time of first submission) within one year of its start date. However since the project has been submitted to the GS in the past as a VPA (and subsequently withdrawn due to the CME terminating the PoA), the GS has exempted the project from this rule. ERM CVS has reviewed PP communication with GS/15/ to confirm.</p>
Crediting Period start and end date	<p>10 years</p> <p>01 January 2014 to 31 December 2023 (Fixed)</p>
Estimated annual average emission reductions	25,928 tCO ₂ e

Date(s) of validation site visit	31 October – 06 November 2013** **The project was initially submitted as a VPA in 2013 (the site visit was undertaken by ERM CVS in 2013) and subsequently the CME terminated the PoA. The project is now being submitted as a standalone GS project, its eligibility to do so has been confirmed by the GS/15/. Furthermore, as per GS communication with PP/15/ a new site visit was not required.
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2 Summary and Validation Opinion

Project Title	Nazava Water Filter Project
Name of Client	Nexus Carbon for Development Ltd.
Basis of validation	<p>ERM CVS based its validation work on:</p> <ul style="list-style-type: none"> • Approved monitoring methodology AMS III.A.V: Low greenhouse gas emitting safe drinking water production systems, Version 04.0 • Gold Standard Requirements version 2.2, its Toolkit and Annexes and the Gold Standard's LSC Report Review Checklist for DOEs • CDM Validation and Verification Standard (version 09.0) • ERM CVS's internal CDM validation methodologies and templates • CDM decisions and guidance issued by the CDM Executive Board • UNFCCC criteria for the Clean Development Mechanism • Host Country criteria for the Clean Development Mechanism
Responsibilities of ERM CVS	ERM CVS is responsible to provide a thorough independent third party assessment of the proposed GS project activity to ensure that the proposed GS project activity meets all the identified and applicable criteria for registration of projects under the Gold Standard.
Responsibilities of Project participants	The Project Participants are responsible for preparing the PDD, Gold Standard Passport, supporting documentation and providing all necessary evidences to support the information included in the PDD and Passport.
Activities performed	<p>ERM CVS conducted its activities in accordance with the Gold Standard Requirements version 2.2. The validation consisted of a review of project documentation, a site visit, interviews with relevant personnel, cross checking information through other reliable sources and reporting. Validation work was based on a validation report template that sets out relevant CDM requirements. Where necessary, Clarification Requests and Corrective Action Requests were raised and closed out with the Project participants. The validation work was subject to detailed Technical Review and assessment prior to submission.</p> <p>No component of the project activity was excluded from the validation.</p>
ERM CVS Conclusion	<p>ERM Certification and Verification Services (ERM CVS) has performed the validation of the project activity against the criteria for the Gold Standard Requirements version 2.2. The validation employed standard auditing techniques, and addressed the requirements of the CDM Validation and Verification Standard where applicable.</p> <p>The validation has provided sufficient evidence to demonstrate that the project activity is not the baseline scenario, and that emission reductions would be additional to what would have taken place in the absence of the project activity.</p> <p>The project meets the applicability criteria and correctly applies methodology(ies) AMS III.A.V: Low greenhouse gas emitting safe drinking water production systems, Version 04.0, and is therefore expected to result in real, measurable and long term reductions in greenhouse gas emissions.</p> <p>The monitoring plan provides for the collection and archiving of data sufficient to ensure that emission reductions can be verified.</p> <p>Nothing came to our attention to suggest that the project activity, if implemented as described, would not result in emission reductions of annual 25,928 tCO₂e per year on average over the first 10 years crediting period.</p> <p>In summary, it is the opinion of ERM CVS that the Project as described in the PDD Version 2.4 of 14 December 2015 and Gold Standard Passport version 2.1 of 31 August 2015, meets all stated criteria of</p>

	<p>the Gold Standard, correctly applies the methodology, and is expected to result in real, measurable and long term emission reductions.</p> <p>ERM CVS therefore requests the Gold Standard approves registration of the project activity.</p>
Signed on behalf of ERM CVS	
Name:	Melanie Eddis
Date:	22 December 2015

3 Introduction

3.1 Validation Objectives

The purpose of validation is to ensure a thorough, independent assessment of proposed GS project activities submitted for registration as a proposed GS project activity against the applicable GS requirements.

The DOE is responsible for reporting the results of its assessment in a validation report and submitting this validation report, along with the supporting documents to the Gold Standard as part of the request for registration of a project activity.

The DOE also presents its opinion on the compliance of the proposed project activity with the applicable GS requirements, and only requests registration if this is a positive opinion.

In the course of validation, ERM CVS assesses the project's baseline, additionality demonstration, applicability to an approved methodology, monitoring plan (MP), and compliance with relevant sustainable development criteria.

3.1.1.1 *Validation Criteria*

ERM CVS applies the following principles in performing its validation:

- Consistency
- Transparency
- Impartiality, independence and safeguarding against conflicts of interest
- Confidentiality

In all aspects of its work, ERM CVS ensures that the information and data reported are accurate, conservative, relevant, credible, reliable and complete.

3.2 Scope

The validation scope addresses the project activity as described in the Project Design Document (PDD), GS Passport and associated documentation. The PDD, Passport and associated documentation are reviewed against the criteria and requirements stated in the Gold Standard requirements and the CDM Validation and Verification Standard (VVS), as well as relevant decisions made by the Gold Standard.

The validation scope also included an assessment of completeness and accuracy of documentation, evaluation of evidences, information and assumptions made in the PDD, GS Passport and supporting documentation.

3.3 Contract Review

Prior to contracting with the client, a full review of the project and the validation requirements was made. This addressed both commercial risk and project risks associated with conducting the validation activities and confirmed the availability of an appropriately qualified team to conduct the validation.

3.4 Validation Personnel

Based on ERM CVS's review of the project, a validation team was established that takes into account the coverage of the technical area(s), sectoral scope(s) and relevant host country experience.

Personnel who were involved in the validation of this project activity were:

Validation Team

Name	Role	CDM Requirements	GS Requirements	Technical area	Participated in site visit?
Jonathan Avis	Team Leader	Yes	Yes	Yes	Yes
Sushmita Seelam	Assessor	Yes	Yes	Yes	Yes

DOE Head Office

Name	Role	CDM Requirements	Knowledge relevant to the technical area
Huoyun Li	Technical Reviewer	Yes	Yes

3.5 Summary of CVs of the validation personnel

Jonathan Avis is CDM Business Manager for ERM CVS, and a GHG Assessor and Technical Reviewer with over ten years' experience in the CDM. Since joining ERM CVS Jonathan has worked as a Technical Reviewer or GHG Assessor on more than 30 CDM validations in Renewable Energy (scope 1), more than 10 CDM validations in Manufacturing Industries (scope 04), 6 CDM validations in Mining (scope 8), and 5 CDM validations in Waste Handling and Disposal (scope 13). Jonathan's previous work experience involved screening and due diligence of carbon projects, Project Design Document (PDD) development, quality assurance and technical review of CDM project documentation, the development of carbon monitoring plans, and management of carbon projects through the validation, registration and verification stages. Jonathan has completed the ERM CVS CDM training as well as the GHGMI Renewable Energy training and Gold Standard training. Jonathan holds a BA in Geography and an MSc in Environmental Change and Management from the University of Oxford.

Sushmita Seelam is an Assessor and a Client Account Manager (CAM) based in London and has been with ERM CVS since July 2012. Prior to ERM CVS, Sushmita had been working in the sustainability consulting service industry for three years. As a CDM consultant, she has been involved in the development of over 25 CDM and VCS projects in various sectors. Her work also involves research and experience in supply chain evaluation, resource footprinting and life cycle assessment of commodities, with a focus on water and GHG footprinting for sectors such as global energy (especially oil & gas), agricultural commodities etc. Sushmita holds a B.E. in Environmental Engineering and an MSc in Environment and Sustainable Development. She has also completed the ERM CVS CDM validation and verification training and the CDM Gold Standard training.

Huoyun Li is a thermodynamic engineer and chartered accountant. She has eight years work experience in the power sector in China. Since 2006 she has worked in the carbon market, with project developers and now with ERM CVS. Her previous experience in CDM includes screening and due diligence of Carbon projects, investment appraisal, internal audit and risk management of CDM projects. She has managed carbon projects through the project design document (PDD) development, validation, registration and verification stages. She also has conducted technical review of CDM documentation during validation and verification stages. The sectors she was involved in include: Catalytic reduction of N₂O in HNO₃ plants, hydroelectricity, wind energy and solar energy, landfill gas, and coal mine methane. Huoyun Li graduated from Zhejiang University in China with a degree of BSc in Engineering (major in Energy). She also has a degree of BSc (Hons) in Applied Accounting from Brookes University, UK. Huoyun has completed the ERM CVS CDM validation and verification training course.

4 Validation Approach

In carrying out its validation work, ERM CVS has:

- a) Determined whether the proposed project activity complies with the requirements of the Gold Standard requirements, the applicability conditions of the selected methodology and guidance issued by the Gold Standard;
- b) Assessed the claims and assumptions made in the project design document (PDD) and GS Passport. The evidence used in this assessment has not been limited to that provided by the project participants.

The validation was carried out in accordance with the most recent version of the Gold Standard requirements and the CDM VVS. The validation process employed standard auditing techniques and undertook necessary cross-checks and follow-up actions to ascertain the correctness of the information. The validation team included staff with experience in the relevant technical areas within the sectoral scope, and financial expertise where relevant. The validation report and associated documents have undergone a thorough technical review by ERM CVS before being submitted to the Gold Standard for registration. The validation consisted of the following key stages:

- Upload of the PDD and GS passport to the GS registry
- Review of documentation including PDD, GS Passport, methodology and key supporting documents and references
- A visit to the project site, including interviews with personnel responsible for developing the project
- Development of a draft validation report, identifying non-compliances including Corrective Action Requests (CARs) and Clarification Requests (CLs), taking into account findings of the GSP, desk review and site visit / interviews
- Resolution of outstanding issues (CARs and CLs) and development of a final validation report and validation opinion
- Independent technical review and report approval

4.1 Document Review

A detailed document review of the PDD, GS Passport, methodology and all other associated documentation and references took place, and documents that were not available for the desk review were requested for review during the site visit. The document review includes:

- A review of data and information to verify the correctness, credibility and interpretation of presented information;
- Cross checks between information provided in the PDD and Passport and information from other sources, not limited to those provided by the PPs, applying ERM CVS's sectoral or local expertise and, if necessary, with independent background investigations
- Reference to available information relating to projects or technologies similar to the proposed project activity
- Review, based on the approved methodology being applied, of the appropriateness of formulae and accuracy of calculations

Where the review of the PDD or GS Passport at the document review stage raised issues, these were further reviewed and validated through supporting documentation and cross-checking from other sources and interviewing relevant personnel involved in the project activity during the site visit. During the document review the project team also compared the proposed project activity with available information relating to projects or technologies similar to the proposed project activity under validation. Where appropriate, the validation team assessed the appropriateness of formulae and the correctness of calculations presented by the PPs. A list of all documents reviewed or referred to in the course of this validation is included in Appendix A.

4.2 Site visit and Interviews

The site visit took place in the period 31 October – 06 November 2013. The site visit included interviews with Nazava filter distributors, project implementers, project partners, stakeholders, officials, and other experts and individuals with a knowledge of the baseline situation in Indonesia, and included visits to households and institutions in rural and urban areas of Java (Jakarta, Bogor and surrounding rural areas) which helped the validation team to validate the baseline and the baseline survey. ERM

CVS visited 5 urban households, 5 rural households and 5 institutions which are already using Nazava filters to help to assess sustainability, stakeholder engagement, baseline, and monitoring aspects.

Site visits and interviews provide additional and background to the project as well as cross checks with project documentation. Interviews were undertaken with relevant stakeholders in the host country, as well as personnel with knowledge of the project design and implementation. A list of interviewees, and the main topics discussed with each person can be found in appendix A.

The project was initially submitted as a VPA in 2013 (the site visit was undertaken by ERM CVS in 2013) and subsequently the CME terminated the PoA. The project is now being submitted as a standalone GS project, its eligibility to do so has been confirmed by the GS/15/. Furthermore, as per GS communication with PP/15/ a new site visit was not required.

The site visit was designed to enable the validation team to:

- undertake a detailed review of additional project documentation and verify the supporting documentation;
- inspect the project site and confirm the validity of the project description in the PDD;
- assess the validity of the project boundary;
- cross-check the validity of the project information with other sources of information, including cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted; and
- interview relevant stakeholders in the host country, and personnel with knowledge of the project design and implementation.

4.3 Preparation of Draft Validation Report

Based on the findings of the desk review and site visit, ERM CVS prepared a draft validation report including a list of CARs and CLs, and provided this to the PPs. Where issues are identified that need to be further elaborated, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, ERM CVS identified these issues in the DVR so that they could be discussed with the PPs and concluded upon in the final validation report (FVR).

4.3.1 Remediation requests

Where issues were identified, ERM CVS raised one of the following remediation requests:

Clarification Request (CL): where information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Corrective Action Request (CAR): where:

- Mistakes have been made that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- The CDM requirements have not been met; or
- There is a risk that emission reductions cannot be monitored or calculated.

Forward Action Requests (FAR): where it was necessary to highlight issues related to project implementation that required review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

CARs and CLs must be 'closed out' before the validation can be concluded. Close out is only possible where the PPs modify the project design, rectify the PDD or provide adequate additional explanation or evidence that satisfies ERM CVS's concerns. The validation process may be halted until the CARs and CLs are addressed to the validation team's satisfaction.

4.4 Final Validation Report and Validation Opinion

The final validation report (FVR) is completed when the CARs and CLs have been closed out to the satisfaction of ERM CVS. The FVR includes the validation opinion that sets out the validation conclusion regarding the compliance of the project with CDM requirements.

4.5 Internal Quality Control

The process of validation and decision of the validation team has been subject to an independent Technical Review. The scope of the Technical Review process is to independently assess that all procedures have been followed, necessary requirements have been met, and all conclusions are justified. The final validation decision is based on the findings and conclusions of the validation team, assessing the compliance of the project activity with the CDM requirements, and the technical evaluation of the independent technical reviewer. The final report is then reviewed and approved by the qualified signatory / final decision maker within ERM CVS.

5 Validation findings – PDD and Project Description

5.1 Project Design Document (PDD)

ERM CVS reviewed the PDD to determine whether it has been prepared in accordance with the latest PDD form (template) and guidance from the CDM Executive Board available on the UNFCCC website.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/ CL	Final OK/ NOT OK
5.1.1	Is the PDD prepared in accordance with the latest forms and guidance required by the CDM EB? http://cdm.unfccc.int/Reference/PDDs_Forms/index.html#reg	ERM CVS can Confirm that the PDD has been checked against the 'Instructions for filling out the project design document form for small-scale CDM project activities' as part of the latest Project design document form for small-scale CDM project activities (Version 06.0). The PDD is not using the latest version of the PDD form. CAR 01 is raised. CAR 01 is closed. Please refer to the remediation form. The final PDD is in compliance with the template and guidelines.	CAR-01	OK

Conclusion

ERM CVS has confirmed that the PDD has been prepared in accordance with the latest relevant forms and guidance.

5.2 Project Description

ERM CVS reviewed the description of the project in the PDD in order to evaluate whether it provides a clear and accurate description of the proposed CDM project activity. Validation of the project description was based on review of documentation and interviews.

Please note that as described above, the project was initially submitted as a VPA in 2013 (when the site visit was undertaken by ERM CVS) and subsequently the CME terminated the PoA. The project is now being submitted as a standalone GS project, its eligibility to do so has been confirmed by the GS/15/. Furthermore, as per GS communication with PP/15/ a new site visit was not required. All site visit observations noted in this FVR are related to the site visit carried out by ERM CVS in 2013.

5.2.1 Description of the project activity

The project involves the sale and distribution of Nazava water filtration technology in Indonesia. Nazava's project includes Tulip, a ceramic filter candle that is mixed with colloidal silver and filled with activated carbon. The Tulips are imported from Basic Water Needs (BWN), and used in different locally made filter housings/containers that form the body of the filtration units.

These water filters are ceramic filters that remove microorganisms such as bacteria, fungi, sand, clay and other particles greater than 0.4 micron. They purify 2-3 litres per hour, and are certified to last for 7,000 litres/10/.

PT Holland For Water (also known by the brand name Nazava) use direct sales measures as well as distributors and resellers who make sales to various target populations. They carry out presentations to demonstrate the use and maintenance of the filters across Indonesia.

The findings of our validation of the project description in the PDD are set out below.

5.2.2 Project Location and Status

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
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	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
It 5.2.2 .1	<p>(i) Description: project design</p> <p>Does the project description in the PDD section A.3 provide a clear, accurate and sufficiently detailed description of all relevant elements of the proposed project activity?</p> <p>Specifically, does the project description provide clear indication of:</p> <ul style="list-style-type: none"> a) List of main technologies involved b) The lifetime of the project equipment c) Capacities and efficiencies d) Interaction with processes/equipment outside the project boundary, if any, is stated. e) Description of technology transfer from Annex I countries (if applicable) 	<p>The project involves the sale and distribution of Nazava water filtration technology in all of Indonesia. Nazava's project includes Tulip, a ceramic filter - the Tulips are imported from Basic Water Needs (BWN), and used in different locally made filter housings/containers that form the body of the filtration units. These water filters are ceramic filters that remove microorganisms such as bacteria, fungi, sand, clay and other particles greater than 0.4 micron. They purify 2-3 litres per hour, and are certified to last for 7,000 litres/10/.</p> <p>The PDD section A.3 contains a clear and complete description of the project activity, and the nature and technical implementation of the project activity. The description includes:</p> <ul style="list-style-type: none"> a) List of main technologies involved: the key components of the project technology such as the tulip filter, containers, taps etc. are described, and have been confirmed against the supporting documentation /09/10/13/14/. b) The lifetime of the project equipment is stated in the PDD and has been validated against the test results by KAN (National committee of Accreditation - Indonesia), Rwanda Bureau of Standards and other laboratories/17/ c) The maximum capacity of the filters is stated in the PDD and has been validated during the site visit and checked against the test results by KAN (National committee of Accreditation - Indonesia), Rwanda Bureau of Standards and other laboratories/17/ d) Interaction with processes/equipment outside the project boundary: not applicable, since the project involves distribution of filters across all of Indonesia. e) Description of technology transfer from Annex I countries is not included. Please refer to CL 01. <p>Furthermore, section A.3 of the PDD does not provide enough details about the target population. Please refer to CL 01.</p> <p>CL 01 is closed after the PP updated the documentation with reference to technology transfer and target population. Please refer to the remediation form.</p>	CL-01	OK
5.2.2 .2	<p>Description: Project location</p> <p>Is the location of the project correctly stated in the PDD? Are geographical coordinates given (in decimal format)? How has the location been validated?</p>	<p>Yes, the location is correctly stated in the PDD and the correct geographical coordinates are given. This information was confirmed during the site visit.</p>	OK	OK
5.2.2 .3	<p>Description: Existing installations</p> <ul style="list-style-type: none"> a) If the proposed CDM project activity involves the alteration of an existing facility, installation or process, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation? b) How has the description of the existing facility, 	<p>Not applicable. The project provides access to safe water in Indonesia through the distribution of water filters.</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	<p>installation or process been validated?</p> <p>c) Is the description of the existing facility, installation or process consistent with information provided in other parts of the PDD such as common practice and baseline selection?</p>			
5.2.2 .4	<p>Description: Operational lifetime</p> <p>What is the expected operational lifetime of the project activity? Is this lifetime considered reasonable for a project of this type in the host country?</p>	<p>The expected lifetime of a Nazava filter is related to the lifetime of its ceramic 'Tulip' water filter, which is certified to last for 7,000 litres/17/. Along with each filter, a measuring ring is provided to end users – this measuring ring is used to measure the diameter of the ceramic Tulip filter, which wears down over time with repeated use. End users are informed and educated that should the diameter of the filter be smaller than 5 cm or if the measuring ring fits around the filter, then that filter needs replacement. This know-how of end users was checked during the site visit by ERM CVS through interviews with end users. Nazava Water Filters are sold through a network of resellers, directly through shops and website so end users can obtain replacement filters at any time.</p> <p>The lifetime of the project activity is 10 years. This is considered reasonable for a project of this type in Indonesia based on ERM CVS's professional experience and opinion.</p>	OK	OK
5.2.2 .5	Is information on the plant load factor provided in the PDD? How has this been validated (please refer to the Guidelines for the reporting and validation of plant load factors, EB48_Annex 11.	Not applicable. The project provides access to safe water in Indonesia through the distribution of water filters.	OK	OK

Conclusion

The process undertaken to validate the accuracy and completeness of the project description is set out in detail above. ERM CVS has confirmed that the project description in the PDD provides a clear, accurate and complete understanding of the nature of the proposed CDM project activity.

5.2.3 Description of baseline scenario

The project description was evaluated to confirm whether or not it provides a clear and accurate summary of the project and baseline scenario.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
5.2.3	<p>Is there a clear description of the baseline scenario in the PDD? This should include:</p> <p>a) A list of the equipment(s) and systems that would have been in place in the absence of the project activity (if any)</p> <p>b) Information about the age and average lifetime of the baseline facility</p>	<p>The PDD includes a description of the baseline, which is the current situation in Indonesia where there is limited access to clean drinking water. Limited access to water sources also limits the quantity of suitable drinking water that is available to households. During the site visit, ERM CVS found through interviews that even if the water is obtained from an improved source, water is frequently fetched from sources that are located far away for households and may be contaminated during transport or storage/11/.</p> <p>In these circumstances, the prevailing practice in Indonesia is to treat the water prior to consumption. Of the various treatment options, boiling water is the most common treatment method – about 70.1% of the total population boils water prior to consumption /11/. The percentage of urban and rural populations boiling water is 60.0% and 80.1%, respectively /11/. Of the entire population, a 2012</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	<p>based on manufacturer's specifications and industry standards (if applicable)</p> <p>c) Installed capacities, load factors and efficiencies of the baseline facility (if applicable)</p> <p>d) An explanation of how the same types and levels of services provided by the project activity would have been provided in the baseline scenario.</p>	<p>demographic and health survey found that only 2.3% treat water using ceramic, sand or other filters/11/. The baseline scenario is the continuation of current practice, thus identical to the existing scenario prior to the implementation of the proposed project.</p> <p>(a) Not applicable. The project provides access to safe water in Indonesia through the distribution of water filters. The baseline scenario is the current situation, where there is a limited access to clean drinking water.</p> <p>(b) Not applicable since there is no baseline facility.</p> <p>(c) Not applicable since there is no baseline facility</p> <p>(d) The PDD states that in absence of the project activity, only about 2.3% of the population treat their water with a water filter. As validated above, about 70.1% of the total population boils water prior to consumption. The percentage of urban and rural populations boiling water is 60.0% and 80.1%, respectively/11/. The baseline scenario is the continuation of current practice, thus identical to the existing scenario prior to the implementation of the proposed project.</p>		
	If the methodology provides different options for the identification of the baseline scenario, has the correct option(s) been identified in the PDD, and has this been justified with supporting evidence? Please describe the evidence that was reviewed to validate this.	The methodology states that 'it is assumed that fossil fuel and/or non-renewable biomass (NRB) is used to boil water as means of water purification in the absence of the project activity'. This is the only option provided by the methodology. This has been correctly identified in the PDD as the baseline scenario, and has been justified with supporting evidence/11/.	OK	OK
	If the scenario existing prior to the start of the implementation of the project activity is different from the selected baseline scenario, is there a clear description of the pre-existing scenario, with a list of the equipment and systems in operation at that time?	Not applicable. The scenario existing prior to the start of the implementation of the project activity is the same as the baseline scenario.	OK	OK

Conclusion

The project description in the PDD contains a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. The description sufficiently covers all relevant elements, is accurate, and clearly states the differences resulting from the project activity compared to the pre-project situation.

5.3 Activity eligibility

Where a project activity is submitted for Gold Standard registration, it must be in compliance with the GS eligibility criteria. ERM CVS assessed whether the proposed project meets Gold Standard requirements on project type, GHGs, project cycle and double counting.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/ CL	Final OK/ NOT OK
5.3.1	Does the project fit either in the renewable energy supply	The project is an end-use energy efficiency project as it involves end use water	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/CAR/ CL	Final OK/ NOT OK
	category, the end-use energy efficiency improvement category or waste handling and disposal, as defined in the GS Toolkit and Annex C – Specific Eligibility Criteria?	filters which reduce the need for water boiling as a treatment option.		
5.3.2	Are the GHGs involved in the project boundary eligible under the Gold Standard, i.e. are they limited to CO ₂ , CH ₄ and N ₂ O?	Yes. The project reduces emissions of CO ₂ by the reduction in use of non-renewable biomass.	OK	OK
5.3.3	Was an announcement made about the project going ahead without the revenue from carbon credits?	<p>No. ERM CVS has not found any evidence of announcements of the project going ahead without carbon finance. Gold Standard is fully considered in the project design. Although Nazava (P.T. Holland for Water) has been established as an operational company in Indonesia since 2009, and has had the aim of distributing safe water filter products in Indonesia since at least that date, the widespread scale up of the programme is designed with Carbon Finance being fully considered. ERM CVS has not identified any prior announcements about the widespread scale up of the technology in Indonesia made without reference to carbon finance.</p> <p>The project is a retroactive project i.e. the start date of the project is before the date of application for Gold Standard registration. ERM CVS has therefore reviewed evidence of prior consideration of carbon revenues for the project – please refer to section 7.1 of this report.</p>	OK	OK
5.3.4	Does the project participate in other certification schemes than Gold standard?	<p>No. ERM CVS has found no evidence of participation in other certification schemes, other than the CDM* and Gold Standard.</p> <p>*Was previously considered under CDM as part of the PoA before Impact Carbon withdrew from the project. Now, the project is only involved in the Gold Standard programme.</p>	OK	OK
5.3.5	Is the project a regular or retroactive project? Have the procedures been followed correctly?	The project is a retroactive project. The relevant procedures have been correctly followed: a pre-feasibility assessment was conducted by the Gold Standard, and written feedback from the Gold Standard was provided on 10 October 2013 when the project was a VPA/32/.	OK	OK

Conclusion

ERM CVS has confirmed that the proposed project activity is in compliance with the GS eligibility criteria.

6 Validation findings – Baseline and Monitoring Methodology

ERM CVS has evaluated the baseline and monitoring methodology selected by the PPs to confirm its applicability and whether or not it has been appropriately applied to the project activity.

6.1 Validity of selected methodology and methodological tools

ERM CVS validated that an approved and currently valid baseline and monitoring methodology (and associated methodological tools) have been applied for this proposed project activity.

Baseline methodology applied	AMS III.A.V: Low greenhouse gas emitting safe drinking water production systems, Version 04.0
Methodological tools applied as required by the methodology	Methodological Tool on the Demonstration of additionality of small scale project activities, Version 10.0, EB 83, Annex 14

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.1.1	Are the number, title and version of the approved methodology clearly and correctly stated? Is the methodology within its period of validity?	ERM CVS has determined that the methodology is correctly quoted and applied by comparing with the actual text of the applicable version of the methodology available on the UNFCCC CDM website. The methodology is within its period of validity, as it is valid from 31 May 2013 to 23 July 2015. Requests for registration can be submitted until 19 March 2016.	OK	OK
	Are all the required tools applied and fully referenced in the PDD? Are the version numbers applicable at the time of validation?	The PDD does not use the latest version of the tool on the demonstration of additionality of small scale project activities. Please refer to CAR 01. CAR 01 is closed. Please refer to the remediation form. ERM CVS has determined that the methodological tools are correctly quoted and applied by comparing with the actual text of the applicable version of the tools available on the UNFCCC CDM website. The tools are within their period of validity.	CAR-01	OK
	If applicable, has any specific guidance provided by the GS Technical Advisory Committee (TAC) or CDM EB relevant to the project type or methodology been considered?	Yes. The following EB guidance and standard have been considered: Guidelines for sampling and surveys for CDM project activities and programme of activities, Version 03.0, EB 75, Annex 8 Standard: Sampling and surveys for CDM project activities and programme of activities Version 04.1, EB 74, Annex 6. Guidelines on the Assessment of de-bundling for SCC project activities, Version 04, EB 83, Annex 13.	OK	OK

Conclusion

The applied methodology and associated methodological tools have been correctly described and are approved for use under the Gold Standard. All versions are currently valid.

6.2 Applicability of the selected methodology to the project activity

ERM CVS evaluated whether the selected baseline and monitoring methodology applied is applicable to the project activity. This evaluation was based on a review of the PDD and associated documentation and a visit to the project site. ERM CVS has validated that the applicability conditions of the methodology (and tools, where relevant) are met and that the project activity is not expected to result in emissions other than those allowed by the methodology.

ERM CVS has assured the compliance of the project activity with each of the applicability conditions of the selected methodology and tools:

	Applicability Conditions in methodology and/or tools	Is this condition discussed in the PDD? (yes/no)	Does the project meet this condition? (Yes/No, or state that this condition is not relevant for the project)	Validation findings (including justification and substantiation of information, data and evidence).	Draft OK/ CAR/CL	Final OK/ Not OK
6.2	Prior to the implementation of the project activity, a public distribution network supplying SDW to the project boundary does not exist. If during the crediting period SDW is made available through a public distribution network, the emission reductions pertaining to the households/buildings supplied by the public system cannot be claimed from that point onwards. This condition should be checked annually during the crediting period;	Yes	Yes	<p>The PP presents a brief explanation of the baseline description of the project. It details that the about 25% of the population in Indonesia has access to piped water supply of water, and that about 30% of this water/18/ is contaminated with e. coli or faecal coliform bacteria, rendering it unsafe to drink. However, key information is not noted. For example, what percentage of the population has access to an improved water source (not just piped water source) and other forms of public distribution networks of SDW, and what percentage of all water sources available to Indonesians is contaminated? A more detailed analysis of the baseline scenario is needed. Please refer to CL 03.</p> <p>PP has clarified the baseline scenario and therefore CL 03 was closed. Please refer to the remediation form.</p>	CL-03	OK
	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); or (ii) an applicable national standard or guideline;	Yes	TBC Yes	<p>The PP has provided a link to test results and certifications performed by various agencies and health departments on the Nazava water filters/17/. ERM CVS has reviewed these test results and confirmed that the filters meet the criteria they were being tested against. However, no mention is made in the PDD regarding the compliance of these tests to an applicable national standard/guideline. PP is requested to clarify.</p> <p>The PDD has been updated to state that the water test results meet the appropriate national standards – and lists these standards. CL 04 is therefore closed, please refer to the remediation form for further information.</p>	CL-04	OK
	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.	Yes	Yes	<p>The PDD mentions that the expected lifetime of a Nazava filter is related to the lifetime of its Tulip water filter, which is certified to last for 7,000 litres/17/. Along with each filter, a measuring ring is provided to end users – this measuring ring is used to measure the diameter of the Tulip filter. End users are informed and educated that should the diameter of the filter be smaller than 5 cm or if the measuring ring fits around the filter, then that filter needs replacement. This know-how of end users was checked during the site visit by ERM CVS through interviews.</p> <p>The PDD details that all filters come with an Indonesian-language user manual with clear directions & information, an indicator for filter replacement, and a one-year warranty card.</p>	CAR-04 CL-05	OK

	Applicability Conditions in methodology and/or tools	Is this condition discussed in the PDD? (yes/no)	Does the project meet this condition? (Yes/No, or state that this condition is not relevant for the project)	Validation findings (including justification and substantiation of information, data and evidence).	Draft OK/ CAR/CL	Final OK/ Not OK
				<p>However, during the site visit in 2013 it was noted that the end users who had purchased the filters were not necessarily provided with warranty cards – in majority of the cases, the resellers had kept possession of the warranty cards. The validation team also did not come across any user manuals with end users. PP is requested to provide clarify on how it will be ensured that the end users are ceding rights to VERs. Please refer to CAR 04.</p> <p>CAR 04 was closed. Please refer to the remediation form.</p> <p>Furthermore, the PDD mentions that Nazava Water Filters are sold through a network of resellers, directly through shops and website so end users can obtain replacement filters. However, the PP needs to clarify what kind of documented measures are in place to ensure that end users have access to replacement purification systems of comparable quality, in accordance with the methodological requirements. The PP also needs to detail measures in place to handle repairs, if any. Please refer to CL 05.</p> <p>CL 05 was closed. Please refer to the remediation form.</p>		
	<p>Applicability of this methodology is foreseen in the following type of situations. If the renewable crediting period is chosen, these conditions shall be reassessed at the beginning of each crediting period:</p> <p>(a) Case 1: Project activities implemented in rural or urban areas of countries with proportion of rural or urban population using an improved drinking-water source equal to or less than 60 per cent confirmed by one of the options below:</p> <p>(i) Proportion of populations using an improved drinking-water source for the most recent year for which data is available from WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply</p>	Yes	Yes	<p>This applicability criterion is not sufficiently addressed. The PP has not provided credible evidence to support the claim that only 41.11% of the Indonesian population has access to an improved source of drinking water.</p> <p>Furthermore, the credibility of the source as an official data source could not be verified. Please refer to CAR 03.</p> <p>CAR 03 was closed when the PP updated to a more credible source of information. 87% of the population in Indonesia was found to have access to an improved source of water in 2015. Despite this, 70.1% of the population is found to boil water to treat it prior to consumption/11/. This is because water from improved water sources in Indonesia is not necessarily safe to drink without treatment due to the presence of e. coli or faecal coliform bacteria, rendering it unsafe to drink /18/.</p> <p>Therefore, the PP reclassified the project to fall under Case 2 project activities under the methodology. Please refer to the remediation form to find more detail on the closure of the CAR.</p>	CAR-03	OK

	Applicability Conditions in methodology and/or tools	Is this condition discussed in the PDD? (yes/no)	Does the project meet this condition? (Yes/No, or state that this condition is not relevant for the project)	Validation findings (including justification and substantiation of information, data and evidence).	Draft OK/ CAR/CL	Final OK/ Not OK
	<p>and Sanitation shall be used (<">http://www.wssinfo.org/data-estimates/table/>) for this purpose. Definition of improved and unimproved drinking water source shall be as per the information provided by JMP;</p> <p>(ii) Using official data such as publicly available statistical data from a government agency or an independently commissioned study by an international organization or an university;</p> <p>(iii) Using survey methods (use 90/10 confidence/precision for sampling);</p> <p>(b) Case 2: Project activities implemented in areas not included in Case 1.</p>					

Conclusion

The applied methodology and associated tools are fully applicable to the project activity and are correctly applied in the PDD.

6.2.1 Small scale project eligibility criteria

For small scale projects, the following has been checked:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.2.1	<p>Does the project meet the criteria for eligibility as a small scale project, as per decision 17/CP.7, paragraph 6(c), i.e.:</p> <p>Type (i) project activities: <i>renewable energy project activities with a maximum output capacity equivalent to up to 15 MW (or an appropriate equivalent)</i></p> <p>Type (ii) project activities: <i>energy efficiency improvement</i></p>	<p>The project falls under Type (iii) – 'other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually'. ERM CVS confirms that since the project has no direct emissions from the use of its filters and since it avoids anthropogenic emissions from the boiling of water using fossil fuel and/or non-renewable biomass (NRB) as means of water purification, this eligibility criterion is met.</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	<p><i>project activities which reduce energy consumption, on the supply and/or demand side, by up to the equivalent of 15 GWh per year</i></p> <p>Type (iii) project activities: <i>other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually</i></p>			
	Has it been demonstrated that the project is not a debundled component of a larger project activity, in accordance with the Guidelines on the Assessment of de-bundling for SCC project activities (Version 04) (EB 83, Annex 13)?	<p>ERM CVS can confirm that since there is no CDM project activity or application to register a CDM project activity:</p> <ul style="list-style-type: none"> a) With the same PPs; b) In the same project category and technology/measure; and c) Registered within the previous 2 years; and d) Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point <p>That the proposed small-scale project is not a debundled component of a large scale project activity. ERM CVS checked the CDM website to confirm this.</p>	OK	OK

Conclusion

The small scale project was confirmed to fully meet the applicability criteria for a small scale project and it has been confirmed that the project is not a debundled component of a larger project activity.

6.3 Project Boundary

ERM CVS reviewed the description of the project boundary in the PDD, to determine whether all main GHG emission sources, the physical delineation of the proposed project activity and other relevant project and baseline emission sources covered in the methodology are included within the project boundary for the purpose of calculating project and baseline emissions for the proposed project activity.

According to the applied methodology, the spatial extent of the project boundary includes the physical, geographical sites of the low greenhouse gas emitting technologies for water purification installed by the project activity and the household/institutional buildings where the consumers of safe water provided by the systems are located.

6.3.1 Emission sources

The emissions sources included in or excluded from the project boundary, as set out in the applied methodology are as follows:

	Source (as per methodology)	Gas	Is this source included within the project boundary in the PDD?	Is inclusion / exclusion from the project boundary justified in the PDD?	How has this been validated?
Baseline emissions	Emissions from electricity/fossil fuels utilized for obtaining safe drinking water displaced due to project activity	CO ₂	Yes	Yes	This is in line with the methodology. It is defined in the PDD as a major source of emissions.
		CH ₄	No	Yes	Not applicable – this is a minor source of emissions.
		N ₂ O	No	Yes	Not applicable – this is a minor source of emissions.
Project emissions	Emissions from fossil fuel or electricity consumed during the manufacturing of the purifiers and cleaning kits	CO ₂	No	Yes	Not applicable – this is a minor source of emissions.
		CH ₄	No	Yes	Not applicable – this is a minor source of emissions.
		N ₂ O	No	Yes	Not applicable – this is a minor source of emissions.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.3.1.1	Has the PDD justified the inclusion/exclusion of all potential sources of GHG emissions as set out in the applied baseline methodology	ERM CVS evaluated whether the sources of GHG emission set out in the applied methodology were included in the project boundary and, where the methodology allows PPs to choose whether a source or gas is to be included within the project boundary, this has been clearly justified in the PDD.	OK	OK

Conclusion

The identified boundary and the selected sources and gases included in the final PDD are appropriately described and justified for the project activity, in accordance with the applied methodology. The information is correctly described in the section B.3 of the PDD.

6.3.2 Physical delineation of the project

ERM CVS evaluated whether the PDD correctly describes the physical delineation of the proposed project activity, including which installations/processes are included within the geographical boundary of the project activity.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.3.2.1	Does the PDD correctly describe the project boundary, including the physical delineation of the proposed project activity included within the project boundary?	Based on the site visit, ERM CVS confirmed that the PDD correctly describes the project boundary, including the physical delineation of the proposed project activity included within the project activity. A diagram is included in the PDD that correctly illustrates the project boundary, including flow diagram of the baseline scenario as well as the flow diagram of the project scenario including key monitored parameters as well as the emissions sources and gases included in the project boundary.	OK	OK
	Were any emission sources identified that will be affected by the project activity and are	Based on the site visit, no emissions sources other than those addressed by the methodology were identified.	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	not addressed by the selected approved methodology? If so, was clarification of, revision to or deviation from the methodology approved in accordance with required procedures.			

Conclusion

The PDD correctly describes the project boundary, including the physical delineation of the proposed project activity, in compliance with the requirements of the selected baseline methodology, and this is consistent with site observations and other documentation provided. All sources and GHGs required by the methodology have been included within the project boundary. Where the methodology allows PPs to choose whether a source or gas is to be included within the project boundary, the PPs have sufficiently justified that choice. The justifications provided are reasonable, based on site observations by ERM CVS. The project boundary is justified for the project activity, based on ERM CVS's local and sectoral knowledge.

6.4 Baseline identification

ERM CVS reviewed the PDD to assess whether it correctly identifies the baseline for the proposed project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed project activity.

As per the VVS, no alternative analysis is required if the approved methodology that is selected by the proposed project activity prescribes the baseline scenario.

The baseline identification has been validated as follows:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.4.1	Does the PDD identify the baseline, a scenario that represents the anthropogenic emissions by sources of GHG that would occur in the absence of the proposed project activity?	Yes. The PDD includes a description of the baseline, which is the current situation in Indonesia where there is limited access to clean drinking water. The prevailing practice is to treat the water prior to consumption. 70.1% of the population boils their water to consider it fit for drinking/11/. By way of introducing Nazava water filters, the project aims to avoid anthropogenic emissions from the boiling of water using fossil fuel and/or non-renewable biomass (NRB) as means of water purification.	OK	OK
	Have the procedures/ steps to identify the most reasonable baseline scenario, as required by the methodology and applicable tools, been documented clearly in the PDD?	Since the baseline is specified by the methodology, no further procedures / steps to identify the most reasonable baseline scenario are required.	OK	OK
	Are all feasible and credible alternatives identified including but not limited to all the potential scenarios listed in the methodology? Does the list of alternatives include the project activity undertaken without being registered as a GS project?	Since the baseline is specified by the methodology, no further procedures / steps to identify the most reasonable baseline scenario are required.	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	Are realistic different configurations or combinations of alternatives that may be able to provide similar outputs and services considered?	Since the baseline is specified by the methodology, no further procedures / steps to identify the most reasonable baseline scenario are required.	OK	OK
	Are all considered alternatives assessed for consistency with (enforced) mandatory laws and regulations?	Since the baseline is specified by the methodology, no further procedures / steps to identify the most reasonable baseline scenario are required.	OK	OK
	<p>(a) Have all applicable requirements been taken into account in the identification of the baseline scenario?</p> <p>(b) Have all relevant national and/or sectoral policies and circumstances been taken into account, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector?</p> <p>Are the relevant national and/or sectoral policies and circumstances identified and correctly considered in the PDD?</p>	<p>(a) All applicable requirements have been taken into account in the identification of the baseline scenario, which has been carried out in accordance with the methodology AMS III.A.V: Low greenhouse gas emitting safe drinking water production systems, Version 04.0.</p> <p>(b) All relevant national and/or sectoral policies and circumstances have been taken into account. The identified baseline complies with all relevant national/sectoral policies – ERM CVS has confirmed that the project is not mandated by government national/sectoral policies/11/.</p>	OK	OK

Conclusion

Based on the site visit and documentary evidence to cross check the information contained in the PDD as referenced above, ERM CVS confirms that the baseline scenario has been correctly identified in line with the methodology, that all assumptions and data are correct, and that the identified baseline complies with all relevant national and/or sectoral policies and circumstances.

6.5 Algorithms and/or formulae used to determine emission reductions

As per VVS section 7.12.7, ERM CVS has evaluated whether the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and monitoring methodology.

ERM CVS conducted validation activities to determine whether the equations and parameters in the PDD have been correctly applied by comparing them to those in the selected approved methodology. Where the methodology provides for selection between different options for equations or parameters, ERM CVS confirmed that adequate justification has been provided (based on the choice of the baseline scenario, context of the proposed project activity and other evidence provided) and that the correct equations and parameters have been used, in accordance with the methodology selected.

ERM CVS verified the justification given in the PDD for the choice of data and parameters used in the equations. Where data and parameters will not be monitored throughout the crediting period of the proposed project activity but have already been determined and will remain fixed throughout the crediting period (ex-ante parameters), ERM CVS assessed that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions. Where data and parameters will be monitored on implementation and hence become available only after validation of the project activity, ERM CVS confirmed that the estimates provided in the PDD for these data and parameters are reasonable (please see section 9 for details of the validation of the monitored parameters).

6.5.1 Ex Ante Data and Parameters

Each parameter required by the methodology and tool(s) for this project type is listed and validated in detail as follows:

Parameter required as per methodology / tool	Description of the parameter (as per methodology/tool)	Is the parameter included in the PDD?	Title and description in the PDD line with the methodology / tool?	Data unit correctly expressed in PDD?	Value in PDD correct and provides for conservative estimate of Emission Reductions? How was this validated?	Measurement method correctly described in the PDD (if applicable)
$f_{NRB,y}$	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable	Yes	Yes	Yes	The source of data: $f_{NRB,y}$ (FAO Global Forest Resources Assessment 2000 and 2006 IPCC guidelines for National Greenhouse Gas Inventories/25/) is used to determine the parameter. The f_{NRB} value of wood 0.82 is used as it is the most conservative figure. Please refer to the closure of CL 02 for further information.	Yes, the measurement method is accurately described in the PDD and the ER spreadsheet/02/.
$*R_{y,i}$	The average volume of drinking water per person per day	Yes	N/A	Yes	Value of 3.5 litres/day is from the source - Minimum water quantity needed for domestic uses by WHO Regional Office for South-East Asia/26/. This source is deemed reliable and the value is conservative and in line with the methodology.	Not applicable.
$EF_{projected_fossilfuel}$	Emission factor as per or the emission factor of the fossil fuel substituted	Yes	Yes	Yes	Value of 81.6 tCO ₂ /TJ is a default value from AMS-I.E as referenced by applicable methodology AMS-III.AV.	Not applicable.
WH	Specific heat of water	Yes	Yes	Yes	Value of 4.186 kJ/L°C is a default value from applicable methodology AMS-III.AV.	Not applicable.
T_f	Final temperature	Yes	Yes	Yes	Value of 100 °C is a default value from applicable methodology AMS-III.AV.	Not applicable.
T_i	Initial temperature	Yes	Yes	Yes	Value of 20 °C is a default value from applicable methodology AMS-III.AV.	Not applicable.
WHE	Latent heat of water	Yes	Yes	Yes	Value of 2,260 kJ/L is a default value from applicable methodology AMS-III.AV.	Not applicable.
L	Leakage	Yes	Yes	Yes	Value of 0.95 is a default value from AMS-I.E as referenced	Not applicable.

Parameter required as per methodology / tool	Description of the parameter (as per methodology/tool)	Is the parameter included in the PDD?	Title and description in the PDD line with the methodology / tool?	Data unit correctly expressed in PDD?	Value in PDD correct and provides for conservative estimate of Emission Reductions? How was this validated?	Measurement method correctly described in the PDD (if applicable)
					by applicable methodology AMS-III.AV.	
Case 1 or Case 2	Case 1 or Case 2: Project activities implemented in rural or urban areas of countries with proportion of rural or urban population using an improved drinking water source equal to or less than 60 % (Case1) or above 60% (Case2)	Yes	Yes	Yes	Please refer to CAR 03. CAR 03 was closed. Project is established as Case 2 as 87% of the population in Indonesia has access to an improved source of water in 2015/27/.	Not applicable.
X _{boil}	Fraction of the population serviced by the project activity for which the common practice of water purification is or would have been water boiling	Yes	Yes	Yes	Value of 70.1% is from a reliable source: the Indonesian Demographic and Health survey published in 2011/11/.	Not applicable.
η _{wb}	Efficiency of water boiling	Yes	Yes	Yes	Value of 0.4 is a calculated value based on weighted average of default values of efficiencies of water boiling systems being replaced (from applicable methodology AMS-III.AV) and percentages of fuel types used by the population/11/.	Not applicable.

* Additional parameters to be considered in the context of the proposed project activity, which are not required by the applied methodology and tools.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.5.1.1	Have the parameters required by the methodology / tools been correctly described in the PDD? Where the methodology provides for selection between different options for data and parameters; is the choice of data and parameters justified?	The parameters required by the methodology and tools have been correctly described in the PDD and the choice of data and parameters is correctly justified. For further details please see the table above.	TBC	OK
	Have the different options and methodological choices in the methodology been correctly followed for the project?	Yes, ERM CVS confirms that different options and methodological choices in the methodology have been correctly followed throughout all documentation. The selections of choices are properly justified and based on supporting evidence,	TBC	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	throughout all documentation? Is the selection of methodological choices properly justified, based on supporting evidence? Are the methodological choices referred to consistently throughout all documentation?	and are referred to consistently throughout all documentation.		

6.5.2 Equations and calculations used to calculate emission reductions

The following steps are applied in the PDD to determine emission reductions, in accordance with the methodology and tools applied:

Baseline emissions

The baseline emissions (tCO₂e) shall be calculated as follows:

$$BE_y = QPW_y \times SEC \times f_{NRB,y} \times EF_{\text{projected_fossilfuel}} \times 10^{-9}$$

Emission factor when NRB (tCO₂/TJ) is displaced or the emission factor of the fossil fuel substituted is determined according to the default value in AMS I.E.

$$EF_{\text{projected_fossilfuel}} = 81.6$$

The fraction of non-renewable biomass is calculated in the Annex 4 of the PDD and results as below:

$$f_{NRB,y} = 0.82$$

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

$$SEC = [WH \times (T_f - T_i) + 0.01 \times WHE] / n_{wb}$$

Where:

WH	=	4.186 kJ/L oC
Tf	=	100 °C
Ti	=	20 °C
WHE	=	2260 kJ/L.
n_{wb}	=	0.2 for biomass and charcoal stove. 0.5 for fossil fuel combusting system 1.0 for other system (assumed figure for 'other fuels' mentioned in the source document/11/ – the value of '1' is considered conservative)

Fuel type	Percentage ¹	Efficiency
LPG	51.8%	0.5
Kerosene	7.4%	0.5
Wood	37.6%	0.2
Charcoal	0.4%	0.2
Other	2.8%	1

¹ Indonesian Demographic and Health Survey report published by Indonesian Ministry of Health/11/

Weighted average efficiency n_{wb}	0.4
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Therefore $SEC = [4.186 \cdot (100 - 20) + 0.01 \cdot 2260] / 0.4$
 $= 893.7 \text{ (kJ/L)}$

Quantity of purified water in year y is determined as below:

$$QPW_y = \sum_0^i T_{y,i} * N_{y,i} * R_{y,i} * 365 * \text{Water Quality} * \text{Operational Units} * X_{boil}$$

In which:

$T_{y,i}$	Total distributed water purification systems (number of units).
$N_{y,i}$	The average population serviced by water purification system (person/equipment)
$R_{y,i}$	Average volume of drinking water per person per day
Water Quality	This parameter is used to adjust $T_{y,i}$ such that only the proportion of units that meet required water quality standards out of the total sampled units shall be applied in the calculation of QPW_y
Operational Units	Monitoring to check the percentage of the monitoring period which units of each technology type are in use. This parameter is used to modify $T_{y,i}$ such that only the operating unit during the monitoring period shall be applied in calculation of QPW_y
X_{boil}	For Case 2, total project population needs to be adjusted for the fraction of the population serviced by the project equipment at households/buildings for which it can be demonstrated through documentation or survey that the practice of water purification would have been water boiling

Project emissions

There are no project emissions associated with this project.

Leakage

To account for leakages associated to non-renewable woody biomass a fixed adjustment factor of 0.95 is applied according to the AMS I.E, in accordance with the applicable methodology AMS III.A.V.

$$L = 0.95$$

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
6.5.2 .1	Has the PP correctly applied all relevant calculations as required by the methodology and associated tools? Is it fully explained how the procedures provided in the Methodology and applicable Tools are applied by the proposed project activity? (i.e. Are the required steps clearly followed?)	ERM CVS confirms that the PP has correctly applied all the relevant calculations as required by the methodology and associated tools. It further confirms that the PDD transparently explains how the procedures provided in the methodology and applicable tools are applied by the proposed project activity.	TBC	OK
	Where the methodology provides for selection between different options for equations; is every choice of options for calculating project emissions, baseline emissions and leakage offered by the methodology correctly justified	Yes, ERM CVS confirms that all choices of options required in calculating emission reductions are correctly presented in the updated PDD, in accordance with the applied methodology and applicable tools.	TBC	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	in the context of the project activity and baseline scenario?			
	Are the methodological choices referred to consistently throughout all documentation?	Yes, methodological choices are referred to consistently throughout the documentation.	TBC	OK
	Are the formulae required for the determination of project emissions, baseline emissions and leakage correctly presented in a complete and transparent manner, enabling a complete identification of parameters to be used and / or monitored?	Formulae required for the determination of project emissions and baseline emissions are correctly presented in a complete and transparent manner, enabling a complete identification of parameters to be used and / or monitored. The formulae are in accordance with the provisions of the applied methodology and tools and the choices made by the PPs.	TBC	OK
	Are detailed calculations provided in a traceable spreadsheet showing relevant information? Is the table of emission reductions in the PDD (section B.6.4) consistent with the calculations?	Detailed calculations are provided in a traceable spreadsheet showing relevant information. The table of emission reductions in the PDD (section B.6.4) is consistent with the calculations.	TBC	OK
	Can the calculation of emission reductions be replicated using the data and parameters supplied in the PDD?	ERM CVS was able to replicate the calculation of emission reductions, using data and parameters detailed in the PDD.	TBC	OK

Conclusion

ERM CVS confirms that:

Based on the information reviewed and calculations reproduced by the validation team, ERM CVS confirms the following:

- (a) All assumptions and data used by the PPs are listed in the PDD, including their references and sources;
- (b) All documentation used by PPs as the basis for assumptions and the sources of data are correctly quoted and interpreted in the PDD;
- (c) All values used in the PDD are considered reasonable in the context of the proposed project activity;
- (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

7 Validation findings – Additionality

ERM CVS assessed the PDD to determine whether it clearly describes how the proposed project activity is additional, as supported by sufficient and appropriate evidence. A project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered project activity. ERM CVS assessed and verified the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by PPs to support the demonstration of additionality in order to critically assess the presented evidence, using local knowledge and sectoral and financial expertise. In undertaking this aspect of the validation, ERM CVS considered tools and documents provided by the CDM Executive Board to demonstrate the additionality of proposed project activity, as well as specific complementary or alternative requirements or guidance from the Gold Standard or specific requirements from the applied methodology. In the sections below, ERM CVS describes all steps taken, and sources of information used, to cross-check the information contained in the PDD on additionality. Where appropriate, we describe how the validation team determined that the documentation assessed is authentic.

7.1 Starting date and prior consideration of carbon finance

If the project activity start date is prior to the start of validation, it shall be demonstrated that the benefits from carbon finance were considered necessary in the decision to undertake the project as a proposed project activity. ERM CVS therefore evaluated the start date of the project activity.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
7.1 a)	What is the start date of the project activity? Is this before the publication of the PDD for public comments?	<p>The project activity start date is given in the PDD as 09 November 2011, which is before the first publication date of the project for public consultation (when it was submitted as a VPA for public consultation on 23 November 2013). This has been validated by checking the first purchase order placed by Nazava/PT Holland for Water for filters meant to be sold as part of the project/03/.</p> <p>The project was initially submitted for public consultation as a VPA on 23 November 2013 and subsequently the CME, Impact Carbon, terminated the PoA and the ERPA with the PP/07/. The project is now being submitted as a standalone GS project, its eligibility to do so has been confirmed by the GS/15/.</p> <p>As a retroactive project the project is required to submit the required documents to the Gold Standard (time of first submission) within one year of its start date. However since the project has been submitted to the GS in the past as a VPA, the GS has exempted the project from this rule. ERM CVS has reviewed PP communication with GS/15/ to confirm.</p>	TBC	OK
	<p>Is the start date clearly defined in the PDD in accordance with the "Glossary of CDM terms"?</p> <p>Does the PDD contain a description of how this start date has been determined, and a description of the evidence available to support this start date?</p>	<p>ERM CVS has reviewed the first invoice for water filters purchased from the manufacturer under the project, dated 09 November 2011, to confirm the start date /03/. Purchasing filters happens earlier than other actions such as distribution, marketing and end user purchase of the devices, hence it is considered to be the earliest date of implementation or real action in line with the definition of the start date in the CDM Glossary of Terms.</p> <p>However, during the site visit ERM CVS was made aware of a pilot programme consisting of 1000 filters which were purchased and sold before the statement of intent from Impact Carbon (CME of the terminated PoA) was signed on 30 August 2010/04/. At the time, Impact Carbon argued that that they were in discussion with PT Holland for Water before the statement of intent and therefore, the filters sold as part of the pilot programme should be included in the project. In ERM CVS's opinion, any filters bought before the statement of intent have to be excluded otherwise some evidence of discussions needs to be provided for consideration of CDM – which will need to be validated. Please refer to CAR 02.</p> <p>The PP has clarified that the pilot filters will not be included as part of the project and have updated the PDD appropriately to ensure that the pilot filters are excluded from crediting. Please refer to the remediation form for further details.</p>	CAR-02	OK
	If the start date is prior to the publication of the PDD for stakeholder comments, does	The PP provides an implementation timeline in the PDD however it is found to be incomplete. The PP has not included key information with reference to the implementation of the project e.g. information on the pilot programme, on the GS	CL-06	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	the PDD provide an implementation timeline of the proposed project activity, in line with the PDD guidelines?	approval to present the VPA as a standalone GS, on the GS approval for project's exemption from prior consideration fulfilment etc. Please refer to CL 06. CL 06 is closed. The implementation timeline has been updated and has been validated in the table below.		

The timeline of the project is set out in the table below, showing the evidence used to support each step.

	Activity	Date	How has ERM CVS validated this information	Draft OK/ CAR/CL	Final OK/ Not OK
7.1 b)	Pilot programme implementation	02 March 2010	During the site visit in 2013, ERM CVS were made aware of a pilot programme of around 1000 filters which were purchased and sold before the 'starting date of the project' in November. These filters will not be credited – as confirmed in the PDD – and therefore, are not relevant with reference to the timeline of implementation of the GS project activity.	OK	OK
	Statement of Intent by Impact Carbon	30 August 2010	The signed Statement of Intent by Impact Carbon: Signed by Matt Evans, Managing Director /04/ has been checked, and the date and signatures are confirmed.	OK	OK
	Letter of Agreement by Impact Carbon	Dated: 14 February 2011; Executed 09 March 2011	The signed Agreement between Impact Carbon and PT Holland for Water for the purchase and sale of GHG emission reductions /05/ has been checked, and the date and signatures are confirmed.	OK	OK
	Starting date of the Project Activity	09 November 2011	The signed Purchase invoice from Basic Water Needs BV to PT Holland for Water for Tulip Filters, Candle gauges and taps without valves (Invoice number 11030)/03/ has been checked, and the date and signatures are confirmed.	OK	OK
	ERPA between Impact Carbon and PT Holland for Water	Executed: 25 October 2012	The signed ERPA between Impact Carbon and PT Holland for Water for the purchase and sale of GHG reductions /06/ has been checked, and the date and signatures are confirmed.	OK	OK
	Start of the validation of the project as a VPA under PoA	23 September 2013	The VPA validation was started on the Gold Standard website/28/.	OK	OK
	ERPA termination between Impact Carbon and PT Holland for Water	Dated 27 June 2014; Executed 30 June 2014	The signed ERPA termination between Impact Carbon and PT Holland for Water /07/ has been checked, and the date and signatures are confirmed.	OK	OK
	Service Agreement for technical assistance between Nexus Carbon for Development Ltd. and PT Holland for Water	09 March 2015	The signed Service Agreement for technical assistance between Nexus Carbon for Development Ltd. and PT Holland for Water /08/ has been checked, and the date and signatures are confirmed.	OK	OK
	Discussion with Gold Standard for exemption from new prior consideration rule	17 March 2015	Confirmation from the Gold Standard via an email/15/ was checked to confirm that GS has exempted the project from prior consideration rule.	OK	OK
	Contract with ERM CVS (DOE) for the validation of the	27 March 2015	ERM CVS contract with the PP is confirmed as evidence for this timeline/29/.	OK	OK

	Activity	Date	How has ERM CVS validated this information	Draft OK/ CAR/CL	Final OK/ Not OK
	stand-alone GS project				
	Project is listed on the Gold Standard website	18 June 2015	Validated by review of the GS registry and email confirmation/33/.	OK	OK

ERM CVS reviewed the evidence provided for the timeline, and can confirm that the timeline is credible and supported by reliable evidence.

Conclusion

Based on the evidence provided, ERM CVS confirms that the start date for this project is 09 November 2011. This is before the publication of the PDD for stakeholder comments.

7.1.1 Consideration of carbon revenues in the decision to implement the project activity

If the project activity has a start date before the start of validation, ERM CVS has validated that serious consideration of carbon revenues was made before the start date, that the benefits of the Gold Standard were a decisive factor in the decision to proceed with the project, and that real and continuing actions were taken to secure Gold Standard status.

	BEFORE THE START DATE: Evidence that Carbon revenue was seriously considered in the decision to implement the project activity, indicating that the benefits of the Gold Standard were a decisive factor in the decision to proceed with the project	Date	How has ERM CVS validated and assessed the reliability and authenticity of this information	Draft OK/ CAR/CL	Final OK/ Not OK
7.1.1 (a)	Impact Carbon and P.T. Holland for Water statement intention to work together to assess a carbon financed project to provide water treatment devices that avoid boiling to consumers in Indonesia.	30 August 2010	The signed Statement of Intent by Impact Carbon: Signed by Matt Evans, Managing Director /04/ has been checked, and the date and signatures are confirmed.	OK	OK
	Letter of Agreement between Impact Carbon and P.T. Holland for Water	Dated: 14 February 2011; Executed 09 March 2011	The signed Agreement between Impact Carbon and PT Holland for Water for the purchase and sale of GHG emission reductions /05/ has been checked, and the date and signatures are confirmed.	OK	OK
	AFTER THE START DATE: Evidence to demonstrate that that <i>continuing and real actions</i> were taken to secure Gold Standard status in parallel with the project's implementation	Date	How has ERM CVS validated and assessed the reliability and authenticity of this information	Draft OK/ CAR/CL	Final OK/ Not OK
7.1.1 (b)	ERPA signed between Impact Carbon and PT Holland for Water	Executed: 25 October 2012	The signed ERPA between Impact Carbon and PT Holland for Water for the purchase and sale of GHG reductions /06/ has been checked, and the date and signatures are confirmed.	OK	OK
	Start of the validation of the project as a VPA under PoA	23 September 2013	The VPA validation was started on the Gold Standard website/28/.	OK	OK

ERPA termination between Impact Carbon and PT Holland for Water	Dated 27 June 2014; Executed 30 June 2014	The signed ERPA termination between Impact Carbon and PT Holland for Water /07/ has been checked, and the date and signatures are confirmed.	OK	OK
Service Agreement for technical assistance between Nexus Carbon for Development Ltd. and PT Holland for Water	09 March 2015	The signed Service Agreement for technical assistance between Nexus Carbon for Development Ltd. and PT Holland for Water /08/ has been checked, and the date and signatures are confirmed.	OK	OK
Discussion with Gold Standard for exemption from new prior consideration rule	17 March 2015	Confirmation from the Gold Standard via an email/15/ was checked to confirm that GS has exempted the project from prior consideration rule.	OK	OK
Contract with ERM CVS (DOE) for the validation of the stand-alone GS project	27 March 2015	ERM CVS contract with the PP is confirmed as evidence for this timeline/29/.	OK	OK
Project is listed on the Gold Standard website	18 June 2015	Validated by review of the GS registry and email confirmation/33/.	OK	OK

Conclusion

It has been demonstrated that the Carbon revenues were considered necessary in the decision to undertake the project, and that the PPs undertook continuing and real actions to secure Gold Standard status in parallel with the implementation of the project. The project activity has therefore demonstrated prior consideration of carbon revenues.

7.2 Identification of alternatives

The approved methodology that is selected by the proposed project activity prescribes the baseline scenario and no further analysis is required. The methodology states 'it is assumed that fossil fuel and/or non-renewable biomass (NRB) is used to boil water as means of water purification in the absence of the project activity'. This is the only option provided by the methodology. Therefore no further assessment of baseline alternatives is required.

Conclusion

ERM CVS confirms that the baseline is correctly defined in the PDD in line with the methodology.

7.3 Additionality Analysis

ERM CVS assessed the demonstration of the additionality of the project activity as per the CDM "Guidelines on the demonstration of additionality of small-scale project activities" According to the "Guidelines on the demonstration of additionality of small-scale project activities", paragraph 10: Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers: (a) investment barrier; (b) technological barrier; (c) barrier due to prevailing practice; or (d) other barriers.

Paragraph 11: Documentation of barriers, as per paragraph 10 above, is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW). The positive list comprises of:

- (a) grid-connected and off-grid renewable electricity generation;
- (b) off-grid electricity generation technologies where the individual units do not exceed the thresholds indicated in parentheses with the aggregate project installed capacity not exceeding the 15 MW threshold technologies;
- (c) Project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds;

(d) Rural electrification project activities using renewable energy sources in countries with rural electrification rates less than 20%; the most recent available data on the electrification rates shall be used to demonstrate compliance with the 20 per cent threshold. In no case shall data be used if older than three years from the date of commencement of validation of the project activity.

For the proposed project this small-scale CDM threshold translates to 750 kW. The maximum capacity has been verified to be 2.98 kW by way of checking the ER calculations/02/. Therefore the project meets the criteria of the 'positive list' of technologies that are defined as automatically additional.

Conclusion

ERM CVS has determined, on the basis of the evidence presented, that the additionality analysis is credible and demonstrates the additionality of the project activity. ERM CVS has determined that the barriers claimed in the final PDD are real and that their existence is substantiated by independent sources of data.

ERM CVS has assessed and verified the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by PPs to support the demonstration of additionality using its local knowledge and sectoral and financial expertise.

8 Validation Findings - Monitoring Plan

ERM CVS evaluated the monitoring plan for the proposed project to ensure that it is based on the approved monitoring methodology that has been applied. ERM CVS applied a two-step process, based on review of the documented procedures, interviews with relevant personnel, project plans and any physical inspection, to assess:

- a) *Compliance of the monitoring plan with the approved methodology:*
 - (i) By means of document review, identify the list of parameters required by the selected approved methodology;
 - (ii) Confirm that the monitoring plan contains all necessary parameters, that they are clearly described and that the means of monitoring described in the plan complies with the requirements of the methodology.
- b) *The Implementation of the monitoring plan, taking into account:*
 - (i) Whether the monitoring arrangements described in the monitoring plan are feasible within the project design;
 - (ii) Whether the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed project activity can be reported ex post and verified.

8.1 Compliance of the monitoring plan with the approved methodology

The monitoring plan in the PDD includes all parameters necessary for monitoring of this type of project in accordance with the approved methodology that has been applied for this project. The parameters are clearly described and the means of monitoring described in the plan complies with the requirements of the methodology.

8.1.1 Completeness of monitoring parameters

The monitoring parameter(s) required by the methodology and/or applicable tools for this type of project are:

Parameter Name	Parameter Description	Is the parameter appropriately included in the Monitoring Plan? (including justification and substantiation of information, data and evidence and explanation if any are excluded from the monitoring plan)
QPW _y	Quantity of purified water in year y (litres)	Yes, this parameter has been appropriately included in the Monitoring plan.
T _{y,i}	Total distributed water purification systems	Yes, this parameter has been appropriately included in the Monitoring plan.
N _{y,i}	The average population serviced by water purification system	Yes, this parameter has been appropriately included in the Monitoring plan.
Water Quality	Performance of treatment technology	Yes, this parameter has been appropriately included in the Monitoring plan.
Operational Units	Monitoring to check the percentage of the monitoring period which units are in use	Yes, this parameter has been appropriately included in the Monitoring plan.
Existence of public distribution network of safe drinking water	Existence of public distribution network of safe drinking water in year y	Yes, this parameter has been appropriately included in the Monitoring plan.

Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
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	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
8.1.1.1	Are all required parameters (according to the methodology and tools) included in the monitoring plan?	ERM CVS confirms that all required parameters are included in the monitoring plan. These parameters are now in line with the required tools and methodology.	OK	OK
8.1.1.2	Is the monitoring plan clear and consistent about how the parameters will be monitored (e.g. if they are mentioned in the text of the monitoring plan but not in the monitoring tables this is not acceptable)?	Yes, the monitoring plan is clear and consistent about how the parameters will be monitored.	OK	OK

Conclusion

The monitored parameters included in the monitoring are complete and appropriate for monitoring of this project activity.

8.1.2 Compliance of monitoring

For each parameter, ERM CVS has validated whether it has been addressed in accordance with the baseline and monitoring methodology.

Monitored Parameters	Parameter Names					
	QPW _y	T _{y,i}	N _{y,i}	Water Quality	Operational Units	Existence of public distribution network of safe drinking water
Parameter Title correct?	Yes	Yes	Yes	Yes	Yes	Yes
Description in line with methodology/tool?	Yes	Yes	Yes	Yes	Yes	Yes
Data unit correctly expressed?	Yes	Yes	Yes	Yes	Yes	Yes
Source clearly referenced?	Yes	Yes	Yes	Yes	Yes	Yes
Correct value provided for ex ante estimation?	Yes	The value is based on the PP's sales projections	Please provide the reference for the value on 4.57 – CL 08. CL 08 is closed. Please refer to the remediation form.	n/a	100% is taken as an assumed value. The value will be updated based on monitoring results.	n/a

Monitored Parameters	Parameter Names					
	QPW _y	T _{y,i}	N _{y,i}	Water Quality	Operational Units	Existence of public distribution network of safe drinking water
How has this value been verified?	Yes	ERM CVS has reviewed the ER spreadsheet	See CL 08. CL 08 is closed. Please refer to the remediation form.	n/a	n/a	n/a
Measurement method correctly described?	Yes	Yes	Yes – will be based on surveys and sampling – please see 8.3 below	Yes	Yes – will be based on surveys and sampling – please see 8.3 below	Yes
Measurement and recording frequency correctly described?	Yes	Yes	Yes	Yes	Yes	Yes
Correct reference to standards?	n/a	n/a	n/a	Yes - "Evaluating household water treatment options: Health based targets and microbiological performance specifications" (WHO, 2011); or an applicable national standard or guideline	n/a	n/a
Indication of accuracy provided?	n/a	n/a	n/a	n/a	n/a	n/a
QA/QC procedures described?	Calculated based on other monitored parameters – therefore the QA/QC procedures of the other input parameters are referenced	Yes – sales database cross checked with paper records	Yes – please see section 8.3 on sampling & surveys QA/QC	Third party testing required – this is specified in the PDD.	Yes – please see section 8.3 on sampling & surveys QA/QC	n/a
QA/QC procedures appropriate/in line with methodology/tool?	n/a	Yes	Yes	Yes	Yes	n/a

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
8.1.2 .1	Are all required parameters appropriately monitored in accordance with the methodology/tools?	ERM CVS confirms that all required parameters are appropriately monitored in accordance with the methodology/tools.	TBC	OK

Conclusion The means of monitoring all relevant monitored parameters complies with the requirements of the methodology and applicable tools.

8.2 Implementation of the monitoring plan

ERM CVS evaluated the feasibility and sufficiency of the monitoring plan. The key components of the monitoring plan are as follows.

Operational and management structure:

The PDD contains a diagram illustrating the organisational structure to be implemented in order to monitor the project activity. Nexus will be responsible for preparing the sampling plan, checking and verifying monitored data, and preparing the monitoring report; PT Holland for Water will be responsible for collecting monitored data or training field personnel to do so, managing the project database, and maintaining proper records.

Equipment:

No monitoring equipment is to be installed.

Quality Assurance and Quality Control (QA/QC) of equipment and data:

The monitoring plan describes that all monitored data will be recorded and reported electronically, and will be sent for cross checking. The total units in Project Database will be cross-checked with the sale invoices to the users. In case of any data is missing, the project participant will seek guidance from the carbon consultant and the missing period will be conservatively estimated based on other available data. Before the start of the crediting period, the carbon consultant with the PP will develop a training manual setting out the monitoring rules and procedures.

Feasibility of the monitoring plan:

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
8.2.1	Are the arrangements described in the plan feasible and practical within the project design? Please consider: (a) operational and management structure, including responsibilities (b) Plans for maintenance and calibration of equipment (c) Plans for QA/QC of equipment and data (d) Installation of monitoring equipment (whether in	The operational and organisational structure is considered sufficient to fulfil the monitoring requirements of the methodology and to ensure that emission reductions can be verified. The data management procedures are considered appropriate to fulfil the monitoring requirements of the methodology and to ensure that emission reductions can be verified. This has been validated based on a visit to the project site and interviews with the PP.	OK	OK

	place, or planned)			
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Conclusion Based on the validation activities performed, ERM CVS concludes that:

- (a) The monitoring plan is fully in compliance with the requirements of the methodology;
- (b) The monitoring arrangements described in the monitoring plan are feasible within the project design;
- (c) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed project activity can be reported ex post and verified.

The assessment conducted by ERM CVS is by means of review of the documented procedures, interviews with relevant personnel, project plans and physical inspections of the proposed project activity site. In ERM CVS's opinion, the PPs are able to implement the monitoring plan.

8.3 Sampling plan

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
8.3.1	<p>If the coordinating/managing entity utilizes sampling for the determination of parameter values for calculating GHG emission reductions, has the CME developed and described the sampling plan in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities"?</p> <p>Is the proposed sample size and sampling method adequate to achieve the minimum confidence /precision requirements? Is the DOE able to reproduce the sample size calculation in order to validate the proposed sample size?</p> <p>Will the proposed sampling plan ensure that samples are randomly selected and are representative of the population?</p>	<p>The project will use sampling in the monitoring of parameters average population serviced by water purification system ($N_{y,i}$), water quality and percentage of operational units.</p> <p>The sampling plan is described in section B.7.2 of the PDD. It has been validated against the standard "Sampling and surveys for CDM project activities and programme of activities" EB 74 Annex 6, version 04.1 (herein referred to as the 'sampling standard'), and the Guidelines "Sampling and surveys for CDM project activities and programmes of activities" version 03.0 (EB 75 Annex 8).</p> <p>In accordance with the Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities Version 03.0, the complete Sampling Plan includes the following:</p> <p>Sampling Design:</p> <p>Objectives and Reliability Requirements: a 95% confidence interval and a 10% margin of error will be required, since biennial sampling is chosen</p> <p>Target Population: end users who received project technologies (technology users in the sales database during the crediting period)</p> <p>Sampling Method: multi stage sampling is chosen. The primary sampling unit or cluster will be the district. The secondary sampling unit will be the population of users within the sampled districts, who will be selected at random. ERM CVS considers that this sampling method is appropriate given the size of the project boundary, the potential number of users and number of districts, and the prohibitive possible costs of carrying out a simple random sampling approach in a country with as dispersed a population as Indonesia.</p> <p>Sample Size: The PDD has included equations for sample size calculations in line with the sampling guidelines. Actual sample size calculations shall be verified by the verifying DOE once results from pilot surveys are available.</p> <p>Sampling Frame: the sampling frame is defined in the PDD as users who have provided contact information, in the project database.</p> <p>Data:</p> <p>Field Measurements : The average of population serviced by water purification system ($N_{y,i}$) and Percentage of operational Units will be measured.</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		<p>Quality Assurance/Quality Control: The PDD contains QA/QC provisions in the description of the sampling plan. For example a sample larger than the minimum sample size will be selected to account for non-responses, refusals and related issues. The PP has undertaken to ensure that training will be provided to those carrying out the monitoring, including any third party monitoring agents if required.</p> <p>The sampling plan describes that in the event that the sampling results do not fulfil the required level of confidence and precision, the project participant can undertake additional samples. Or the project participant might choose to apply the lower bound of 95 per cent confidence interval of the parameter value as an alternative to repeating the survey efforts to achieve the 95/10 precision.</p> <p>For QA/QC purposes the originals of the Monitoring Records or scanned copies of each record will be kept to enable cross-checking. A secure and backed-up Project Database will be maintained by the PP. Monitored data will be archived for 2 years after the end of crediting period of the project.</p> <p>Implementation plan:</p> <p>The PP will be in charge of implementing the sampling plan, including contracting all necessary third parties who would be responsible for actual field measurements. The project participant will train that third parties to ensure that field measurements are undertaken in line with the standards required of the Sampling Plan if necessary. The sampling plan set out certain core competencies for the data collection activities including experience conducting door-to-door surveys; language skills, numerical proficiency etc.</p> <p>The proposed sample size and sampling method are considered adequate to achieve the minimum confidence/precision requirements. The CPA presents the required calculations to determine sample size in line with the sampling standard and guidelines.</p> <p>The proposed sampling plan will ensure that samples are randomly selected and are representative of the population.</p>		

Conclusion

The proposed sampling plan for this CPA is in line with the Standard for sampling and surveys for CDM project activities and programme of activities and the sampling plan elaborated in the PoA-DD and generic CPA-DD. It is expected to provide parameter value estimates in an unbiased and reliable manner. The proposed sample size and sampling method is adequate to achieve the minimum confidence/precision requirements, and these requirements are correctly set in line with the standard. The proposed sampling plan is sufficient to demonstrate that samples are randomly selected and are representative of the population

9 Validation Findings –Local Stakeholder Consultation and Environmental Impact

9.1 Environmental Impacts

ERM CVS evaluated whether an analysis of the environmental impacts of the project activity had been conducted in accordance with paragraph 37 of the CDM modalities and procedures.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
10.1.1	Confirm whether an analysis of the environmental impacts of the project activity has been conducted, including transboundary impacts?	By review of the Decree of the State Minister of Environmental Affairs No. 3/2000 Dated February 21, 2000 /19/, ERM CVS confirmed that the activities under the proposed project do not require an Environmental Impact Assessment.	OK	OK
	Has the PP conducted an environmental impact assessment if required to do so by the host country, in accordance with relevant legislation?	N/A	OK	OK

Conclusion

It was confirmed that no environmental impact assessment is required by the host Party.

9.2 Local Stakeholder Consultation

ERM CVS evaluated whether local stakeholder consultation was conducted in accordance with the GS requirements.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
9.1	<p>Have comments from local stakeholders that can reasonably be considered relevant at the activity level been pro-actively invited to the LSC? Refer to the invitee categories in the GS Toolkit</p> <p>Were the invitations tracked?</p> <p>Was the DNA or the national focal point notified about the project?</p>	<p>A Local Stakeholder Consultation was held on 17 June 2013 in Jakarta, Indonesia. There were 6 stakeholders in attendance but additional informal consultations were held on 28 June 2013 and 29 June 2013 to incorporate the views of additional stakeholders. ERM CVS has reviewed the LSC report /20/.</p> <p>A range of stakeholders were invited to the meeting, including representatives of local NGOs and businesses, key stakeholders in government and government branches, Gold Standard partner organisations and potential end users. All types of invitees were included, according to the invitee categories in the GS toolkit, and invitations were tracked. Invitations were sent in English and in Bahasa Indonesia. ERM CVS has confirmed this by review of the LSC documentation including the newspaper advertisement, a copy of the invitation which was sent out by email and a copy of the invitation which was sent out via facebook, the sign-in sheet for the meeting, the non-technical summary of the project that was presented at the meeting (in English and Indonesian language), a copy of the slides (in Indonesian language) that were presented in the meeting, a photograph from the event, and translated versions of the evaluation forms from four attendees/34/. A tracking table of invitees is provided in the LSC report /20/.</p> <p>The meeting was not very well attended – only four external (i.e. not connected to Nazava) stakeholders attended. During discussions on site ERM CVS was informed by Nazava that this was due to the long distances that are involved travelling to Jakarta from other parts of Indonesia, and due to the fact that the event coincided with storms, as well as demonstrations. To address this, Nazava carried out further, less formal consultations with local stakeholders on the 28th</p>	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		and 29th June 2013. The project proponent also held another consultation in Aceh, Sumatra on the 8th of July to get feedback from stakeholders on the island of Sumatra, which 23 stakeholders attended. The DNA of Indonesia is the National Committee on Clean Development Mechanism. ERM CVS has confirmed that the DNA is on the list of invitees.		
	Has this included a live meeting? Was the stakeholder consultation meeting planned and organised at suitable stage of the project? Was the date, time and location of the meeting appropriate?	Yes, a live meeting was conducted in Jakarta on 17 June 2013 at the Dutch Embassy. Six people attended the meeting, including participants from the DNA (Ministry of Water and Environment, and the Ministry's Climate Change Unit (CCU)), as well as NGOs, other cooking stove and water purification project developers/organisations, stove makers, stove sellers, and academics. As noted above, the project proponent also held another consultation in Aceh, Sumatra on the 8th of July to get feedback from stakeholders on the island of Sumatra, which 23 stakeholders attended. The LSC meeting was carried out when the project, as a VPA had already started implementation; however as this is a retroactive project this is unavoidable. The date, time and location of the meeting are considered appropriate: the project is a national level activity covering the whole country, therefore the capital Jakarta is the most logical and accessible place to hold the consultation. ERM CVS has confirmed this by review of the LSC report /20/.	OK	OK
	Was a non-technical summary prepared in the most appropriate language? Is it clear and understandable to local stakeholders?	A non-technical summary was presented in English and Indonesian language. ERM CVS has reviewed the text of the non-technical summary and it appears clear and understandable. Local stakeholders were given the opportunity to raise questions and comments on the non-technical summary during the LSC meeting/20/.	OK	OK
	Was the meeting well documented? Is the meeting in line with the host country requirements?	The meeting has been well documented in an LSC report /20/. ERM CVS has reviewed the approval process and requirements of the DNA of Indonesia for CDM projects, and has not identified any additional requirements for LSC beyond the requirements of the Gold Standard. The consultation can be considered to be in line with host country requirements.	OK	OK
	Were the safeguarding principles and sustainability indicators discussed and assessed during the stakeholder consultation meeting?	A sustainable development exercise was carried out during the LSC, where participants were presented with the sustainable development matrix and asked to discuss, ask questions, and come up with sustainable development indicators and scoring for these indicators. The safeguarding principles were incorporated into the assessment and used as the basis for the sustainable development indicators. ERM CVS has validated this by review of the LSC presentation which includes the sustainability exercise /20/.	OK	OK
	Was the grievance mechanism discussed at the meeting? Is the mechanism appropriate to the project activity?	The Continuous input / grievance mechanism were discussed with stakeholders during the meeting. The mechanism includes a Continuous Input / Grievance Expression Comment Book: available at the Nazava office, a telephone number, and email address. This mechanism is considered appropriate as it provides a range of ways to contact the VPA implementer and provide inputs, including phone, email and physically at the offices. This mechanism was made aware to stakeholders at the LSC meeting, and contact information for Nazava is provided to all end-users which will allow end-users to provide feedback directly to the project proponent.	OK	OK
	Were the stakeholder comments taken into account in the project design?	Stakeholder comments were raised on: how Nazava compares to other filters, monitoring, use of carbon revenues, where the credits will be sold, how users will be trained, testing of the technology, and plans to manufacture replacement filters in Indonesia. Most of the stakeholder comments were in fact questions on the project design, which seem to have been addressed in the meeting by Nazava. All the questions were responded to, and Nazava affirmed, as a result of the comments made, that the product has already been tested in multiple laboratories but they are seeking additional certifications for the filters, considering the option	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
		of local manufacture. They explained how carbon finance is proposed to be used, and where credits are likely to be sold, what factors are going to be monitored during the project's operation, and provided a comparison with the Unilever Pureit filter in terms of lifetime and cost.		
	Were the FARs raised in the LSC review by The Gold Standard addressed appropriately?	No FARs were raised by the Gold Standard.	N/A	OK
	Was the stakeholder feedback round organised?	The PP has invited local stakeholders, including government authorities, NGOs and the general public to provide feedback for the Stakeholder Feedback Round (SFR) starting from 20 June 2015. The project design documents have been made available on the Nazava website (www.nazava.com/carbon.php), including the Project Design Document PDD, Gold Standard Passport, and Local stakeholder consultation report. Email and telephone contact details are provided for stakeholders to raise any comments. A post about the SFR was also posted on Nazava's social media (Facebook) page /34/ and an email was sent to participants of the LSC /20/.	OK	OK

Conclusion

Based on the document reviews undertaken and interviews with local stakeholders, ERM CVS concludes that relevant local stakeholders were invited to the Local Stakeholder Consultation, and that the consultation undertaken is in accordance with the GS requirements. The stakeholders did not identify any serious concerns or significant negative impacts from the implementation of the project]. The grievance mechanism is appropriate for the Project.

ERM CVS has therefore validated that the local stakeholder consultation is adequate.

9.3 Sustainability assessment

ERM CVS validated whether the Do No Harm Assessment and Detailed impact assessment – sustainable development matrix – were completed in accordance with the GS guidance.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
9.2	Were the risks sufficiently assessed that the project could have harmful impacts, using safeguarding principles of the UNDP as set out in the GS Toolkit? Was guidance in GS Annexes C and G sufficiently considered? Were any additional critical issues relevant for the project type and not covered by the safeguarding principles evaluated and added?	The project was assessed against all the safeguarding principles of the UNDP as set out in the GS toolkit. Guidance in GS annexes C and G was sufficiently considered. No additional critical issues were identified.	OK	OK
	Have appropriate mitigation measures been proposed	No negative impacts have been identified, given that the project promotes clean, small scale technology that is energy efficient, and given that end users and	OK	OK

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
	where there is medium to high risk?	project partners participate voluntarily in the project.		
	Has the sustainable development matrix been fully completed? Are all twelve indicators considered?	The sustainable development matrix has been fully completed and all 12 indicators were considered.	OK	OK
	Have appropriate wider boundaries been applied in the detailed impact assessment than the boundaries defined in the applied baseline and monitoring methodology?	The detailed impact assessment has considered impacts across the country. Given the nature of project, significant impacts outside the country can not be expected.	OK	OK
	Are the baseline situations described for the indicators appropriate? Are chosen parameters suitable? Assessment for each indicator is provided in the table below	Based on review of the GS passport and using ERM CVS's local and sectoral knowledge, the baseline situations described for the indicators are appropriate and the chosen parameters are considered suitable.	OK	OK
	Are the target value and scoring of the indicator appropriate? Assessment for each indicator is provided in the table below	Yes, Based on review of the GS passport and using ERM CVS's local and sectoral knowledge, the target value and scoring of the indicator are considered appropriate.	OK	OK

Indicator	Is the baseline situation described for the indicator appropriate? Are chosen parameters suitable?	Is the target value and scoring of the indicator appropriate?
Air quality	Yes	Yes
Water quality and quantity	Yes	Yes
Soil condition	Yes	Yes
Other pollutants	Yes	Yes
Biodiversity	Yes	Yes
Quality of employment	Yes	Yes
Livelihood of the poor	Yes	Yes
Access to affordable and clean energy services	Yes	Yes
Human and institutional capacity	Yes	Yes

Indicator	Is the baseline situation described for the indicator appropriate? Are chosen parameters suitable?	Is the target value and scoring of the indicator appropriate?
Quantitative employment and income generation	Yes	Yes
Balance of payments and investment	Yes	Yes
Technology transfer and technological self-reliance	Yes	Yes

Conclusion

The Do No Harm Assessment and Detailed impact assessment – sustainable development matrix – were completed in accordance with the GS guidance.

9.4 Sustainability Monitoring Plan

ERM CVS has evaluated whether the sustainability monitoring plan is complete and appropriate for the type and scale of the project.

	Question	Validation findings (including justification and substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
9.3	Does the sustainability monitoring plan cover all non-neutral indicators?	Yes	OK	OK
	Are mitigation and compensation measures in place to prevent violation or the risk of violating safeguarding principles of the Do No Harm Assessment that have been indicated as having a risk?	Not applicable as no negative impacts were identified.	N/A	OK
	Does the monitoring plan address stakeholder concerns?	Stakeholder preferences for the promotion or inclusion of locally produced devices have been assessed in the GS passport as the PP has undertaken that 'the project when possible the project will source product locally and invest in local entrepreneurs'. The number of local jobs created in production, distribution, and retail will also be recorded as part of the sustainability monitoring plan.	OK	OK

For each sustainability indicator, ERM CVS has validated whether it has been addressed in accordance with the GS rules and guidance.

Monitored Parameters	Indicator	
	Water Quality and Quantity	Livelihood for the poor
Are chosen parameters appropriate for the indicator?	Yes - number of people served with a satisfactory level of safe drinking water	Yes - Increased income through fuel savings, and time saving through eliminating the need to boil drinking water
Is current status or expected status under the baseline appropriate? How was it	ERM CVS reviewed the Indonesian Demographic and health survey report published by Indonesian Ministry of Health	It is described qualitatively however no statistics or references are provided – please see CL 09.

Monitored Parameters	Indicator	
	Water Quality and Quantity	Livelihood for the poor
validated?	on Aug 2013 /11/	CL 09 is now closed. Please refer to the remediation form for further details.
Is the future status suitable?	Yes	Yes
Are the means to monitor the indicator suitable, clear and proportionate to the size of the project?	Yes - biennial monitoring, as per requirements for water quantity and quality monitoring in the proposed project PDD	Yes - Household surveys will provide data on savings in money and time which resulted from the use of the project technology
Is the frequency of monitoring appropriate?	Yes	Frequency is not stated – Please see CL 09. CL 09 is now closed. Please refer to the remediation form for further details.

Conclusion

The sustainability monitoring plan has been developed in accordance with Gold Standard rules.

Appendix A: Documents and Interviewees

A.1 DOCUMENT LIST

Reference number	Date	Document Title and version number (if applicable)
01	01 May 2015 14 December 2015	Project Design Document for the proposed project Version 02 Version 2.4 (final)
02	04 August 2014 30 September 2015	ER spreadsheet for the Project Version 01 Version 2.2 (final)
03	09 November 2011	Purchase invoice from Basic Water Needs BV to PT Holland for Water for Tulip Filters, Candle gauges and taps without valves (Invoice number 11030)
04	30 August 2010	Statement of Intent by Impact Carbon: Signed by Matt Evans, Managing Director
05	Dated: 14 February 2011; Executed 09 March 2011	Agreement between Impact Carbon and PT Holland for Water for the purchase and sale of GHG reductions
06	Executed: 25 October 2012	ERPA between Impact Carbon and PT Holland for Water for the purchase and sale of GHG reductions
07	Dated 27 June 2014; Executed 30 June 2014	ERPA termination between Impact Carbon and PT Holland for Water
08	09 March 2015	Service Agreement for technical assistance between Nexus Carbon for Development Ltd. and PT Holland for Water
09	Accessed 07 August 2015	http://www.basicwaterneeds.com/
10	Accessed 07 August 2015	http://www.kopernik.ngo/sites/default/files/instructions/Nazava%20more%20info_0_0.pdf
11	August 2013	Indonesian Demographic and health survey report published by Indonesian Ministry of Health
12	2012	UNICEF and World Health Organization (WHO) (2012) Progress on Drinking Water and Sanitation (http://whqlibdoc.who.int/publications/2012/9789280646320_eng_full_text.pdf)
13	Accessed 07 August 2015	http://nazava.com/english/docs/labnoord.pdf
14	Accessed 07 August 2015	http://nazava.com/english/nazavaWaterFiltersTestResults.php
15	17 March 2015	GS communication with PP
16	Accessed 07 August 2015	http://www.who.int/household_water/resources/2012WorldWaterForumReport.pdf
17	16 February 2013 March 2011	Nazava filter testing certificate and results by Rwanda Bureau of Standards Report on the Efficacy of Tulip Water Filter – Water Laboratory Services Division, Ministry of

Reference number	Date	Document Title and version number (if applicable)
	12 July 2011 29 April 2010 Accessed 10 August 2015	Water Certification and attestation of testing results by Centre Technique d'Exploitation (CTE) Region Metropolitaine de Port-au-Prince Berhanu Kiber Import & Export Enterprise – Efficacy Test of Tulip Water Filter for Fecal and Total Coliform Bacteria and Turbidity, Laboratory Service http://www.nazava.com/english/nazavaWaterFiltersTestResults.php
18	2007	Local Actions for Sustainable Development, Water and Sanitation in Asia-Pacific Region - United Nations Human Settlements Programme (UN-HABITAT)
19	21 February 2000	Decree of the State Minister of Environmental Affairs No. 3/2000
20	09 April 2015	LSC report for the Stakeholder Consultation
21	Undated	Sample user manual Sample warranty card
22	29 July 2002 19 April 2010	Decree of the Ministry of Health, No 907/MENKES/SK/VII/2002 on requirements and supervision over the quality of drinking water Decree of the Ministry of Health, No 492/MENKES/PER/IV/2010
23	Undated	Warranty policy of Nazava Water Filters
24	December 2008	Components of the Income Aggregate: "Indonesia Family Life Survey, Wave 1" Prepared for the Rural Income Generating Activities (RIGA) Project of the Agricultural Development Economics Division, Food and Agriculture Organization
25	2000 2006	FAO Global Forest Resources Assessment 2000 2006 IPCC Guidelines for National Greenhouse Gas Inventories
26	Undated	Minimum water quantity needed for domestic uses by WHO Regional Office for South-East Asia (Technical note no. 9)
27	2015	WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation source, as stated by the applicable methodology AMS III. A.V, version 04.0
28	Accessed 08 October 2015	https://products.markit.com/br-reg/public/master-project.jsp?project_id=103000000000445
29	Executed 27 May 2015	ERM CVS contract with the Client
30	Accessed 08 October 2015	https://mer.markit.com/br-reg/public/project.jsp?project_id=1030000000009787
31	31 August 2015	Gold Standard Passport for the Project Activity, Version 2.1
32	10 October 2013	Pre-feasibility Assessment by the GS for the Project as a VPA
33	18 June 2015	Confirmation email from the GS that the project is listed on the Gold Standard website
34	09 April 2015 Undated	LSC Report includes: Newspaper advertisement

Reference number	Date	Document Title and version number (if applicable)
	Undated	A copy of the invitation which was sent out by email and a copy of the invitation which was sent out via facebook
	17 June 2013	Sign-in sheet for the meeting
	Undated	Non-technical summary of the project that was presented at the meeting (in English and Indonesian language),
	Undated	A copy of the slides (in Indonesian language) that were presented in the meeting
	Undated	Photographs from the event
	Undated	Translated versions of the evaluation forms from four attendees

Appendix B: Remediation Form

Corrective Action Requests (CARs), Clarification Requests (CLs) and Forward Action Requests (FARs)

Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>CAR 01</p> <p>PP has not updated to the following guidance/tools/forms to the latest versions:</p> <ul style="list-style-type: none"> a) Project design document form for small-scale CDM project activities b) Guidelines on the demonstration of additionality of small scale project activities 	6.1.1	<ul style="list-style-type: none"> a. The PDD form for the proposed project has been update to the version 6. b. The Methodological tool: "Demonstration of additionality of small-scale project activities", Version 10.0, EB83, Annex 14 has been applied in the updated PDD. 	<ul style="list-style-type: none"> a) ERM CVS has checked that the latest version of the project design document form for small-scale CDM project activities, version 6 has been used. b) ERM CVS has checked that the Methodological tool 'Demonstration of additionality of small-scale project activities', Version 10.0, EB83, Annex 14 has been appropriately applied in the updated PDD. <p>CAR closed.</p>
<p>CAR 02</p> <p>During the site visit ERM CVS was made aware of a 1000 filters pilot programme which were purchased and sold before the statement of intent from Impact Carbon (CME of the terminated PoA) on 30 August 2010/04/. At the time, Impact Carbon argued that that they were in discussion with PT Holland for Water before the statement of intent and therefore, the filters sold as part of the pilot programme should be included in the project. Filters bought before the statement of intent shall be excluded unless evidence of prior consideration of</p>	7.1	<p>In the proposed stand-alone project (before the project was a VPA under Impact Carbon's PoA), the pilot filters are not included as part of the project. Please refer to the ER calculation spreadsheet /PTH01/, tab "ER", column D. The sold units for ER calculation are from December 2011 which is after the project start date. Confirmation that the pilot filters are not including in the ER calculation has been added to the parameter $T_{y,i}$ in section B.7.1 of the PDD.</p>	<p>The PP has clarified that the pilot filters will not be included as part of the project. To substantiate this and to demonstrate the exclusion of these pilot filters from crediting, the PP has updated parameter $T_{y,i}$ to state that pilot filters will not be included, and that only those units sold after December 2011 will be credited (after the validated start date of 09 November 2011).</p> <p>The update is deemed reasonable and substantial enough for ERM CVS to conclude that PP has established a monitoring system which will exclude the pilot filters.</p>

CDM Validation Report



Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
CDM is substantiated for the pilot filters. Please clarify and include information on the treatment of filters bought before the statement of intent in the PDD. If no evidence of discussions prior to the date of statement of intent can be presented, the PP will need to detail their plans to explicitly exclude the filters sold as part of the pilot programme.			CAR closed.
<p>CAR 03</p> <p>PP has not provided sufficient evidence to support the claim that only 41.11% of the Indonesian population has access to an improved source of drinking water. Furthermore, the credibility of the source as an official data source could not be verified. PP is requested to clarify.</p>	6.2	<p>The evidence for percentage of Indonesian population has access to an improved source water has been taken from the website of Badan Pusat Statistik (BPS-Statistics Indonesia) at: http://www.bps.go.id/index.php/linkTabelStatis/1549</p> <p>Functions to be performed by BPS, as follows:</p> <ul style="list-style-type: none"> • To provide data to the government and public. • The data is derived from its comprehensive statistical activities, comprises of periodic information on structure and growth of economy, social change, and development. Those statistics may be derived from its own researches and surveys as well as from other government department as secondary data. • To assist statistics divisions of government departments and other institutions, in developing statistical system, needed to setup work program and periodic reporting scheme. • To develop and promote standards to be incorporated in the implementation of statistical techniques and methods, and to provide necessary services in the field of education and training in statistics. • To establish cooperation with international institutions and other countries for the benefit of Indonesia's statistical development. <p>The data from BPS is therefore follow the AMS III.AV guideline because BPS acts as government agency for providing statistic data to the government.</p>	<p>ERM CVS has reviewed the explanation and sources provided by the PP. The website of Badan Pusat Statistik (BPS-Statistics Indonesia) states that it is a Non-Government Organization directly responsible to the President. A review of the website statistics, shows that in 2012, the total percentage of households with access to improved drinking water in Indonesia is 41.11%.</p> <p>However ERM CVS did further research to find that other agencies such as the World Bank (http://data.worldbank.org/indicator/SH.H2O.SAFE.ZS) and UNICEF (http://www.unicef.org/media/files/JMPReport2012.pdf - page 45) state this figure to be in the range of 82%*-85%**.</p> <p>*World Bank data for 2010-2014 **UNICEF report for 2010</p> <p>Furthermore, the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation source, as stated by the applicable methodology details that <u>87% of the population in Indonesia has access to an improved source of water in 2015</u>. The data represents a steady increase in the population</p>

CDM Validation Report



Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
		<p>The website evidence was submitted to DOE with a snapshot dated 18/03/2015 /PTH20/. The snapshot of website was taken again on 13/08/2015 and submitted herewith /PTH18/, /PTH19/</p> <p><u>Update response on 30/09/2015</u></p> <p>The Case analysis has been updated in the PDD using the source from WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation which stated in the applied methodology instead of the BPS source.</p> <p>The proportion of urban, rural and total population using an improved drinking-water source of the most recent year (2015) is 94%, 79% and 87% respectively. These proportion are higher than 60% therefore the project case is Case 2.</p> <p>The emission reduction is also updated accordingly with the change from Case 1 to Case 2. For more detail, please refer to the Section B.6 of the updated PDD.</p>	<p>having access to water since 1990 when about 69% of the population had access to an improved source of water. Given the above evidence, ERM CVS is unable to validate that the project falls under Case 1. PP is requested to review.</p> <p>Following PP review, ERM CVS notes that the project has been reclassified as Case 2 in line with the methodology. Parameter X_{boil} has been introduced to take into account the proportion of total population attended by the project that is serviced at households/buildings where water boiling would have been the purification practice – this is estimated ex-ante using the Indonesian Demographic and Health Survey report published by Indonesian Ministry of Health on August 2013/11/. ER calculations have been appropriately adjusted as well.</p> <p>CAR closed.</p>
<p>CAR 04</p> <p>The PDD details that all filters come with an Indonesian-language user manual with clear directions & information, an indicator for filter replacement, and a one-year warranty card. However, during the site visit in 2013 it was noted that the end users who had purchased the filters were not necessarily provided with warranty cards – in majority of the cases visited, the resellers had kept possession of the warranty cards. The validation team also did not come across any user manuals with end users. PP is requested to clarify how it will be ensured that the</p>	6.2	<p>Together with the water filter product, the user manual in Indonesian language and the warranty card are provided. The sample of user manual /PTH14/ and warranty card /PTH21/ are submitted herewith.</p> <p>In the content of warranty card, the end user was notified that the carbon right will be transferred to the project implementer. Carbon finance will be invested in activities that facilitate project scale-up, local partner capacity building, developing marketing and outreach resources, and enhancing distribution channels as well as make the products more affordable to the poor families.</p> <p>The above information was disseminated during the stakeholder consultation. Information are also available in the project documents (PDD, LSC report, GS Passport) which is public for stakeholder in the Stakeholder Feedback Round which has been started from 25/06/2015. So far there is not any comment relating to the right of VERs during the SFR.</p> <p>With regarding to the situation that users are not often keep the manual or warranty card, the PP are designing and making a sticker</p>	<p>ERM CVS has reviewed the sample user manual/21/ and sample warranty card/21/ that are provided to the end users.</p> <p>Stakeholder consultation report/20/ was also reviewed and found that the LSC informed attendees that carbon finance will make the products affordable for poor families, and will be invested in activities that facilitate project scale-up, local partner capacity building, developing marketing and outreach resources, and enhancing distribution channels.</p> <p>Since the validation team did not see direct evidence of the end users receiving warranty cards that specifically detail that the rights to carbon savings will be transferred to the project implementer, this point</p>

CDM Validation Report



Corrective Action Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
end users are ceding rights to VERs.		on the filter bucket about carbon waiver as well as product simple instruction. The product with new sticker could be checked at the first verification.	will be raised as a FAR for the verifying DOE to check during the verification of the project. CAR closed.

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>CL 01</p> <p>Section A.3 of the PDD does not include sufficient information on:</p> <ul style="list-style-type: none"> a) The end users / consumers the project is targeting. b) Technology transfer from Annex I countries (if any). 	5.2.2	<p>In the Section A.3 of the updated PDD:</p> <ul style="list-style-type: none"> a. The target market of the project has been included b. The information about technology transfer has been included. 	<p>Section A.1 and A.3 of the PDD have been updated:</p> <ul style="list-style-type: none"> a. The target market has been described more in detail: the project aims to sell ceramic candle water filters across Indonesia, targeting low-income households (<\$7/day) in rural and urban areas through a wide network of resellers or micro-entrepreneurs. b. There is no technology transfer from Annex I countries. <p>CL closed.</p>
<p>CL 02</p> <p>The source of data for % of Forest Tropical Rain Forest, % of Forest Tropical Moist, % of Forest Tropical Dry and % of Forest Tropical Mountain used in the determination of $f_{NRB,y}$ (FAO Global Forest Resources Assessment 2000) is 15 years old. Please identify whether a more recent</p>	6.5.1	<p>Base on the PP research, there is not any other source besides information from FAO for the project area. Currently, the Forest Resources Assessment (FRA) 2015 by FAO is under preparing and main report will be released at the World Forestry Congress in September 2015 (http://www.fao.org/forestry/fra/fra2015/en/)</p> <p>After the FRA 2000, FAO published the FRA 2010 /PTH10/, however the data for % of Forest Tropical Rain Forest, % of Forest Tropical Moist, % of Forest Tropical Dry and % of Forest Tropical</p>	<p>ERM CVS confirmed that the FAO data used is the latest available, and is applied by the UNFCCC Information Note, and can therefore be considered reliable.</p> <p>The conservative value of 0.82 (from wood) is validated from this source as the appropriate figure for the f_{NRB} value for the project.</p>

CDM Validation Report



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>reference is available.</p> <p>Furthermore, PP needs to clarify whether the value 0.83 takes into account the proportion of the baseline population using fossil fuel to boil water.</p>		<p>Mountain haven't been updated. Therefore, the applied source is the latest information. Please note that the FRA 2000 source (together with the FRA 2010) was also applied in the fNRB study by UNFCCC in the EB67 Annex 22 "Information note NRB for LDCs and SIDs" dated 11/05/2012. The PP keep following with the updated FRA 2015 and update the fNRB calculation before the first verification if necessary.</p> <p>The typo mistake with wood fNRB in previous version of PDD was corrected to 0.82 in PDD, Annex 4 and consistent with the excel calculation. The weighted average fNRB has been calculated and resulted 0.93. However, for ensuring the conservativeness, the fNRB for wood was applied. Please find in the ER calculation and the PDD.</p>	CL closed.
<p>CL 03</p> <p>The PP presents a brief explanation of the baseline description of the project. It details that the about 25% of the population in Indonesia has access to piped water supply, and that about 30% of this water/18/ is contaminated with e. coli or faecal coliform bacteria, rendering it unsafe to drink. However, further information is needed, for example, what percentage of the population has access to an improved water source (not just a piped water source) and what is the extent of other forms of public distribution networks of SDW; what percentage of all water sources available to Indonesians is contaminated? A more detailed analysis of the baseline scenario is needed.</p>	6.2	<p>Percentage of the population has access to an improved water source is addressed in CAR 03 above.</p> <p>According to the "Local Actions for Sustainable Development on Water and Sanitation in Asia-Pacific Region" by UN HABITAT /PTH12/, page 105: Over 100 million people in Indonesia lack access to safe water and more than 70% of the country's 220 million population relies on water obtained from potentially contaminated sources.</p>	<p>The PP has clarified that about 87% of the population in Indonesia has access to an improved water source, but that 70.1% of the population is found to boil water to treat it prior to consumption/11/. This is because water from improved water sources in Indonesia is not necessarily safe to drink without treatment due to the presence of e. coli or faecal coliform bacteria, rendering it unsafe to drink /18/.</p> <p>Please refer to CAR 03 for details of the proportion of the population having access to a public distribution network.</p> <p>CL closed.</p>

Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>CL 04</p> <p>The PP has provided a link to test results and certifications performed by various agencies and health departments on the Nazava water filters/17/. However, no mention is made in the PDD regarding the compliance of these tests to an applicable national standard/guideline. PP is requested to clarify.</p>	6.2	<p>The PDD has been updated and mentioned that the water test results met the national standards</p> <ul style="list-style-type: none"> Before 19 Apr 2010: Decree of the Ministry of Health, No 907/MENKES/SK/VII/2002 dated 29/07/2002 on requirements and supervision over the quality of drinking water /PTH06/ After 19 Apr 2010: Decree 492/MENKES/PER/IV/2010 dated 19/04/2010 /PTH24/ <p>All test results are against these standards and clearly written in all test results /PTH22/, /PTH25/.</p>	<p>The PDD has been updated to state that the water test results meet the following national standards:</p> <ul style="list-style-type: none"> a) Before 19 April 2010: Decree of the Ministry of Health, No 907/MENKES/SK/VII/2002 /22/ b) After 19 April 2010: Decree of the Ministry of Health, 492/MENKES/PER/IV/2010 /22/ <p>ERM CVS has checked the test results and confirms that all the water test results clearly refer to the above national standards/17/.</p> <p>CL closed.</p>
<p>CL 05</p> <p>The PP needs to clarify what kind of documented measures are in place to ensure that end users have access to replacement purification systems of comparable quality, in accordance with the methodological requirements. The PP also needs to detail measures in place to handle repairs, if any.</p>	6.2	<p>When buying the water filter, end users have one-year warranty for their purchased products. The project owner or its retailers have responsibility to replace or repair the filter if the faulty was by the supplier. The warranty policy /PTH15/ has been issued and the courts shall have exclusive jurisdiction over matters covered or flowing from this warranty.</p> <p>After the warranty period, end users can obtain replacement filters at any time through a network of resellers, directly through shops. The consumer could also contact PT Holland for Water directly by the phone number on the filter housing via phone, SMS and other free application (Viber or Whatsapp). Spare parts can be shipped nationwide to the customer.</p>	<p>ERM CVS has checked the warranty policy document/23/ and confirms that it details a one-year warranty for their purchased products. The knowledge of this warranty was also checked to confirm that end users were aware of the warranty period during the site visit.</p> <p>End users are sold filters through a network of resellers and directly through shops – the site visit interviews found the end users had the phone numbers of the resellers whom they would contact whenever there was a need for repairs or replacements. The PP further mentions that the contact number for PT Holland for Water is written on the filters themselves, and that end users can directly contact them via phone and SMS. This is deemed sufficient by ERM CVS based on experience.</p> <p>CL closed.</p>

CDM Validation Report



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
<p>CL 06</p> <p>The PP provides an implementation timeline in the PDD however it is found to be incomplete. Comments have been raised in the PDD for the PP to include key information with reference to the implementation of the project e.g. information on the pilot programme, on the GS approval to present the VPA as a standalone GS, on the GS approval for project's exemption from prior consideration fulfilment etc. All key milestones need to be included.</p>	7.1	The implementation timeline was updated in Section B.5 of the PDD.	<p>The implementation timeline has been updated in the PDD. ERM CVS has validated the timeline – Please refer to section 7.1 of the FVR.</p> <p>CL closed.</p>
<p>CL 07</p> <p>The arguments presented using 'Barrier analysis' are not sufficiently substantiated. The PP is requested to update the additionality analysis.</p>	7.3	The additionality analysis has been updated in section B.5 of the PDD.	<p>PP has revised the additionality of the proposed project activity in line with the Methodological tool Demonstration of additionality of small-scale project activities, Version 10.0.</p> <p>As per the tool, documentation of barriers is not required for the positive list of technologies and for project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW). The positive list comprises of:</p> <p><i>(c) Project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds;</i></p> <p>For the proposed project this small-scale CDM threshold translates to 750 kW. The maximum</p>

CDM Validation Report



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
			capacity has been verified to be 2.98 kW by way of checking the ER calculations/02/. Therefore the project meets the criteria of the 'positive list' of technologies that are defined as automatically additional. Barrier analysis is not required. CL closed.
CL 08 Parameter $N_{y,i}$: Please provide reference for the value of 4.57.	8.1.2	The ex-ante number of people drinking water per household $N_{y,i}$ is based on the "Components of the Income Aggregate: "Indonesia Family Life Survey, Wave 1", prepared for the Rural Income Generating Activities (RIGA) Project of the Agricultural Development Economics Division, Food and Agriculture Organization December, 2008, available online at the following link: http://www.fao.org/fileadmin/templates/riga/docs/Country_survey_in_formation/14_Indonesia93-Components_of_the_Income_Aggregate.pdf Reference has been updated for the parameter $N_{y,i}$ in Section B.7.1 of the PDD. The supporting document /PTH05/ is also attached herewith.	The value of 4.57 has been verified against the FAO source/24/. The value will be monitored and updated every two years. CL closed.
CL 09 a) Please provide further statistics (with references) to demonstrate the current situation of the parameter 'livelihood of the poor' in the sustainability monitoring parameter table. b) Please state the frequency of monitoring of the parameter 'livelihood of the poor' in the sustainability monitoring	9.3	The following has been updated in the updated GS Passport: a. Current situation with updated calculation about fuel saving. b. Monitoring frequency for the parameter "livelihood of the poor"	The current situation with respect to parameter 'livelihood of the poor', including updated calculations about fuel savings, has been provided. Monitoring frequency for the parameter "livelihood of the poor" has been stated. CL closed.

CDM Validation Report



Clarification Requests	Ref. to Question Number	Summary of PPs' response	Final conclusion
parameter table.			

Forward Action Requests	Summary of PP's response
<p>FAR 01</p> <p>The validation team did not see direct evidence of the end users receiving warranty cards that specifically detail that the rights to carbon savings will be transferred to the project implementer.</p> <p>The PP plans to design a sticker for the filter buckets that will detail product information as well as carbon rights waiver. The verifying DOE is to check these filter buckets with new stickers to ensure that the end users are being provided with enough information to be aware that they are ceding rights to VERs.</p>	<p>The information about carbon rights could be checked by the DOE during verification by checking the warranty cards or stickers with the sampled households.</p>