CTI	**Verification and Certification report for GS4GG project activities** **(Gold Standard for the Global Goals)**
VERICATION AND CERTIFICATION REPORT	
Title of the project activity	Nazava Water Filter Project
Reference number of the project activity	GS4290
Version number of the verification and certification report	02
Completion date of the verification and certification report	27/11/2023
Monitoring period number and duration of this monitoring period	MP number: 3rd MP dates: 19/12/2020 to 18/12/2022 (both days included)
Version number of monitoring report to which this report applies	3.1
Crediting period of the project activity corresponding to this monitoring period	01/03/2014 to 29/02/2024 (both days included)
Project Representative	Project developer: PT Holland for Water (PTH)
Host Party	Indonesia
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	AMS-III.AV. - Low greenhouse gas emitting safe drinking water production system Version 04.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
SDG Contributions targeted (as per approved PDD)	Goal 1: No Poverty Goal 3: Good Health and Well-Being Goal 5: Gender Equality Goal 6: Clean Water and Sanitation Goal 8: Decent work and economic growth Goal 13: Climate Action Goal 15: Life on Land

Estimated amount of annual average certified SDG impact (as per approved PDD)[1]	SDG 1 - No Poverty	(a) N/A
		(b) N/A
		(c) N/A
		(d) N/A
	SDG 3 - Good Health and Well-Being	N/A
	SDG 5 - Gender Equality	N/A
	SDG 6 - Clean Water and Sanitation	N/A
	SDG 8 - Decent Work and Economic Growth	N/A
	SDG 13 - Climate Action	Amount of emission reductions - 78,730 tCO_2e/year
	SDG 15 - Life on Land	N/A
Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period	SDG 1 - No Poverty	(a) 20,032.36 tonne of biomass save after using project technology
		(b) 10,292.80 tonne of LPG save after using project technology
		(c) 79.63% of household noted on money save after using project technology
		(d) 99.10% of household noted on time save after using project technology
	SDG 3 - Good Health and Well-Being	308,452 of people who notice less smoke in kitchen after having water filter
	SDG 5 - Gender Equality	331,818 of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel
	SDG 6 - Clean Water and Sanitation	364,515 of people with access to safe drinking water
	SDG 8 - Decent Work and Economic Growth	27 of new jobs created by the project with safe and healthy work environment
	SDG 13 - Climate Action	Emission reductions - 46,219 tCO_2e GS VERs
	SDG 15 - Life on Land	85.17 hectare of forest save

[1] Via checking the registered PDD and Transition Annex of the project, it is confirmed that no ex-ante value is calculated for each SDG except the ER value.

Name of VVB	VVB Name: CTI Certification Co., Ltd. (CTI)
Name, position and signature of the approver of the verification and certification report	Shunrong Lin Lin Shunrong Technical Reviewer/Approver

SECTION A. Executive summary

The Project activity involves production, sale and distribution of Ceramic Water Filters (CWF) in Indonesia. There was limited access to clean drinking water in rural and urban areas. Lack of ready access to a water source also limit the quantity of suitable drinking water that is available to a household. Nationally, boiling water prior to drinking is the most common treatment method. While boiling water, people use non-renewable biomass or fossil fuel which has been verified by site interview with CWF users. The objective of the project is to reduce / eliminate the water boiling practice and thereby reduce the CO_2 emissions due to usage of non-renewable biomass and fossil fuel.

PTH's core product is the Nazava Ceramic filter candle, a ceramic filter candle that is mixed with colloidal silver and filled with activated carbon. The water filters are made at the facilities of PTH and tested by the WHO/47/. After the filters are assembled and checked for quality at the Nazava's factory, they are distributed through different market channels. The filters are made of diatomaceous earth with pores of 0.4 micron (0.0004 milimeter) and remove micro-organisms: bacteria, cysts, parasites, fungi, sand, clay and other particles greater than 0.4 micron. PTH's water filter technologies conservatively purifies 3 litres per hour/11/, is certified to last for 7,000 litres/11/.

Using this technology, households can filter their own tap, well, river or rain water. All of these filters come with an Indonesian-language user manual with clear directions/12/, an indicator for filter replacement, and a one-year warranty card/13/. The Nazava CWF has been one of the solutions for providing safe drinking water. They have been shown to effectively reduce diarrhoea diseases, with independent tests and assessments available/47/,/48/.

PTH is producing a ceramic filter from the activated carbon which reduces the content of harmful chemicals such as pesticides and chlorine. It improves the taste and reduces smell. The ceramic is impregnated with silver (0.08 % by weight), which kills micro-organisms like bacteria that are trapped at the surface of the ceramic. PTH has a purpose-built factory situated in Bandung, Java, where these filters are produced utilising local workers. By implementing the project, PTH has provided opportunities for local community to generate steady and continual income for their livelihood.

PT Holland for Water has so far distributed total 139,579 units of CWF in different provinces of host country cumulatively up to 18/12/2022, and 23,357 units sold during this monitoring period from 19/12/2020 to 18/12/2022, which is verified by checking the sales database/14/.

The Certified Emissions Reduction for the current 3rd monitoring period from 19/12/2020 to 18/12/2022 is 46,219 tCO_2e.

Scope of Verification

This verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the VVB. The verification addresses the implementation and operation of the GS PA and tests the data and assertions set out in the monitoring report based on the following:

(i) The GS PDD of the project/3/
(ii) The approved methodology mentioned in the PDD, CDM approved AMS-III.AV. - Low greenhouse gas emitting safe drinking water production system (Version 04.0)/27/
(iii) The registered SDG monitoring parameters in the Transition Annex/6/,
(iv) the Gold Standard for the Global Goals Principles and Requirements/34/,
(v) the Gold Standard for the Global Goals Safeguarding Principles & Requirements/35/,
(vi) the Gold Standard for the Global Goals Community Services Activity Requirements/36/,
(vii) the Gold Standard for the Global Goals GHG Emissions Reduction & Sequestration Product Requirements/38/,
(viii) the Gold Standard for the Global Goals Stakeholder Consultation and Engagement Requirements/37/,
(ix) GS Validation and Verification Standard/32/,
(x) Product requirements and references relevant to the project activity's reported emission reductions

The verification has considered both quantitative and qualitative aspects on stated/reported emission reductions. The monitoring report (all versions) and corresponding supporting documentation was assessed in accordance with the rules defined by GS4GG, as appropriate to the PA. The verification is not meant to provide any consulting or recommendations to the PP/others. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

Verification process

The verification has been performed as described in the Gold Standard for the Global Goals Principles and Requirements/34/ as below process,

a. Desk review of the GS MR (version 1.0 dated 27/07/2023)/1/, ER sheet/2/ and the relevant documents
b. On-site assessment (07/08/2023~14/08/2023)
c. Issuance of draft verification report & verification protocol
d. Desk review of the revised MR and related documents
e. Resolution of the raised CAR
f. Issuance of the final verification report
g. Independent technical review of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences)
h. Reporting and closure of TR comments/findings and final approval for the decision made
i. Issuance of final verification report to contracted PD (or authorized representatives) and submission of request for issuance, as appropriate.

Conclusion

CTI has performed the verification of the GS PA "Nazava Water Filter Project" having GS Ref. Number GS4290 for the 3rd monitoring period from 19/12/2020 to 18/12/2022. The verified emission reductions amount to 46,219 tCO_2e in the aforesaid monitoring period.

The technical parameters of the CWFs are consistent with the PDD, and not changed since previous verification/5/.

In CTI's opinion, the GHG emission reductions reported for the project in the GS4GG 3rd monitoring report are fairly stated. CTI confirmed that each SDG Impacts were calculated correctly on the basis of the methodology/27/ and the monitoring plan contained in the PDD/3/ and Transition Annex/6/.

CTI confirms that each SDG Impacts are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that each SDG Impacts are appropriately calculated, CTI is able to certify that each SDG Impacts from the project "Nazava Water Filter Project" during the indicated monitoring period. Therefore, this is being submitted for request for issuance, as per GS procedures as applicable.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	Site Visit	Interviews	Validation findings
1.	Team Leader & Verifier	IR	Yu	Jia	CTI	√	√	√	√
2.	Local expert	EI	Pradana	Fitra Zumario	-	-	√	√	-

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer/Approver	IR	Lin	Shunrong	CTI

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions	Low	Human error is likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording	Depending on the monitoring period being verified, conduct increased verifying during the months when there is a greater likelihood of errors and issues with data quality control due to project participants' leave schedules
2.	Undue reliance on a poorly designed information system, which may have few effective quality controls	Low	Use of spreadsheets without adequate controls related to data changes/updates, version tracking, traceability, security	Depending on how data is generated, processed, and reported, place greater emphasis on verifying data captured and processed manually and/or in spreadsheets versus those that are generated from an automated system
3.	Omissions and misstatements in data transfer from hand written notes into digital Excel ER spreadsheet	Medium	Ineffective quality control of data transfer due to unclear QA/QC procedure	Check QM procedure/manual. PD may demonstrate how to transfer data and how this is crosschecked. Conduct interview with related personnel whether procedure is actually conducted but not adequately described.
4	Sample	Medium	Sample size is not suitable; or the surveyed end users are not random	Cross-check the procedure to identify the sample size against the applied methodology and sample guideline. CTI conducted a random sample following the sample standard during site-visit period, visited randomly selected sampled end users who are partial sourced from the sample conducted by PP. Based on the result of acceptance sampling, the monitoring records are deemed acceptable.

On the basis of the risk analysis the verification has been planned. A detailed audit/verification plan has been prepared and submitted to the project participant(s) in due time before the site visit.

C.2. Consideration of materiality in conducting the verification

The errors identified in the project are below the threshold limit of materiality and hence not material. The GHG emission reductions are calculated without material misstatements.

SECTION D. Means of verification

D.1. Desk review

Desk review of all documents provided by PD and publicly available documents relevant for the verification including sampling plan, monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the frequency of measurements, QA/QC procedures and other relevant documents was conducted by CTI.

The main documents are listed below:

(i) the GS4GG Monitoring Report Version 1.0 dated 27/07/2023/1/
(ii) the emission reduction calculation spreadsheet related to this monitoring period/2/.
(iii) the last revision of the PDD/3/,
(iv) the last revision of the Transition Annex including the SDG impacts monitoring plan/6/.

Other supporting documents, such as publicly available information and background information were also reviewed.
The list of documents reviewed during the verification is provided under Appendix 3 of this report.

D.2. Site visit

Duration of site visit: 07/08/2023~14/08/2023				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Opening meeting - interviewed representatives of PD and staffs, representative consultant	Hotel in Bandung, West Java, Indonesia	07/08/2023	Yu Jia and Local Expert
2.	Household visit together with interview end-user samples, representative of retailers	Different villages in Indonesia	08/08/2023~ 09/08/2023 13/08/2023~ 14/08/2023	
3.	Factory Site Visit	Jl. Soreang – Cipatik (Cisaat), RT 001 RW 002 No. 147, Jelegong, Kutawaringin, Kabupaten Bandung, Jawa Barat, Indonesia (together with office)	10/08/2023	
4.	Check all the supporting document evidence	Office of project owner in Bandung, West Java, Indonesia	10/08/2023	
5.	Findings discussion	Office of project owner in Bandung, West Java, Indonesia	10/08/2023	
6.	Close Meeting	Office of project owner in Bandung, West Java, Indonesia	14/08/2023	

D.3. Interviews

D.3.1. Interviews with PD, Staffs and sampled end users and retailers

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Hofwegen	Guido Von	PTH/Director	07/08/2023, 14/08/2023	- General aspects of the project - Changes since validation / previous verifications	Yu Jia and Local Expert

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
					- Calibration procedures - CWF distribution status - Sales database - Project database - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Sampling Plan - Sampling Method - Project survey - Baseline survey - Monitoring data management - Data uncertainty and residual risks - Procedural aspects of the verification - Environmental aspects - Job opportunities - Salary level - Water quality and quantity - Livelihood of the poor - Access to energy service - Monitoring plan - Monitoring training - Emission reduction calculation	
2.	Dadan	Faisal	PTH/ Factory Staff, Ceramic Checker	10/08/2023	- CWF Production Process - Environmental aspects - Salary level - Staff Management - Position - Job Description - Labor contract - Welfare - Safety training	
3.	Jajang	W.	PTH/Factory Staff, Ceramic Gluing	10/08/2023		
4.	Rahman	S.	PTH/ Factory Staff, Ceramic Test	10/08/2023		
5.	Dadang	S.	PTH/Factory Staff, Ceramic	10/08/2023		
6.	Yeyep	S.	PTH/Factory Staff, Packaging	10/08/2023		
7.	Utami	Wela	PTH/ Account Manager	08/08/2023		
8.	Prisca	Devina	PTH/ Content Creative	09/08/2023, 10/08/2023		
9.	Galih	Rhamdani	PTH/ Customer Support	10/08/2023		
10.	Shinta	-	PTH/ Finance Manager	10/08/2023		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
11.	Steven	Ramsey	PTH/ Head of Global Partnership	10/08/2023		
12.	Indra	-	PTH/ IT	10/08/2023		
13.	Syahri	Abdillah	PTH/Country Manager	10/08/2023		
14.	Agil	Septian	Retailer Representatives	08/08/2023	- Cooperation with PP - CWF sale method - end user information collection - sales invoice - CWF storage	
15.	Asep	Daelany F.		08/08/2023		
16.	Agus	Sopyan		09/08/2023		
17.	Peter	Bleecke		13/08/2023		
18.	Adrianus	Christianus M V. Boogart		14/08/2023		
19.	Jacqueline	Denise V. Boogart		14/08/2023		
20.	Ms.	Yuyun	Ciburial Village, West Bandung	08/08/2023	- CWF Style - Purchase price - Person/HH - CWF issues for using - After sale service - Warranty card - Air quality change - Water quality - If stop boiling water - Water consumption per day - Wood, Charcoal, LPG consumption - Money Saving - Time Saving - Accessibility to PTH - Any comments	
21.	Ms.	Nurela	Ciburial Village, West Bandung	08/08/2023		
22.	Ms.	Nurlianti	Ciburial Village, West Bandung	08/08/2023		
23.	Mr.	Aem	Ciburial Village, West Bandung	08/08/2023		
24.	Ms.	Nunung	Ciburial Village, West Bandung	08/08/2023		
25.	Ms.	Rohati	Ciburial Village, West Bandung	08/08/2023		
26.	Rukiyah	Liah	Babakan Garut Village, West Bandung	08/08/2023		
27.	Mardianti	Indri	Margajaya Village, West Bandung	08/08/2023		
28.	Ms.	Wartini	Margajaya Village, West Bandung	08/08/2023		
29.	Taryati	Tatat	Caringin VIllage, West Bandung	08/08/2023		
30.	Eni	Siti	Caringin VIllage, West Bandung	08/08/2023		
31.	Ms.	Sa'adah	Caringin VIllage, West Bandung	08/08/2023		
32.	Ms.	Ratih	Cibanteng Village, Cianjur Regency	09/08/2023		
33.	Ms.	Enug	Cibanteng Village, Cianjur Regency	09/08/2023		
34.	Robiah	Siti	Cibanteng Village, Cianjur Regency	09/08/2023		
35.	Ms.	Mariyam	Cibanteng Village, Cianjur Regency	09/08/2023		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
36.	Ms.	Ida	Cibanteng Village, Cianjur Regency	09/08/2023		
37.	Ms.	Euis	Cibanteng Village, Cianjur Regency	09/08/2023		
38.	Ms.	Yayah	Cibanteng Village, Cianjur Regency	09/08/2023		
39.	Ms.	Henhen	Cibanteng Village, Cianjur Regency	09/08/2023		
40.	Maharani	Komang	Gambang Village, Serayu, Karangasem	13/08/2023		
41.	Astria	Kadek	Ijo Gading VIllage, Serayu, Karangasem	13/08/2023		
42.	Sumartini	Wayan	Ijo Gading VIllage, Serayu, Karangasem	13/08/2023		
43.	Suntariani	Kadek	Ijo Gading VIllage, Serayu, Karangasem	13/08/2023		
44.	Kadek	Ni	Celagi Village, Serayu, Karangasem	13/08/2023		
45.	Helsa	Kadek	Giling Selang Village, Serayu, Karangasem Bali	13/08/2023		
46.	Suwastini	Wayan	Celagi Village, Serayu, Karangasem	13/08/2023		
47.	Merta	Nyoman	Celagi Village, Serayu, Karangasem	13/08/2023		
48.	Ardika	Putu	Celagi Village, Serayu, Karangasem	13/08/2023		
49.	Budha	Ni Wayan	Celagi Village, Serayu, Karangasem	13/08/2023		
50.	Wiradharma	Nyoman	Celagi Village, Serayu, Karangasem	13/08/2023		
51.	Saba	Ni Ketut	Celagi Village, Serayu, Karangasem	14/08/2023		
52.	Nesti	Made	Celagi Village, Serayu, Karangasem	14/08/2023		
53.	Okta	Ni Luh	Celagi Village, Serayu, Karangasem	14/08/2023		
54.	Diani	Made Kembar	Celagi Village, Serayu, Karangasem	14/08/2023		
55.	Susanti	Nyoman	Pejongan Village, Serayu,	14/08/2023		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			Karangasem			
56.	Suriasih	Komang	Pejongan Village, Serayu, Karangasem	14/08/2023		
57.	Ms.	Suwastini	Pejongan Village, Serayu, Karangasem	14/08/2023		
58.	Suwartini	Kadek	Yeh Kali Village, Serayu, Karangasem	14/08/2023		
59.	Runi	Ketut	Yeh Kali Village, Serayu, Karangasem	14/08/2023		
60.	Meng	Chanvibol	Nexus Carbon for Development /Technical services manager	07/08/2023~ 14/08/2023	- General aspects of the project - Emission reduction calculation - MR preparation - SDG impacts	
61.	Uzaelikyurek	Deniz	Nexus Carbon for Development /Carbon Finance Analyst			

D.3.2. Type of Questions asked by the team members:

The questions in the questionnaires asked were basically based on requirements of GS4GG/34/. The main topics included, but not limited to, the followings:

For sampled retailers,

Sales information

a. Sales and Order procedure
b. Sales and Order time period
c. Number of order and sales
d. Data recording
e. Sales invoices
f. Data Management
g. Procedure of recording the sales to PP's database

The feedbacks from sampled retailers are listed as below:

All the interviewees provided the information. All the sampled retailers confirmed the sales and order procedure with PD. The order and sales management picks up the sales invoice and summarizes the information by PD, which means that PD can manage and have the record for CWF's sale or distribution.

For end users,

1. General information of CWF users
   a. Interviewee Name
   b. Gender
   c. CWF serial No.
   d. CWF style
   e. Household location
   f. People No. in the Household
   g. Mobile No.
2. Question for use
   a. Have you already attended the survey during Feb 2023 to May 2023 by PHT?
   b. Are you the one who mainly use the CWF in family?
   c. When did you start using the CWF?
   d. Did you sign an invoice and provide your information to sales?

   e. Was there any issue when you used CWF in year 2021~2022?
   f. Did you stop using CWF during year 2021~2022?
   g. After using CWF, did you stop boiling the daily drinking water?
3. SD and co-benefits for the 3rd monitoring period for
   a. If kitchen was less smoke comparing with past after using CWF
   b. If Water quality was good for drink after using CWF
   c. If money was saved after using CWF
   d. If fuel was saved after using CWF
   e. If time was saved after using CWF
4. Fuel using
   a. After using CWF, if you still boiling the daily drinking water, which kind of fuel did you use during year 2021~2022?
5. After sale service
   a. Did you ever repair or replace any CWF (parts) during year 2021~2022?
   b. Accessibility to PT Holland for Water
6. any comments?

For the staff,

- Job Description - Title, Rank, Department, Main function, join time
- Salary - Salary satisfied, Labor contract, working environment safe and healthy or not

The feedbacks from end user interviewees are listed as below:

1. General information of CWF users
   All the Household (HH) provided the general information of the CWF and family.
   The average people No. in Household is 4.6 which is higher than the value in MR and confirmed as conservative.
2. Question for use
   All the Household confirmed participation of the survey and the interviewees are the main user
   All the Household provided the start using time which is later than the time of sale in the sale database
   All the Household confirmed signed invoice and provide information to sales.
3. SD
   All the Households used to boiling the water confirmed that the kitchen less smoke comparing with past after using CWF
   All the Households confirmed that the water quality is good for healthy.
   All the Households confirmed that the money was saved after using CWF.
   All the Households confirmed that the fuel was saved after using CWF.
   All the Households confirmed that the time was saved after using CWF
4. Fuel using
   37 households boiling less the daily drinking water which consumed less fuel than baseline.
5. After sale
   Some Households have replaced the part of CWF. The access to TerraClear method are known as attached to CWF.
6. No more comments from Households.

The feedback from staff interviewees are listed as below:
All the staff gave their name, age, job title to verification team and all the staff satisfied with their salary and confirmed working environment are safe and healthy.

Verification Team along with site visit, objective evidence collections, data generation and recording analysis also considered the views obtained in these site interviews while arriving at Verification Opinion.

D.4. Sampling approach

Sampling approach by PD

The sampling design carried out by the project is demonstrated as below:

Before preparing the MR, PD conducted the monitoring sampling survey for investigate the values used for this monitoring period for monitored parameters, which is verified as in line with the requirement in the PDD monitoring plan/3/ and methodology requirement/27/. 6 monitored parameters including $N_{y,i}$, $N_{Less_smoke,y}$, ***SDW, Women%***, $WQ_{Passed,y}$ **and** ***Usage rate***, are need to be determined based on the sampling survey including **Usage and Project survey and water quality test survey** which has been assessed one by one as below,

The sampling survey was conducted by Project Sample Group (PSG) from 03/02/2023 to 15/05/2023 including **usage survey, project survey** as per the applied methodology/27/, Transition Annex/6/ and sampling plan/20/, and the results have been combined in the monitoring survey records for this monitoring period/9/. It is designed to be representative of all households in the target population including all HHs in the nation of Indonesia, which are end-users of the project technology and who have purchased the CWF from 01/12/2011 through 18/12/2022. The sample of HHs was chosen from Nazava's project database/15/ representing all CWP customers for whom contact information is available. Based on checking the records, the verification team confirmed that total of 486 households who have owned CWF participated in the usage survey across the 4 representative provinces which representing the proportion of CWF end-users of about 71%/20/. Out of these 486 households, 324 households are currently still using CWF and they are eligible for participating in the project survey.

***$N_{y,i}$, $N_{Less_smoke,y}$, SDW, Women%* - Project survey (PS)**

These 4 parameters need to be monitored through PS.

Through checking the records/9/, CTI confirmed that PS measures the project CWF using impacts to the households. The PS is conducted with end-users representative of project scenario target population and currently using the CWF. The PS is verified as in line with the requirement in the PDD sampling plan/3/ and methodology requirement/27/.

PD has determined a sample size of 324 for PS which is higher than the requested sample size of 268 which is determined on a stratum level to ensure that the precision and reliability requirements are met throughout the data set. The size of the sample for each sampling frame is determined by the requirement to achieve the 90/10 confidence/precision for the estimation of the proportion or mean value of the parameter investigated/21/.

The survey questionnaires which developed in accordance with the registered methodology corresponding to each monitored parameters by carbon consultant (Nexus) and the project implementer (Nazava) were distributed to each sampled end-user and collect the information by Project Sample Group. After the data was provided from Project Sample Group, it was cleansed by the project manager. For clarification on specific values, respondents were called to confirm correct values. The clean data was then analyzed using Microsoft excel software and then created the monitoring survey records/9/.

Through checking the PS sampling method as stated in the sampling plan/20/ and monitoring survey records/9/, it is verified that the method is in line with the PDD sampling plan/3/, methodology requirement/27/ and Guidelines: Sampling and Surveys for CDM Project Activities and Programme of Activities, (Version 4.0)/29/.

***Usage rate* - Usage survey (US)**

Usage survey (US) has been conducted for determine the value of *Usage rate*.

Through checking the records/9/, CTI confirmed that US measures the *Usage rate* in difference age of the filter which may reflect the actual usage rate. Nazava has monitored the usage rates of the CWFs through the usage survey to ensure the project claims an appropriate useful life of the technology. The US is verified as in line with the requirement in the PDD sampling plan/3/ and methodology requirement/27/.

PD has determined a sample size of 486 for US which is higher than the requested sample size of 336 by considering the samples were increased to include difference age of the filter which is determined on a stratum level to ensure that the precision and reliability requirements are met throughout the data set. The size of the sample for each sampling frame is determined by the requirement to achieve the 90/10 confidence/precision for the estimation of the proportion or mean value of the parameter investigated.

The survey questionnaires which developed in accordance with the registered methodology corresponding to each monitored parameters by carbon consultant (Nexus) and the project implementer (Nazava) were

distributed to each sampled end-user and collect the information by Project Sample Group. After the data was provided from Project Sample Group, it was cleansed by the project manager. For clarification on specific values, respondents were called to confirm correct values. The clean data was then analyzed using Microsoft excel software and then created the monitoring survey records/9/.

Through checking the US sampling method as stated in the sampling plan/20/ and monitoring survey records/9/, it is verified that the method is in line with the PDD sampling plan/3/, methodology requirement/27/ and Guidelines: Sampling and Surveys for CDM Project Activities and Programme of Activities, (Version 4.0)/29/.

***$WQ_{Passed,y}$* - Water quality test survey**

PD has opted random sampling method to conduct the water quality test survey as per the sampling plan/20/ and applied methodology/27/. However, for cost saving and logistic arrangement without scarifying the quality of data sampling, the random sampling will be done for the selected villages under the project survey which were already randomly selected and represented about 71% of the total sale. The total number of samples is determined by using an online calculation.

PD conducted the water quality test from 06/02/2023 to 06/02/2023 for this monitoring period in line with the monitoring frequency of every two years water quality test survey.

As per the sampling plan/20/, the sample size for the water quality test was calculated by taking the total population of CWF water filters sold (n = 115,535) from 1st Dec 2011 to Dec 2022 and calculating a sample which will provide results with a 10% margin of error and a 90% level of confidence. By using a web based sample size calculator (http://www.raosoft.com/samplesize.html), the minimum number of households to be considered for this study is calculated as 35.

PD took a sample number 51 which is greater than that of the total number of sample which is determined by using random function in Microsoft Excel as per the sampling plan/20/, i.e. 35.

For cost saving and logistic arrangement without scarifying the quality of data sampling, the random sampling has been done for the selected villages under the project survey which were already randomly selected and represented about 71% of the total sale.

Project Sample Group has conducted the water quality test survey by employing water quality test kits with 51 samples and all the results were taken pictures as evidence as shown in WQtest results Nazava MP3/19/.

Through checking the sampling method as stated in the sampling plan/20/ and WQtest results Nazava MP3/19/, it is verified that the method is in line with the PDD sampling plan/3/, methodology requirement/27/ and “Deviation Request_form_GS4290_GS_Nexus FINAL”/31/.

Sampling approach by VVB

CTI conducted the verification of sampling results with the following steps according to “Sampling and Surveys for CDM Project Activities and Programme of Activities” version 09.0/30/ and “Guideline of Sampling and surveys for CDM project activities and programmes of activities” version 04.0/29/:

For parameter $T_{y,i}$, to verify the accuracy and correctness of monitored data, verification team has utilized sampling approach as per the “Guideline of Sampling and surveys for CDM project activities and programmes of activities” version 04.0/29/, this sampling approach found to be appropriate as the sales database and sales invoices are homogenous.

As per the paragraph 12 of 2.1.1 section of the guideline states that the Sample size calculation by Simple Random Sampling can be done using following formulae:

$$n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$$

Where

n	Sample size
N	Total number of sales invoices
P	Our expected proportion
1.645	Represents the 90% confidence required
0.1	Represents the 10% relative precision (0.1 × 0.5 = 0.05 = 5% points either side of p)

N is 23,357 as determined in the sales database/14/, P is determined as 90%, as per the level of confidence, VVB expects that 90% of the samples taken shall comply with the project requirements.

Hence the *n* is calculated as 1.645^2*23,357*0.9*(1-0.9)/{(23,357-1)*0.1^2*0.9^2+1.645^2*0.9*(1-0.9)}=31. Hence, the verification team randomly selected 50 sales invoice reference numbers from the sales database/14/ and checked related sales invoices/18/ which is more than 31 sample size requirement during this monitoring period, the sales invoices/18/ are cross checked with the sales database/14/, it is verified that the sales database/14/ during this monitoring period is correct with the sales invoice samples/18/. Hence, it is concluded that the $\mathbf{T_{y,i}}$ value during this monitoring period of 23,357 is correct and credible.

For parameter $WQ_{Passed,y}$, to verify the accuracy and correctness of monitored data, verification team has checked all the samples from PD original data, so 51 samples were checked by verification team/19/ and it is verified that all the 51 Water Quality test results are consistent with the PD data and final calculation result average percentage of 92.16% is verified as correct and credible based on the sample results conducted on every two years base.

For project survey (PS) and usage survey (US), the samples are selected based on the PDD, Guidelines: Sampling and Surveys for CDM Project Activities and Programme of Activities, (Version 4.0)/29/ and methodology request.

For parameter $N_{y,i}$, $N_{Less_smoke,y}$, ***SDW, Women%*, and *Usage rate***, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/ with the following steps,

(a) Take a random sample of the project's sample records;

In order to determine the size of the sample household for site visit verification interview check, the acceptable quality level (AQL), i.e. the proportion discrepancies between the PD sample records and the VVB sample records that are acceptable is determined as 0.5% and the proportion of discrepancies between the PD sample records and VVB sample records that are unacceptable (UQL) is determined as 10% according to "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/.

The maximum errors associated with the determination indicated above should remain at levels indicated below as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/:

(1) A 10% chance that the VVB will wrongly reject the PDs records (producer's risk);

(2) A 10% chance that the VVB will wrongly accept the PDs records (consumer's risk).

With the AQL of 0.5%, the UQL of 10%, the producer's risk of 10% and the consumer's risk of 10%, the size of the acceptance sampling is determined as 38 and the acceptance number is determined as 1 according to Table 1 of "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/. To be more conservative, verification team randomly selected 40 from the PD's sample records.

Took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the information related to all the related monitoring parameters.

(b) Check the acceptability of the data for each record in the sample records based on the expertise;

The sample records in the monitoring survey records/9/ is found to be consistent with the 40 samples selected by verification team from the sampling conducted by the PP. Also, no discrepancy is found between the sample records/9/ and the VVB sample records.

(c) Based on the number of records where is agreement, determine if the sample records meet the requirements.

As there are no discrepant records, i.e. the discrepant record is less than the acceptance number of 1, the sample records/9/ is accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General Description of Project	CL 01	CAR 01	-
Compliance of the project implementation with the registered project design document	-	CAR 02	-
Remaining forward action requests from validation and/or previous verification	-	-	FAR 01
Post-registration changes	-	-	-

Compliance of the monitoring system applied by the project with the registered monitoring plan	-	CAR 03	-
Compliance of monitoring activities with the registered monitoring plan		-	
SDG Data and parameters fixed ex ante or at renewal of crediting period	-	-	-
SDG Data and parameters monitored	CL 02	CAR 04	-
Comparison of monitored parameters with last monitoring period		-	-
Compliance of the sampling implementation with the registered sampling plan	-	-	-
Assessment of data and calculation of SDG Impacts			
Calculation of baseline value or estimation of baseline situation of each SDG Impact	-	-	-
Calculation of project value or estimation of project situation of each SDG Impact	-	-	-
Calculation of leakage	CL 03	-	-
Calculation of net benefits or direct calculation for each SDG Impact	-	-	-
Comparison of actual SDG Impacts with estimates in approved PDD	-	-	-
Remarks on increase in achieved SDG Impacts from estimated value in approved PDD	CL 04	-	-
Safeguards reporting	-	-	-
Stakeholder inputs and legal disputes	-	-	-
Others (please specify)	-	-	-
Total	**4**	**4**	**1**

SECTION E. Verification findings

E.1. General Description of Project

Means of verification

A draft monitoring report was submitted to the verification team by the project participants prior to the start of the verification activities.

It is checked that the appropriate form has been used for compiling the MR as per the Gold Standard for Global Goals Monitoring Report Template version 1.1 in October 2020/33/.

Further every section has been checked against the GS4GG Principles& Requirements/34/.

The project is implemented in line with the PDD confirmed by site visit.
Through site visit, CTI confirmed that the project involves production, sale and distribution of Ceramic Water Filters (CWF) in Indonesia. There was limited access to clean drinking water in rural and urban areas. Lack of ready access to a water source also limit the quantity of suitable drinking water that is available to a household. Nationally, boiling water prior to drinking is the most common treatment method. While boiling water, people use non-renewable biomass or fossil fuel which has been verified by site interview with CWF users. The objective of the project is to reduce / eliminate the water boiling practice and thereby reduce the CO_2 emissions due to usage of non-renewable biomass and fossil fuel.

PTH is producing a ceramic filter from the activated carbon which reduces the content of harmful chemicals such as pesticides and chlorine. It improves the taste and reduces smell. The ceramic is impregnated with silver (0.08 % by weight), which kills micro-organisms like bacteria that are trapped at the surface of the ceramic. PTH has a purpose-built factory situated in Bandung, Java, where these filters are produced utilising local workers. By implementing the project, PTH has provided opportunities for local community to generate steady and continual income for their livelihood.

For this monitoring period, 23,357 units of CWF have been sold, and total 139,579 units of CWF sold in different provinces of host country cumulatively which is verified by checking the sales database/14/ and sales invoice samples/18/ with actual Emissions Reduction for the current monitoring period from 19/12/2020 to 18/12/2022 is 46,219 tCO_2e. Furthermore, for the usage of the CWF status, PD has considered that the age of CWF is considered by each CWF counted for ER calculation after 4 months which is verified as conservative for ER calculation. Via site inspection of CWF factory, it is observed that the CWF is a simple water purifier device in which the fragile part being ceramic candle which can be replaced easily if needed. With the system set up via retailer shops and online sale, the replacement parts (ceramic candle) can be purchased and delivered easily nationwide. Furthermore, there was no consideration on the lifetime of the filter system. The calculation of ER is based on usage rate which reflects well the actual use of CWF instead of lifetimes of the filter.

The project is applicable to the CDM approved methodology AMS-III.AV. - “Low greenhouse gas emitting safe drinking water production system” (Version 04.0)/27/.

The project boundary for the distribution of the CWF is in Indonesia.
The location of factory is at Jl. Soreang – Cipatik (Cisaat), RT 001 RW 002 No. 147, Jelegong, Kutawaringin, Kabupaten Bandung, Jawa Barat, Indonesia (together with office).

The detailed geographic coordinates of the project included in this monitoring period is listed as below:

No.	Project Location
Host Country	Indonesia
Country coordinates	Latitude: 6°00’ N to 11° 00’ S Longitude: 95°00’ E to 140°00’ E
CWF Distribution Region	All the provinces in Indonesia

Factory address	Jl. Soreang - Cipatik (Cisaat), RT 001 RW 002 No. 147, Jelegong, Kutawaringin, Bandung Regency, West Java 40911, Indonesia
Factory Latitude	6°56'42"S
Factory Longitude	107°32'02"E

The project location has been clearly provided in section A.2 of the MR, which has been verified by site inspection with GPS device and comparing with location in google earth and the detailed coordinates of factory and involved country have been provided which are verified as correct by checking the google earth map.

The starting date of operation of the project activity was 09/11/2011 when first purchase of PTH's water filters was made and GS Crediting period start date is 01/03/2014 which has been confirmed in the PDD and validation report/4/,/3/. The project was registered as a GS-VER project on 15/02/2016 with the registration number of GS4290. According to the approved Crediting Period Validation Report/4/ and previous verification reports/5/, the project participant has adopted for the fixed 10-years with the start date of cediting period of 01/03/2014 and ended on 29/02/2024.

As part of the site visit the Verification Team was able to confirm that the project description in MR is in accordance with the project description contained in the PDD/3/.

Findings	CL 01, CAR 01 were raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	It can be confirmed that the final version Monitoring report/1/ is complete and transparent and in accordance with the PDD/3/ and Global Goals Monitoring Report Template version 1.1 in October 2020/33/. Refer to the below sections for details.

E.2. Compliance of the project implementation with the registered project design document

Means of verification	By means of an in-depth review of the PDD and the checks carried out during the site visit, an assessment has been carried out whether the project has been implemented and operated in line with the PDD and whether all physical features of the project are in place. The following has been checked: implemented technology, project equipment as well as monitoring equipment. The verification team has conducted site visits with checking the project operation and interview with PD, end users, retailers, in addition by all the provided evidence, it is found that the project has been put into operation and CWF are being sold and it is found that the implementation of the project activity is in accordance with the PDD. The changes in the factors and parameters used during this monitoring period to arrive at the emission reduction calculations are transparently described in the Monitoring Report. PD has provided justifications for the changes and these changes are accounted correctly while calculating emission reductions/2/. PD has so far sold 139,579 units of ceramic filters in different provinces of host country, and 23,357 units during this monitoring period from 19/12/2020 to 18/12/2022, which is verified by checking the sales database/14/ and cross checked with the sales invoice samples/18/. The emission reductions achieved during this monitoring period are 46,219 tCO_2e/2/. The details of verification against changes incorporated by PD during this monitoring period are provided in the respective sections and there is no significant change observed in the project operation comparing with the PDD. PTH's core product is the Nazava Ceramic filter candle, a ceramic filter candle that is mixed with colloidal silver and filled with activated carbon. The water filters are made at the facilities of PTH and tested by the WHO/47/. After the filters are assembled and checked for quality at the Nazava's factory, they are distributed through different market channels. Using this technology, households can filter their own tap, well, river or rain water. All of these filters come with an Indonesian-language user manual with clear

	directions/12/, an indicator for filter replacement, and a one-year warranty card/13/. The Nazava CWF has been one of the solutions for providing safe drinking water. They have been shown to effectively reduce diarrhoea diseases, with independent tests and assessments available/47/,/48/. Via site visit of the factory, it is confirmed that the core product of PTH is a high quality ceramic water filter element, which is used in 10 different water filter housings. The water filter housings come in a broad range of different shapes and capacity, answering to different needs and demand among different income groups in society. PD has provided detailed specifications along with picture of the main types of CWF in the MR section B.1. The filters are made of diatomaceous earth with pores of 0.4 micron (0.0004 milimeter) and remove micro-organisms: bacteria, cysts, parasites, fungi, sand, clay and other particles greater than 0.4 micron. PTH's water filter technologies conservatively purifies 3 litres per hour/11/, is certified to last for 7,000 litres/11/. Through checking the Nazava specification/11/ for CWF, verification team herewith confirms that the specifications of Ceramic Water Filters (CWF) are the same as provided in the MR and specifications/11/. For the sales of the CWF, by site inspection and interview with sales staff from PD and representatives from retailers, and checking the sales database/14/ and cross check with the related sales invoices/18/, the verification team confirmed that PTH sold CWF through three main channels: i) Direct sales to end users by Nazava sales staff or online ii) Indirect Sales from retailers iii) NGOs and variety of community development projects that purchase wholesale CWFs for distribution to their project beneficiaries. All the interviewees confirmed sales during site visit and via checking the List of retailers/16/ and List of NGO/17/ which was recorded and managed by PTH, CTI confirmed the sales channel information in MR is actual and reasonable. Additionally, throughout the monitoring period, Nazava has maintained a project database/15/ containing the contact details of all 24,970 end users to the extent possible through different sales channels. This is the 3rd monitoring period and the verification team herewith confirms that the project implementation is consistent since the project started as mentioned in the PDD. There are no major obstructions or gaps noted during this monitoring period. The actual sold and operation are found in accordance with the descriptions provided in the PDD. There is no deviation / change evidenced during this monitoring period and there were no delays compared to information in approved project.
Findings	CAR 02 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	Assessment concludes the following: - The implementation status of project activity was found to in compliance with PDD/3/. - CTI has conducted the site visit to confirm the implementation status of the project with regards to the realized technology. - The actual operation of project activity was found to in compliance with PDD/3/. - There were no delays compared to information in approved project.

E.3. Remaining forward action requests from validation and/or previous verification

This is the 3rd verification of the project activity. Through checking the previous verification reports/5/, CTI verified that there was one FAR raised during the 1st monitoring period which has been demonstrated by PD in the section B.1.1 of MR and assessed by CTI as below,

FAR 01

"During the next verification/Issuance, PD should be able to clarify how it takes into account households not using their filters every day into the emission calculation."

Based on the requirement from this FAR, PD has added a specific question which asked during the monitoring survey by "How often do you drink/use water from CWF?" in this monitoring period.

Through checking the monitoring survey records/9/, it is verified that the 100% of sampled users confirmed use their CWF every day during this MP. Thus, there is no any adjustment to the emission reduction calculation.

Hence, the verification team confirmed this FAR has been considered and demonstrated during this MP. The FAR is closed for this monitoring period. However, this FAR is re-issued during this monitoring period and will be check in next verification/Issuance.

E.4. Post-registration changes

E.4.1. Temporary deviations from Certified Key Project Information, Project Design Document, Monitoring & Reporting Plan, applied methodology or applied standardized baseline

Not Applicable

E.4.2. Corrections

Through checking the previous verification report/5/, CTI verified that there was one correction approved during the 1st verification period. Based on the approved correction, it is confirmed that the value of X_{boil} factor is changed from 70.1% of the approved PDD to 88.26% which is fixed for the whole crediting period in accordance with the applied methodology (AMS-III.AV, version 4, paragraph 19)/27/.

E.4.3. Changes to start date of crediting period

Not Applicable

E.4.4. Permanent changes from design certified monitoring plan, applied methodology or applied standardized baseline

Through checking the Deviation Request_form_GS4290_GS_Nexus FINAL/31/ approved by the GS-TAC, CTI verified that there was a permanence was made for water quality test approved during the 1st verification period. Based on the approved correction, it is confirmed that the project request for employing water quality test kit instead of using the third-party laboratory.

E.4.5. Changes to project design of approved project

Not Applicable

E.5. Compliance of the monitoring system applied by the project with the registered monitoring plan

Means of verification	By means of comparison of the MR with the applied methodology and all applicable GS4GG guidelines, the verification team has checked whether the monitoring system is in compliance with the monitoring plan/3/, Transition Annex/6/ and related requirements of the applied methodology/27/ whether the sample plan conducted accordingly, the source and the applied value of the SDG monitored parameter is acceptable; whether the parameters monitored explain the operational and management structure, responsibilities and institutional arrangement for data collection/archiving, QA/QC procedures. CTI confirmed that all the monitoring parameters listed in the PDD have been provided in the MR corresponding to each SDG impact.

	The Sampling methods have been used for determine some monitored parameters, refer to section D.4 and below for detail assessment of the sampling methods conducted by PD and VVB. Refer to below section E.6.2 for detail assessment of the monitoring parameters. The monitoring system applied by the project compliance with the registered monitoring plan is demonstrated as below: **Monitoring organization** The monitoring group members take the overall monitoring responsibility in the whole monitoring process which has been confirmed during the site interview with the representatives from monitoring group members which consists of Nexus, PTH, Accounting staffs and Project Sample Group (PSG). The roles and related responsibilities of the group members have been elaborated in the MR which has been confirmed as reasonable and actual by site interview with representative from monitoring group members. The organizational structure is considered sufficient to fulfil the monitoring requirements of the methodology and to ensure that SDG impacts can be verified. **Data recording and archiving procedures** As per the training manual/24/, sale database/14/ and project database/15/ are data to be monitored and recorded. PD has created and maintained the sales database along with the CWF sold/distributed. The related information of CWF is included in the database which has been confirmed by checking the sales database/14/. Nazava cannot collect all the user's names and address from all the CWF sale as majority (75%) of the sale is generating from reseller. However, the PD has customer list increases from 15% to 18% compared to previous MP2 with the introduction of the online form in Epic-collect (https://five.epicollect.net/). The contact detail of end users are recorded in the project database/15/. Through site inspection, interview with PD, sampled end users, representatives from retailers and checking the data management system in MR, CTI confirmed that PD has provided a completed description of the management of project data and water purifiers' sale which has been verified as actual and correct. **Training** As per the training manual/24/, a training about how to conduct monitoring surveys of Nazava customers has been provided during this monitoring period/25/. **Quality Assurance and Quality Control** The related QA/QC procedure has been conducted by PD for the monitoring process including accurate and transparent record keeping, cross-check, monitoring and evaluation which has been verified by checking the related protocols and survey reports. CTI confirmed that the QA/QC procedure has been implemented by PD properly during this monitoring period and the data management is confirmed as effective. **Non-Double counting assessment** The VVB has checked for double counting by reviewing all relevant registries including CDM/42/, VCS/43/ and other GHGs programs such as IREC/44/, GCC/40/. CTI confirmed that there is no potential exists for Double Counting of emissions reductions due to issuance of Gold Standard VERs/CO_2-certificates from the considered project activity for this monitoring period. Furthermore, for the project users and water purifiers number sold management, to avoid the double counting, PD has implemented the related actions as following,

	i. PD has added a serial number to all water filters produced and kept the numbers in a database; Verifier checked the database of Serial number to all water filters produced and kept the numbers in the sale database/14/ and found no duplication of the serial number to all water filters. ii. The design of the water filters from Nazava looks physically different from other water filters in the market, making it easy to recognize them; and Through on-site observation and checking the look of the PTH CWF, it is found that the water filters assembled in the factory have their unique brand attached to the devices so that to be easily recognized comparing with others. Furthermore, through on-site investigation, verification team found that sampled water filters have a unique serial number attached to the devices. In conclusion, CTI verified that Project Developer has provided Gold Standard with satisfactory justification that no double counting of emission reductions occurred for this monitoring period. In conclusion, the monitoring system is completely in accordance with the approved methodology applied by the GS project and PDD.
Findings	CAR 03 were raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The monitoring system complies with the applied methodology and the monitoring plan and all applied procedures are completely in compliance to the latest approved monitoring plan and the methodology.

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. SDG Data and parameters fixed ex ante or at renewal of crediting period

Means of verification

The values of ex-ante parameter assessed in the table given below:

Ex Ante Data and Parameters

Parameters	Values applied	Reference	Assessment by VVB
$f_{NRB,y}$ - SDG 13 Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable	82.1%	FAO Global Forest Resources Assessment 2010/49/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories/46/	PD has applied value of 82.1% for this monitoring period, this value is a calculated value based on FAO Global Forest Resources Assessment 2010/49/ and 2006 IPCC Guidelines for National Greenhouse Gas Inventories/46/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
$R_{y,i}$ - SDG 13 The average volume of drinking water per person per day	3.5 liters/ person/day	"Minimum water quantity needed for domestic uses" by WHO Regional Office for South-East Asia/50/	PD has applied value of 3.5 liters/ person/day for this monitoring period, this value is a derived from "Minimum water quantity needed for domestic uses" by WHO Regional Office for South-East Asia/50/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
$EF_{projected_fossilfuel}$ – SDG 13	81.6 tCO_2/TJ	Default value from AMS-I.E/28/ as	PD has applied a default value of 81.6 tCO_2/TJ for this

Emission factor for the substitution of non-renewable woody biomass or the emission factor of the fossil fuel substituted by similar consumers		referenced by AMS-III.AV Version 4/27/	monitoring period, and the value is from AMS-I.E/28/ as referenced by AMS-III.AV Version 4/27/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
WH – SDG 13 Specific Heat of Water	4.186 kJ/L ^{o}C	Default value from AMS-III.AV Version 4/27/	PD has applied a default value of 4.186 kJ/L ^{o}C for this monitoring period, and the value is from AMS-III.AV Version 4/27/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
T_f – SDG 13 Final Temperature	100 ^{o}C	Default value from AMS-III.AV Version 4/27/	PD has applied a default value of 100°C for this monitoring period, and the value is from AMS-III.AV Version 4/27/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
T_i– SDG 13 Initial Temperature	20 ^{o}C	Default value from AMS-III.AV Version 4/27/	PD has applied a default value of 20°C for this monitoring period, and the value is from AMS-III.AV Version 4/27/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
WHE - SDG 13 Latent Heat of Water Evaporation	2,260 kJ/L	Default value from AMS-III.AV Version 4/27/	PD has applied a default value of 2,260 kJ/L for this monitoring period, and the value is from AMS-III.AV Version 4/27/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
L - SDG 13 Leakage relating to non-renewable woody biomass	0.95	Default value from AMS-I.E Version 6/28/	PD has applied a default value of 0.95 for this monitoring period, and the value is from AMS-I.E Version 6/28/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
Case 1 or Case 2 - SDG 13 Classifies the	Case 2	WHO/UNICEF Joint Monitoring Programme	The proposed project is classified as Case 1 or Case 2 depending on the fraction of the population using an

	proposed project as either Case 1 or Case 2		(JMP) for Water Supply and Sanitation/51/	improved drinking-water source prior to the implementation of the proposed project. This proposed project is classified as Case 2 as per the data which is available from WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation/51/ as provided in PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	X_{boil} – SDG 13 Fraction of the population serviced by the project activity for which the common practice of water purification is or would have been water boiling	88.26%	Data from Nazava_MP1(2018)_ProjectSurveyData_20181212, tab Analysis, Cell C7/26/	PD has applied a value of 88.26% for this monitoring period, and the value is from Data from Nazava_MP1(2018)_Project SurveyData_20181212, tab Analysis, Cell C7/26/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	$\eta_{wb,y}$ – SDG 13 Efficiency of water boiling system being replaced	0.4	Default value from AMS-III.AV Version 4/27/	PD has applied a default value of 0.4 for this monitoring period, and the value is the weighted average efficiency that is calculated from default values from AMS-III.AV Version 4/27/ and percentage of fuel types as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	%HH using biomass – SDG 13 and 15 Percentage of household using biomass for boiling water	38%	Indonesian Demographic and health survey report published by Indonesian Ministry of Health on Aug 2013/52/	PD has applied a value of 38% for this monitoring period, and the value is from Indonesian Demographic and health survey report published by Indonesian Ministry of Health on Aug 2013/52/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	%HH using LPG – SDG 13 and 15 Percentage of household using LPG for	51.8%	Indonesian Demographic and health survey report published by Indonesian Ministry of Health	PD has applied a value of 51.8% for this monitoring period, and the value is from Indonesian Demographic and health survey report published by Indonesian

	boiling water		on Aug 2013/52/	Ministry of Health on Aug 2013/52/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	NCV_{wood} – SDG 1 and 15 Net calorific value of wood	0.015 TJ/tonne	Default value from IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.19/46/	PD has applied a value of 0.015 TJ/tonne for this monitoring period, and the value is default from IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories"/46/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	NCV_{LPG} – SDG 1 and 15 Net calorific value of LPG	0.0474 TJ/tonne	Default value from IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.18/46/	PD has applied a value of 0.0474 TJ/tonne for this monitoring period, and the value is default from IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories"/46/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	Growth stock in forest – SDG 15 Growth stock in forest in Indonesia	112 m^3/Hectare	FAO data 2015, Global Forest Resources Assessment 2015 (page 81)/49/	PD has applied a value of 112 m^3/Hectare for this monitoring period, and the value is from FAO data 2015, Global Forest Resources Assessment 2015 (page 81)/49/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	Converting factor of biomass from m^3 to tonne – SDG 15 Converting factor of biomass from m^3 to tonne	1.72 fraction	FAO, Global forest assessment 2000 report, Appendix 3, Table 7/49/	PD has applied a value of 1.72 fraction for this monitoring period, and the value is from FAO, Global forest assessment 2000 report, Appendix 3, Table 7/49/ as listed in the registered PDD/3/. Hence this value is confirmed as applicable to this monitoring period.
	The assessment team has checked that all the ex-ante parameters were fixed at the level of PA and were verified from the validated PDD/3/ and Transition Annex/6/. Also, the ex-ante parameter values have been consistently applied for the ER calculation which is evident from the ER calculation sheet/2/.			
Findings	N/A			
Conclusion	The values mentioned in the Monitoring Report/1/ and Emission Reduction Spreadsheet/2/ are consistent with the PDD/3/ and Transition Annex/6/. The applied values are correct and justified.			

E.6.2. SDG Data and parameters monitored

Means of verification	***1. QPW_y***	
	Relevant SDG:	SDG1.1.1 SDG13.3.1 SDG15.1.1
	Data/Parameter	***QPW_y***
	Unit	Litres/yr/unit
	Description	Quantity of purified water in year y (litres)
	Value applied for this monitoring period	4,583
	Measuring /Reading /Recording frequency	Every two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered PDD/3/ and applied methodology/27/.
	Monitoring equipment with accuracy	N/A
	Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
	How were the values in the monitoring report verified?	The quantity of purified water per year ***QPW_y*** is estimated by using below equation, $QPW_y = \sum_{0}^{i} T_{y,i} * N_{y,i} * R_{y,i} * 365 * Water\ Quality * Operational\ Units * X_{boil}$ The formula above is verified as in line with the PDD and applied methodology. To check if the calculation result is correct for ***QPW_y***, all the related parameters have been checked one by one as assessed below, Parameters $R_{y,i}$ and X_{boil} are fixed ex-ante which have been assessed in above Section E.6.1. $R_{y,i}$ is 3.5 liters/ person/day, derived from “Minimum water quantity needed for domestic uses” by WHO Regional Office for South-East Asia/50/ as listed in the registered PDD/3/. X_{boil} is 88.26% derived from Nazava_MP1(2018)_ ProjectSurveyData_20181212, tab Analysis, Cell C7/26/ as listed in the registered PDD/3/. Parameters $T_{y,i}$, $N_{y,i}$, Water Quality $WQ_{Passed,y}$ and Operational Units (usage rate) are monitored as assessed in below tables for each monitoring parameter. $T_{y,i}$ is 23,357 derived from sales database/14/ and cross-checked with sales invoices of CWF/18/, see below assessment to parameter 2. $N_{y,i}$ is 4.41 Persons/Units derived from Project Survey result in the Monitoring survey records/9/. VVB has

	conducted a sampling method for assess the project survey result, see below assessment to parameter 3 and sampling method has been assessed in detail in section D.4 and E.6.4. Water Quality $WQ_{Passed,y}$ is 92.16% derived from water quality test results/19/. VVB has conducted a sampling method for assess the Water Quality result, see below assessment to parameter 4 and sampling method has been assessed in detail in section D.4 and E.6.4. Operational Units (usage rate) is different for different age group which are derived from Usage Survey result in the monitoring survey records/9/. VVB has conducted a sampling method for assess the Usage Survey result, see below assessment to parameter 5 and sampling method has been assessed in detail in section D.4 and E.6.4. The parameter QPW_y is calculated from the relevant parameters through the above equation and the calculation result for different age group is verified as correct based on the assessed values for each relevant parameter. Due to the project is a small scale project with small number of ER, conducting the yearly survey for the parameters $N_{y,i}$, Water Quality, Parameter Operational Units would be costly and not feasible for the project activity. Therefore, they are monitored every 2 years according to the methodology requirement/27/. Within the monitoring interval (2 years) of these parameters, their values will be fixed.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	N/A. The value is calculated by different parameters, refer to below table for assessment of each parameter.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. The value is calculated by different parameters, refer to below table for assessment of each parameter.

2. $T_{y,i}$

Relevant SDG indicator:	SDG 3.9.1 SDG 6.1.1 SDG 13.3.1
Data/Parameter	$T_{y,i}$
Unit	Number
Description	Total distributed water purification units in this monitoring period
Value applied for this monitoring period	23,357
Measuring /Reading /Recording frequency	Continuous and aggregated monthly

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered PDD/3/ and applied methodology/27/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period?	N/A
How were the values in the monitoring report verified?	$T_{y,i}$ is derived from sales database/14/. By gathering and analyzing sales database/14/, the number of distributed water purification units in this monitoring period has been determined. PD has established effective mechanism to capture sales data of CWF distributed units on regular basis. The input to sales databases are taken from three different types of sales channels i.e. Direct sales, Retail sales and NGO sales. The values from three channels are being compiled on monthly basis as recorded in sales database/14/. Through checking the sales database/14/, CTI verified that the numbers can be checked and the values are consistent.
If applicable, has the reported data been cross-checked with other available data?	The sales invoices of CWF/18/ has been used for cross-check, through checking the Sales invoices of CWF/18/, it is verified that all the required information of buyers is listed in the invoices for Direct sales, Retail sales and NGO sales. And by comparing the data in Sales database/14/ with Sales invoices of CWF/18/, it is verified that the number of sold CWFs are consistent for each record of a sale.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. The sales invoices of CWF/18/ has been used for cross-check the data in Sales database/14/. Furthermore, CTI has conducted a sampling method to check the sales information, which has been elaborated in the section D.4 of this report.

3. $N_{y,i}$

Relevant SDG:	SDG3.9.1 SDG6.1.1 SDG13.3.1
Data/Parameter	$N_{y,i}$
Unit	Persons/Units
Description	The average population serviced by water purification

		system
	Value applied for this monitoring period	4.41
	Measuring /Reading /Recording frequency	Every two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered PDD/3/ and applied methodology/27/. As per the applied methodology and registered PDD, CTI confirmed that the monitoring frequency is every two years, the last project survey was conducted in December 2020 to March 2021, so the frequency request is fulfilled.
	Monitoring equipment with accuracy	N/A
	Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
	How were the values in the monitoring report verified?	$N_{y,i}$ was derived from Project Survey result in the Monitoring survey records/9/. This is a monitored value based on the PS done during Feb to May 2023. A question of “how many member in your family?” has been used during the survey and the results have been collected from 323 samples, while the total number of 323 samples is 1,425, so the average for each household is calculated as 4.41. So the value applied by PD is 4.41 Persons/Units who are serviced by the CWF is verified as correct and reasonable. PS has been conducted for determine the value of number of average population serviced by water purification system. Through checking the records/9/, CTI confirmed that PS is conducted with end-users representative of project scenario target population and currently using the CWF. The PS is verified as in line with the requirement in the sampling plan/20/ and methodology requirement/27/. The sampling method has been assessed in detail in section D.4 and E.6.4. For the final result, because the proposed project activity is the small-scale project and there is no specific requirement in the applied methodology AMS III.AV, version 4, so the 90 percent confidence interval and a 10 per cent margin of error requirement shall be achieved for the sampling parameter. In cases where survey results indicate that 90/10 precision is not achieved, the lower bound of 90 per cent confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 90/10 precision. So based on the survey and its 90/10 rule, the average population services by water purification system was calculated as 4.41 which meets the 90/10 rule in which the margin of error at 90%

	confidence is lower than 10%.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Yes. The value is measured and calculated based on the PS carried out by PP. The values in the PS in the monitoring survey records/9/ is cross-checked with the original questionnaires/10/ which based on the inputs received from 323 Households in different provinces of Indonesia. Hence, the cross-check has been conducted and value in the MR is verified as reasonable.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. The values in the PS in the monitoring survey records/9/ is cross-checked with the original questionnaires/10/. And the final result meets the 90/10 rule in which the margin of error at 90% confidence is lower than 10%. Furthermore, CTI has conducted a sampling method to check the information received from PD's samples, which has been elaborated in the section D.4 of this report.

4. $WQ_{Passed,y}$

Relevant SDG:	SDG3.9.1 SDG6.1.1 SDG13.3.1
Data/Parameter	$WQ_{Passed,y}$
Unit	%
Description	Average water quality passing rate of water quality standard (WHO standard)
Value applied for this monitoring period	92.16
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered PDD/3/ and applied methodology/27/. As per the applied methodology and registered PDD, CTI confirmed that the monitoring frequency is every two years, the last project survey was conducted in December 2020 to March 2021, so the frequency request is fulfilled.
Monitoring equipment with accuracy	Mobil testing kit: Compact dry Compact Dry E. coli/Coliform Count (EC) is a ready-to-use test method for the enumeration of Escherichia coli and coliform bacteria in food and water.
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A

How were the values in the monitoring report verified?	$WQ_{Passed,y}$ value is derived from water quality test results/19/. The values were tested by Project Sample Group who conducted water quality test on 51 samples by employing mobile test kit during this monitoring period. PD has performed Water analysis taking samples from various households and conducted water quality test by employing mobile test kit. Compact dry Compact Dry E. coli/Coliform Count (EC) is a ready-to-use test method for the enumeration of Escherichia coli and coliform bacteria in food and water. The results are as good as other testing methods which is confirmed by checking a Comparative Study/53/. Project Sample Group has conducted the water quality test as per the manual of the product mobile test kit /54/, the test can be done in the field with a mobile incubator because the tool is very light. PD has compared the results of analysis/19/ with WHO water quality standard/47/ and concluded that 92.16% samples are meeting the water quality standard prescribed by the WHO. The sampling method has been assessed in detail in section D.4 and E.6.4. The value of water quality test survey during this monitoring period is verified as in line with the water quality test results/19/ and confirmed as correct and reasonable.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Through checking the water quality test results/19/ and manual of the product mobile test kit/54/, the verification team confirmed that mobile test kit is a applicable device for measure the water quality and thus confirmed as in compliance with requirement of the applied methodology. WHO standard is used as determine the water quality passing rate which is verified in line with the PDD/3/ and applied methodology.

5. Usage rate

Relevant SDG:	SDG1.1.1 SDG6.1.1 SDG13.3.1	
Data/Parameter	***Usage rate***	
Unit	%	
Description	Percentage of sold unit in operation	
Value applied for this monitoring period	**Aged group**	**Usage rate**

	1 100.00% 2 100.00% 3 93.94% 4 79.49% 5 95.74% 6 60.55% 7 13.33% 8 16.67% 9 15.00% 10 13.33%
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered PDD/3/ and applied methodology/27/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	Usage survey (US) has been conducted for determine the value of *Usage rate*. The value is derived from Usage Survey result in the monitoring survey records/9/. This is the calculated value to determine the usage rate of the CWF of different age during this Monitoring Period. For determine the value for each age of the CWF, PD has determined a sample size of 486 for US which is in line with the sample size determination for usage survey in PDD. The sampling method has been assessed in detail in section D.4 and E.6.4. The Usage Survey was conducted through usage questionnaires which was designed to collect end user usage information. Furthermore, for the usage of the CWF status, PD has considered that the age of CWF is considered by each CWF counted for ER calculation after 4 months which is verified as conservative for ER calculation. Via site inspection of CWF factory, it is observed that the CWF is a simple water purifier device in which the fragile part being ceramic candle which can be replaced easily if needed. With the system set up via retailer shops and online sale, the replacement parts (ceramic candle) can be purchased and delivered easily nationwide. Furthermore, there was no consideration on the lifetime of the filter system. The calculation of ER is based on

		usage rate which reflects well the actual use of CWF instead of lifetimes of the filter. This value is based on the result of usage survey conducted in Feb to May 2023 by PSG based on the inputs received from 486 Households in different provinces of Indonesia and summarized in monitoring survey records/9/. PD has arrived at the usage rate calculation for different age based on the Usage Survey result in the monitoring survey records/9/. Through checking the sampling method as stated in MR, CTI verified that the method is in line with methodology requirement/27/ and PDD and based on checking all the sampling records. CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the usage information. VVB has asked sampled end users the questions related usage (as specified in section D.3.2) and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/. CTI confirmed that the sampling monitoring survey results are reasonable for determine the monitored parameters for this monitoring period and the value in MR is verified as correct.
	If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Yes. The value is measured and calculated based on the US. The values in the Usage Survey result in the monitoring survey records/9/ is cross-checked with the original questionnaires/10/ which based on the inputs received from 486 Households in different provinces of Indonesia. Hence, the cross-check has been conducted and value in the MR is verified as reasonable.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. The values in the Usage Survey result in the monitoring survey records/9/ is cross-checked with the original questionnaires/10/. Furthermore, CTI has conducted a sampling method to check the information received from PD's samples, which has been elaborated in the section D.4 of this report.

6. SDW

Relevant SDG:	SDG13.3.1
Data/Parameter	***SDW***
Unit	%
Description	Existence of public distribution network of safe drinking water
Value applied for this monitoring period	0
Measuring /Reading /Recording frequency	Every year
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the registered PDD/3/ and applied methodology/27/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***SDW*** was derived from PS result in the Monitoring survey records/9/ and SDW monitoring report/23/. This parameter is monitored to survey the existence of public distribution network of safe drinking water which is used to determine the eligibility criteria of project to applied methodology. Through checking the records/9/, CTI confirmed that PS surveys the existence of public distribution network of safe drinking water in end users' house. The PS is conducted with end-users representative of project scenario target population and currently using the CWF. The sampling method has been assessed in detail in section D.4 and E.6.4. PD obtains the main input from the PS in the Monitoring survey records/9/ which showed no existence of public distribution network of safe drinking water in end users' house. Furthermore, via checking the SDW monitoring report/23/, CTI verified that a review on the water quality of public water supply utilities during this MP3 (2020-2022) was conducted. Desk review and field survey were implemented to collect necessary data to analysis the status of SDW from 2020 to 2022. As mentioned above, both desk review and the actual survey and water quality test indicated that up to the end of 2022, it is verified that there is no reliable public water supply utilities in Indonesia or represented target areas that could provide a reliable safe drinking water to

	users. Hene the value of SDW is 0.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Yes. The value is measured by PS in the monitoring survey records/9/ is cross-checked with the SDW monitoring report/23/. Both desk review and the actual survey and water quality test indicated that up to the end of 2022, it is verified that there is no reliable public water supply utilities in Indonesia or represented target areas that could provide a reliable safe drinking water to users. Hene the value of SDW is 0. Hence, the cross-check has been conducted and value in the MR is verified as reasonable.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. The value is measured by PS in the monitoring survey records/9/ is cross-checked with the SDW monitoring report/23/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of no reliable public water supply utilities in represented target areas that could provide a reliable safe drinking water to users. VVB has asked sampled end users the questions related public water supply utilities and reliable safe drinking water to users and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

7. $N_{Less_smoke,y}$

Relevant SDG:	SDG3.9.1
Data/Parameter	$N_{Less_smoke,y}$
Unit	%
Description	% of households notice that their kitchen is less smoke
Value applied for this monitoring period	84.62

	Measuring /Reading /Recording frequency	Every two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
	Monitoring equipment with accuracy	N/A
	Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
	How were the values in the monitoring report verified?	$N_{Less_smoke,y}$ was derived from PS and the result provided in the Monitoring survey records/9/. PD conducted PS to investigate the percentage of households notice that their kitchen is less smoke after using CWF by ask the household to fill related questionnaires. Through checking the monitoring survey records/9/ comparing with the filled questionnaires/10/, it showed that 84.62% of households notice that their kitchen is less smoke and the results is confirmed reasonable and credible. Through checking the sampling method as stated in MR, CTI verified that the method is in line with Transition Annex/6/ and based on checking all the sampling records. CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the smoke in the kitchen information. VVB has asked sampled end users the questions related smoke in the kitchen (as specified in section D.3.2) and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/. CTI confirmed that the sampling monitoring survey results are reasonable for determine the monitored parameters for this monitoring period and the value in MR is verified as correct.

If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method to check the information received from PD's samples, which has been elaborated in the section D.4 and E.6.4 of this report.

8. Women%

Relevant SDG:	SDG5.4.1
Data/Parameter	***Women%***
Unit	Percentage
Description	Average percentage of women and girls responsible for water boiling and collecting/purchasing cooking fuel before having CWFs
Value applied for this monitoring period	91.03
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***Women%*** was derived from PS and the result provided in the Monitoring survey records/9/. PD conducted PS to investigate the percentage of women and girls responsible for water boiling and collecting/purchasing cooking fuel before having CWFs by ask the household to fill related questionnaires. Through checking the monitoring survey records/9/ comparing with the filled questionnaires/10/, it showed that 91.03% of households notice that women and girls responsible for water boiling and collecting/purchasing cooking fuel before having CWFs is confirmed reasonable and credible. Through checking the sampling method as stated in MR, CTI verified that the method is in line with

	Transition Annex/6/ and based on checking all the sampling records. CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the water boiling and collecting/purchasing cooking fuel information. VVB has asked sampled end users the questions related water boiling and collecting/purchasing cooking fuel and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/. CTI confirmed that the sampling monitoring survey results are reasonable for determine the monitored parameters for this monitoring period and the value in MR is verified as correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method to check the information received from PD's samples, which has been elaborated in the section D.4 and E.6.4 of this report.

9. Net benefit (a) of SDG1

Relevant SDG:	SDG1.1.1
Data/Parameter	***Net benefit (a) of SDG1***
Unit	tonne
Description	Total amount of biomass fuel saves
Value applied for this monitoring period	20,032.36
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in	Yes, the measuring and reporting frequency are in line

		accordance with the monitoring plan and monitoring methodology? (Yes / No)	with the Transition Annex/6/.
		Monitoring equipment with accuracy	N/A
		Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
		How were the values in the monitoring report verified?	***Net benefit (a) of SDG1*** was calculated by equations provided in the Transition Annex, the values of related parameters are derived from PS and the result provided in the Monitoring survey records/9/. The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the survey result in Monitoring survey records/9/. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG1 (a) contribution is correct.
		If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
		Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the parameters that used to calculate the amount of biomass fuel saves information. VVB has asked sampled end users the questions related amount of biomass fuel saves and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme

	of Activities"/30/.

10. Net benefit (b) of SDG1

Relevant SDG:	SDG1.1.1
Data/Parameter	***Net benefit (b) of SDG1***
Unit	tonne
Description	Total amount of LPG saves
Value applied for this monitoring period	10,292.80
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***Net benefit (b) of SDG1*** was calculated by equations provided in the Transition Annex, the values of related parameters are derived from PS and the result provided in the Monitoring survey records/9/. The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the survey result in Monitoring survey records/9/. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG1 (b) contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during

	this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the parameters that used to calculate the amount of LPG saves information. VVB has asked sampled end users the questions related amount of LPG saves and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

11. Net benefit (c) of SDG1

Relevant SDG:	SDG1.1.1
Data/Parameter	***Net benefit (c) of SDG1***
Unit	%
Description	Percentage of household noted on money save after using the project technology
Value applied for this monitoring period	79.63%
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***Net benefit (c) of SDG1*** was calculated by equations provided in the Transition Annex, the values of related parameters are derived from PS and the result provided in the Monitoring survey records/9/. The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the survey result in Monitoring survey records/9/. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly

	analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG1 (c) contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the if household noted on money save after using the project technology. VVB has asked sampled end users the questions related if the money saved after using the project technology and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

12. Net benefit (d) of SDG1

Relevant SDG:	SDG1.1.1
Data/Parameter	***Net benefit (d) of SDG1***
Unit	%
Description	Percentage of household noted on time save after using the project technology
Value applied for this monitoring period	99.10%
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.

Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***Net benefit (d) of SDG1*** was calculated by equations provided in the Transition Annex, the values of related parameters are derived from PS and the result provided in the Monitoring survey records/9/. The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the survey result in Monitoring survey records/9/. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG1 (d) contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the if household noted on time save after using the project technology. VVB has asked sampled end users the questions related if the time saved after using the project technology and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

13. Net benefit of SDG3

Relevant SDG:	SDG3.9.1

Data/Parameter	Net benefit of SDG3
Unit	Number
Description	Number of people using CWF and note that their kitchen is less smoke
Value applied for this monitoring period	308,452
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***Net benefit of SDG3*** was calculated by equations provided in the Transition Annex, the values of related parameters are derived from PS and the result provided in the Monitoring survey records/9/. The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the survey result in Monitoring survey records/9/. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG3 contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/.

	VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the smoke in the kitchen information. VVB has asked sampled end users the questions related smoke in the kitchen (as specified in section D.3.2) and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

14. Net benefit of SDG5

Relevant SDG:	SDG5.4.1
Data/Parameter	**Net benefit of SDG5**
Unit	Number
Description	The number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel.
Value applied for this monitoring period	331,818
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***Net benefit of SDG5*** was calculated by equations provided in the Transition Annex, the values of related parameters are derived from PS and the result provided in the Monitoring survey records/9/. The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the survey result in Monitoring survey records/9/. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG5

	contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of the water boiling and collecting/purchasing cooking fuel information. VVB has asked sampled end users the questions related water boiling and collecting/purchasing cooking fuel and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

15. Net benefit of SDG6

Relevant SDG:	SDG6.1.1
Data/Parameter	**Net benefit of SDG6**
Unit	Number
Description	Number of people with access to safe drinking water
Value applied for this monitoring period	364,515
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment	N/A

with accuracy	
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	***Net benefit of SDG6*** was calculated by equations provided in the Transition Annex, the values of related parameters are derived from PS and the result provided in the Monitoring survey records/9/. The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the survey result in Monitoring survey records/9/. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG6 contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/ and verified that the value used in MR is correct.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Original filled questionnaires/10/ is used to cross-check the information in monitoring survey records/9/. Furthermore, CTI has conducted a sampling method during the site visit to check the information received from PD's samples. Refer to section D.4 for the sampling method conducted by CTI, verification team made the sampling plan for visiting households during this verification using Simple random Sampling approach as specified in the "Sampling and Surveys for CDM Project Activities and Programme of Activities" version 09.0/30/. VVB took a random sample selection of the PD's sample records/9/ using the excel function of random selection, and verification team conducted the site visit and interview of the 40 CWF end users in households and get the results of if they though the water is safe and quality is good information. VVB has asked sampled end users the questions related water quality and safe and comparing the result with PD's sample records/9/ and confirm all the gathered information are consistent, then based on the requirement of acceptance sampling, the discrepant record is less than the acceptance number of 1, the sample records/9/ is then accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/30/.

16. Net benefit of SDG8

Relevant SDG:	SDG8.5.1
Data/Parameter	**Net benefit of SDG8**

Unit	Number
Description	Number of new job created by the project with safe and healthy work environment
Value applied for this monitoring period	27
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	Number of new job created by the project with safe and healthy work environment was derived from Staff report/22/. From the data and presented information in the monitoring report it was observed that during the current monitoring period, the total staffs employed by PD is 27. Furthermore, through interview with the staff representatives, it is verified that PTH has provided safe and healthy work environment to them. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG8 contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	N/A

17. Net benefit of SDG13

Relevant SDG:	SDG13.3.1

Data/Parameter	Net benefit of SDG13
Unit	tCO_2e
Description	Amount of ER
Value applied for this monitoring period	46,219
Measuring /Reading /Recording frequency	Every two years
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
Monitoring equipment with accuracy	N/A
Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
How were the values in the monitoring report verified?	Amount of ER is calculated based on monitoring results for this MP. ER sheet/2/ is checked and value is re-produced based on monitoring results from monitoring survey records/9/, the final value is verified as correct. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG13 contribution is correct.
If applicable, has the reported data been cross-checked with other available data? (Yes / No)	N/A
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Refer to above tables for assessment of each involved parameters.

18. Net benefit of SDG15

Relevant SDG:	SDG15.1.1
Data/Parameter	**Net benefit of SDG15**
Unit	Hectare

	Description	Area of forest save
	Value applied for this monitoring period	85.17
	Measuring /Reading /Recording frequency	Every two years
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes, the measuring and reporting frequency are in line with the Transition Annex/6/.
	Monitoring equipment with accuracy	N/A
	Is the installed monitoring equipment has been duly calibrated for this entire monitoring period? (Yes / No)	N/A
	How were the values in the monitoring report verified?	***Area of forest save*** was derived from result in the Monitoring survey records/9/. The area value is calculated based on the equation of below, Net benefit of SDG15 = Amount of wood use/converting factor of biomass from m^3 to tonne)* $f_{NRB,y}$ /Growth stock in forest The value is calculated in the ER sheet and section E.1, E.2 and E.3 of the MR based on the result of related parameters. PD has established adequate arrangements for monitoring and measurement of the SDG indicators. The Data collected through Surveys found properly analyzed and calculated correctly to arrive at the conclusion. The claim made by the PD towards SDG15 contribution is correct.
	If applicable, has the reported data been cross-checked with other available data? (Yes / No)	N/A
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, QA/QC procedures were found to be appropriate and reliable. Refer to above tables for assessment of each involved parameters.
Findings	CAR 04 and CL 02 were raised and resolved. Refer to Appendix 4 in this report for detail assessment.	
Conclusion	The parameters have been monitored appropriately, in accordance with the validated monitoring plan in PDD/3/, Transition Annex/6/ and applied methodology/27/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/3/ and Transition Annex/6/.	

E.6.3. Comparison of monitored parameters with last monitoring period

Means of verification

This is the 3rd monitoring period. PD has provided the values from 2nd monitoring period and values from this monitoring period for each monitoring parameters for comparison as below table.

Data/Parameter	Unit	Value obtained in this MP	Value obtained last MP
QPW_y	L/y/unit	4,583	5,164
$T_{y,i}$	Unit	23,357	28,343
$N_{y,i}$	Number	4.41	4.66
$WQ_{Passed,y}$	%	92.16	98.28
$R_{y,i}$	Liter/person/day	3.5	3.5
Usage rate	%		
$N_{Less\ smoke,y}$	%	84.62%	96.13%
Women%	%	91.03%	95.69%
SDW	%	0	0
ER	$tCO_2e/y/unit$	0.26	0.29
SDG1 (a)	tonne	20,032.36	18,399.82
SDG1 (b)	tonne	10,292.80	9,453.99
SDG1 (c)	%	79.63%	88.56%
SDG1 (d)	%	99.10%	98.92%
SDG3	People	308,452	310,419
SDG5	People	331,818	353,703
SDG6	People	364,515	369,635
SDG8	Staff	27	19
SDG13	tCO_2e	46,219	44,942
SDG15	Hectare	85.17	78.23

Usage rate:

Aged group	Usage rate	Aged group	Usage rate
1	100.00%	1	93.55%
2	100.00%	2	99.13%
3	93.94%	3	84.57%
4	79.49%	4	57.29%
5	95.74%	5	68.24%
6	60.55%	6	63.33%
7	13.33%	7	36.17%
8	16.67%	8	9.02%
9	15.00%	9	NA
10	13.33%	10	NA

Findings

N/A

Conclusion

Through checking the verification report of 2nd monitoring period/5/, the verification team confirmed that the values are correct and based on the comparison, it is verified that the values for all the monitoring parameters are not changed significantly comparing with the last monitoring period/5/, except the QPW_y, $T_{y,i}$, $N_{y,i}$, Usage rate, $WQ_{Passed,y}$, SDG8, ER value. The reason has been assessed by CTI as below,

i. For Usage rate, during this monitoring period, PP has cover up to 10 age groups of CWF while the last MP was covered only 8 age groups. And due to samples are not same, the value is changed reasonably.
ii. For QPW_y, the reduction is because the average population serviced by water purifications system ($N_{y,i}$) is lower than that of the previous MP. See below.
iii. $N_{y,i}$ is determined by the monitoring survey. It is understood that different survey may give different results but the result should follow the 90/10 rule as stated in the survey sampling methodology. In this case, $N_{y,i}$ (4.41) meets the 90/10 in which the margin of error at 90% confidence interval is less than 10%.
iv. $T_{y,i}$, the value in this MP is significantly lower than the previous monitoring period which is considered to be affected by covid and post CoVid 19 pandemic and verified reasonably.
v. For $WQ_{Passed,y}$, the water quality test result from the select samples is slightly decrease compared to that of the previous MP. It is accepted that the difference may be happened due to different test, different samples.
vi. For SDG 8, the number is increasing due to new, bigger factory capacity which has been confirmed by site inspection and interview with staffs.

	vii. For ER value, it is higher than last MP mainly due to cumulative number of filter sold is up to 18th Dec 2022 where in the previous MP the cumulative sales is only up to 18 Dec 2020. The reason for change has been added in the table for each parameter which is verified as correct and reasonable. Hence, based on above assessment, it is concluded that the values for this monitoring period is verified as reasonable.

E.6.4. Compliance of the sampling implementation with the registered sampling plan

Means of verification	The sampling approaches implemented during this monitoring period as per the sampling plan in the PDD/3/. The sampling methods carried out by the project is demonstrated as below: Before preparing the MR, PD conducted the monitoring sampling survey for investigate the values used for this monitoring period for monitored parameters, which is verified as in line with the requirement in the PDD monitoring plan/3/ and methodology requirement/27/. 6 monitored parameters including $N_{y,i}$, $N_{Less_smoke,y}$, ***SDW, Women%***, $WQ_{Passed,y}$ **and** ***Usage rate***, are need to be determined based on the sampling survey including **Usage and Project survey and water quality test survey** which has been assessed one by one as below, The sampling survey was conducted by Project Sample Group (PSG) from 03/02/2023 to 15/05/2023 including **usage survey, project survey** as per the applied methodology/27/, Transition Annex/6/ and sampling plan/20/, and the results have been combined in the monitoring survey records for this monitoring period/9/. It is designed to be representative of all households in the target population including all HHs in the nation of Indonesia, which are end-users of the project technology and who have purchased the CWF from 01/12/2011 through 18/12/2022. The sample of HHs was chosen from Nazava's project database/15/ representing all CWP customers for whom contact information is available. Based on checking the records, the verification team confirmed that total of 486 households who have owned CWF participated in the usage survey across the 4 representative provinces which representing the proportion of CWF end-users of about 71%/20/. Out of these 486 households, 324 households are currently still using CWF and they are eligible for participating in the project survey. $N_{y,i}$, $N_{Less_smoke,y}$, ***SDW, Women%*** **- Project survey (PS)** These 4 parameters need to be monitored through PS. Through checking the records/9/, CTI confirmed that PS measures the project CWF using impacts to the households. The PS is conducted with end-users representative of project scenario target population and currently using the CWF. The PS is verified as in line with the requirement in the PDD sampling plan/3/ and methodology requirement/27/. PD has determined a sample size of 324 for PS which is higher than the requested sample size of 268 which is determined on a stratum level to ensure that the precision and reliability requirements are met throughout the data set. The size of the sample for each sampling frame is determined by the requirement to achieve the 90/10 confidence/precision for the estimation of the proportion or mean value of the parameter investigated. The survey questionnaires which developed in accordance with the registered methodology corresponding to each monitored parameters by carbon consultant (Nexus) and the project implementer (Nazava) were distributed to each sampled end-user and collect the information by Project Sample Group. After the data was provided from Project Sample Group, it was cleansed by the project manager. For clarification on specific values, respondents were called to confirm correct values. The clean data was then analyzed using Microsoft excel software and then created the monitoring survey records/9/. Through checking the PS sampling method as stated in the sampling plan/20/ and monitoring survey records/9/, it is verified that the method is in line with the PDD sampling plan/3/, methodology requirement/27/ and Guidelines: Sampling and

	Surveys for CDM Project Activities and Programme of Activities, (Version 4.0)/29/. ***Usage rate* - Usage survey (US)** Usage survey (US) has been conducted for determine the value of *Usage rate*. Through checking the records/9/, CTI confirmed that US measures the *Usage rate* in difference age of the filter which may reflect the actual usage rate. Nazava has monitored the usage rates of the CWFs through the usage survey to ensure the project claims an appropriate useful life of the technology. The US is verified as in line with the requirement in the PDD sampling plan/3/ and methodology requirement/27/. PD has determined a sample size of 486 for US which is higher than the requested sample size of 336 by considering the samples were increased to include difference age of the filter which is determined on a stratum level to ensure that the precision and reliability requirements are met throughout the data set. The size of the sample for each sampling frame is determined by the requirement to achieve the 90/10 confidence/precision for the estimation of the proportion or mean value of the parameter investigated. The survey questionnaires which developed in accordance with the registered methodology corresponding to each monitored parameters by carbon consultant (Nexus) and the project implementer (Nazava) were distributed to each sampled end-user and collect the information by Project Sample Group. After the data was provided from Project Sample Group, it was cleansed by the project manager. For clarification on specific values, respondents were called to confirm correct values. The clean data was then analyzed using Microsoft excel software and then created the monitoring survey records/9/. Through checking the US sampling method as stated in the sampling plan/20/ and monitoring survey records/9/, it is verified that the method is in line with the PDD sampling plan/3/, methodology requirement/27/ and Guidelines: Sampling and Surveys for CDM Project Activities and Programme of Activities, (Version 4.0)/29/. ***$WQ_{Passed,y}$* - Water quality test survey** PD has opted random sampling method to conduct the water quality test survey as per the sampling plan/20/ and applied methodology/27/. PD conducted the water quality test from 06/02/2023 to 06/02/2023 for this monitoring period in line with the monitoring frequency of every two years water quality test survey. PD took a sample number 51 which is greater than that of the total number of sample which is determined by using random function in Microsoft Excel as per the sampling plan/20/. For cost saving and logistic arrangement without scarifying the quality of data sampling, the random sampling has been done for the selected villages under the project survey which were already randomly selected and represented about 71% of the total sale. Project Sample Group has conducted the water quality test survey by employing water quality test kits with 51 samples and all the results were taken pictures as evidence as shown in WQtest results Nazava MP3/19/. Through checking the sampling method as stated in the sampling plan/20/ and WQtest results Nazava MP3/19/, it is verified that the method is in line with the PDD sampling plan/3/, methodology requirement/27/ and "Deviation Request_form_GS4290_GS_Nexus FINAL"/31/. Finally, as mentioned above the sample size and sample selection of all the survey components (US and PS) and water quality test survey were followed the registered methodology as detail in sample plan/20/. The result for $N_{y,i}$ was also checked against 90/10 rule and its corresponding values is meeting the requirement in which the margin of error at 90% confidence interval is less than 10% as seen in monitoring survey records/9/.
Findings	N/A
Conclusion	According to applied methodology/27/ and based on the verification team's

	sectorial knowledge, the verification team confirmed that the sampling approach applied by the PD is in accordance with the approved PDD and applied methodology.

E.7. Assessment of data and calculation of SDG impacts

E.7.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Means of verification	***SDG 1 Baseline Impact:*** Through checking the MR and through site interview with sampled end-users, CTI confirmed that the project technology helps CWF users to save fuel, save time spending on fuel collection/purchase and boiling water, and save household expenditure on fuel purchased for boiling water. Hence, in compliance with the UN's SDG indicator "1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)", the indicators of SDG1 are defined as **the amount fuel (including biomass(a) and JPG(b)) saves; (c) the percentage of household noted on money save after using the project technology and (d) the percentage of time save after using the project technology**. Then the estimated Baseline Impact is calculated for different categories in SDG 1. In the baseline situation, as per the site interview with sampled end-users and checking the PDD, it is verified no fuel saved, no percentage of household noted on fuel, money save and no percentage of household noted on time save after using the project technology. Therefore, the Baseline Impact benefits are **zero**. ***SDG 3 Baseline Impact:*** Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project helps users to reducing smoke and dust coming from boiling water with solid biomass. Hence, in compliance with the UN's SDG indicator "3.9.1 Mortality rate attributed to household and ambient air pollution", the indicators of SDG3 are defined as ***the number of people who notice less smoke in kitchen after having water filter***. In the baseline situation, as per the site interview with sampled end-users and checking the PDD, it is verified that no change in smoke level from boiling water. Therefore, Baseline Impact benefit is zero. ***SDG 5 Baseline Impact:*** Through checking the MR and through site interview with sampled woman and girl end-users, the verification team confirmed that the project helps users to reducing the work load on women and girls who are responsible for boiling water and collecting/purchasing cooking fuel. Hence, in compliance with the UN's SDG indicator "5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location", the indicators of SDG5 are defined as ***the number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel***. In the baseline situation, as per the site interview with female users and checking the PDD, it is verified that no distribution of project technology. Therefore, Baseline Impact benefit is zero. ***SDG 6 Baseline Impact:*** Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project provides a clean water supply to the users. Hence, in compliance with the UN's SDG indicator "6.1.1 Proportion of population using safely managed drinking water services", the indicators of SDG6 are defined as ***the number of people access to safe drinking water***. In the baseline situation, as per the site interview with female users and checking the PDD, it is verified that no distribution of project technology. Therefore, Baseline

Impact benefit is zero.

SDG 8 Baseline Impact:

Through checking the MR and through site interview with representative of staffs, the verification team confirmed that the project creates jobs with safe and healthy work environment.

Hence, in compliance with the UN's SDG indicator "8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities", the indicators of SDG8 are defined as ***the number of new job created by the project with safe and healthy work environment***.

In the baseline situation, through site interview with representative of staffs and checking the PDD, it is verified that no new job created with safe and healthy work environment by this project. Therefore, Baseline Impact benefit is zero.

SDG 13 Baseline Impact:

Through checking the MR/1/ and through checking the emission reduction calculation sheet/2/, CTI confirmed that there were baseline emissions as calculated below,

Baseline Emissions BE_y Calculation Assessment:

The formula used for the determination of baseline emissions which is consistent with the approved PDD and the applied methodology AMS-III.AV. Version 4.0:

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

Where:

BE_y	Baseline Emission
QPW_y	Quantity of purified water in year y in litre
SEC	Specific energy consumption required to boil one litre of water
$f_{NRB,y}$	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable
$EF_{projected\ fossifuel}$	Emission factor for the substitution of non-renewable woody biomass or the emission factor of the fossil

- **Calculate QPW_y**

$QPW_y = T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times$ Water Quality $\times$ Operation Units $\times X_{boil}$

Where:

QPW_y	Quantity of purified water in year y (liter)
$T_{y,i}$	Total distributed water purification units
$N_{y,i}$	The average population serviced by water purification system
$R_{y,i}$	The average volumes of drinking water per person per day (liter)
Water Quality	Water quality passing WHO standard rate
Operation Units (Usage rate)	Usage rate of the sold units based on its age group
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

- **Calculate SEC**

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

Where:

SEC	Specific energy consumption required to boil one litre of water
WH	Specific heat of water

	T_f Final temperature T_i Initial temperature WHE Latent heat of water evaporation η_{wb} Stove's thermal efficiency The inputs to calculate baseline emissions are taken from the related monitoring surveys/9/ done including Project Survey and Usage survey and Water Quality Test Survey done in this monitoring period. The values monitored and recorded during these surveys are summarized and compared against previous monitoring period. During the site visit, the verification team cross-checked these values in detail using various supporting records and documents. Refer to the section E.6.1 and E.6.2 of this report for parameters assessment. The **SDG 13 Baseline Impact (Baseline emission calculation)** is provided in the Emission reduction calculation spreadsheet/2/ in a transparent manner and the calculation found correct. There is no material error noted in the accounting and application of various data against monitored parameters. The Baseline Impact for SDG 13 during this monitoring period are calculated as: BE_y= 48,654 tCO_2e ***SDG 15 Baseline Impact:*** Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project reduced amount of fuel collected or purchased especially biomass save which contribute to the area of forest save. Hence, in compliance with the UN's SDG indicator "15.1.1 Forest area as a proportion of total land area", the indicators of SDG15 are defined as ***the area of forest save***. In the baseline situation, as per site interview with sampled end-users and checking the PDD, it is verified that no area of forest saved. Therefore, Baseline Impact benefit is zero.
Findings	N/A
Conclusion	The verification team confirms that a) The complete data was available and is duly reported; b) As indicated above, the description with regards to cross-check of reported data is included under respective parameter (refer Section E.6.2 of this report); c) Appropriate methods and formulae are used for calculating baseline SDG impact; d) Appropriate emission factors and other reference values were correctly applied. e) The calculation of baseline situation of each SDG impact is correct.

E.7.2. Calculation of project value or estimation of project situation of each SDG Impact

Means of verification	***SDG 1 Project impact:*** Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project helps CWF users to save fuel, save time spending on fuel collection/purchase and boiling water, and save household expenditure on fuel purchased for boiling water. Then the estimated Project impact is calculated for different categories in SDG 1. In the project situation, as per checking the monitoring survey data/9/ and site interview with sampled end-users, it is verified that household noted on fuel, time, money save after using the project technology. Based on the equations listed in MR and monitoring survey data which has been verified in E.6.1 and E.6.2 of this report, the verification team confirmed that the Project impacts of SDG1 was estimated as following:

Indicator	Unit	Project Estimation
SDG1 (a) Amount of biomass use	t	20,032.36
SDG1 (b) Amount of LPG use	t	10,292.80

SDG1 (c) % of household noted on money save after using the project technology	%	79.63
SDG1 (d) of % of household noted on time save after using the project technology	%	99.10

SDG 3 Project impact:

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project helps users to reducing smoke and dust coming from boiling water with solid biomass.

In project situation, the number of people using CWF and note that their kitchen is less smoke could be calculated below:

SDG3 contribution (number of people) **=** $T_{y,i}$ ***** $N_{y,i}$ *** Usage rate *** $WQ_{Passed,y}$ ***** $N_{Less_smoke,y}$

Where:

Project outcome of SDG3	Number of people using CWF and note that their kitchen is less smoke
$T_{y,i}$	Total distributed water purification units
$N_{y,i}$	The average population serviced by water purification system
Usage rate	Usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate
$WQ_{Passed,y}$	Water Quality passing rate of water quality standard (WHO standard)
$N_{Less_smoke,y}$	% of households notice that their kitchen is less smoke

In the project situation, as per the above calculation equation and checking the ER calculation spreadsheet/2/, it is verified that Project impacts of SDG3, i.e. the number of people who notice less smoke in kitchen after having water filter was 308,452 people during this monitoring period.

SDG 5 Project impact:

Through checking the MR and through site interview with woman and girl end-users, the verification team confirmed that the project helps users to reducing the work load on women and girls who are responsible for boiling water and collecting/purchasing cooking fuel.

In project situation, the number of women and girls benefiting could be calculated below:

SDG5 contribution (number of people) **=** $T_{y,i}$ **×** $N_{y,i}$ **× Usage rate ×** $WQ_{Passed,y}$ **×** X_{boil} **×** ***Women%***

Where:

Project impact of SDG5	Number of women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel
$T_{y,i}$	Total distributed water purification units
$N_{y,i}$	The average population serviced by water purification system
Usage rate	Usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate
$WQ_{Passed,y}$	Water Quality passing rate of water quality standard (WHO standard)
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
Women%	Average percentage of women and girls responsible for water boiling and collecting/purchasing cooking fuel before having CWFs.

In the project situation, as per the above calculation equation and checking the ER calculation spreadsheet/2/, it is verified that Project impacts of SDG5, i.e. the number of women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel was 331,818 people during this monitoring period.

SDG 6 Project impact:

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project provides a clean water supply to the users.

In project situation, the number of people with access to safe drinking water could be calculated below:

Project impact of SDG6 = $T_{y,i}$ × $N_{p,y}$ × Usage rate × $WQ_{Passed,y}$

Where:

Project impact of SDG6	Number of people with access to safe drinking water
$T_{y,i}$	Total distributed water purification units
$N_{y,i}$	The average population serviced by water purification system
Usage rate	Usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate
$WQ_{Passed,y}$	Water Quality passing rate of water quality standard (WHO standard)

In the project situation, as per the above calculation equation and checking the ER calculation spreadsheet/2/, it is verified that Project impacts of SDG6, i.e. the number of people with access to safe drinking water was 364,515 people during this monitoring period.

SDG 8 Project impact:

Through checking the MR and through site interview with representative of staffs, the verification team confirmed that the project created jobs with safe and healthy work environment.

In project situation, the number of created jobs with safe and healthy work environment could be determined as below:

Project impact of SDG8 = Number of created jobs × % of worker with salaries paid being at par with wage laws in the host country

In the project situation, as per the above calculation equation and checking the Staff report/22/, it is verified that Number of created jobs with safe and healthy work environment is 27, and by comparing the salary with Indonesia minimum wage level/55/, it is confirmed that 100% of the worker with salaries paid being at par with wage laws in the host country.

in conclusion, the Project impacts of SDG8, i.e. the number of created jobs with safe and healthy work environment was 27 people and 100% of them were paid with salaries at par with wage laws during this monitoring period which is confirmed as correct by checking the Staff report/22/ and Indonesia minimum wage level/55/ and interview with the staff representatives.

So the number of created jobs with safe and healthy work environment is 27.

SDG 13 Project impact:

Project emissions PE_y Calculation Assessment:

The project emission is determined as zero based on the registered methodology (AMS-III.AV, version 04.0).

SDG 15 Project impact:

Through checking the MR and through site interview with sampled end-users, the verification team confirmed that the project reduced amount of fuel collected or purchased especially biomass save which contribute to the area of forest save.

In project situation, the amount of area of forest save could be calculated below:

Project impact of SDG15 = (Amount of wood use/converting factor of biomass from m^3 to tonne) * $f_{NRB,y}$ /Growth stock in forest

Where:

Amount of wood use	Amount of wood use per year [tonne]

	$f_{NRB,y}$ — Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable Converting factor of biomass from m^3 to tonne — Converting factor of biomass from m^3 to tonne Growth stock in forest — Growth stock in forest in Indonesia In the project situation, as per the above calculation equation and checking the ER calculation spreadsheet/2/, it is verified that Project impacts of SDG15, i.e. the area of forest saved in project scenario was estimated to be 85.17 ha during this monitoring period.
Findings	N/A
Conclusion	The verification team confirms that a) The complete data was available and is duly reported; b) As indicated above, the description with regards to cross-check of reported data is included under respective parameter (refer Section E.6.2. of this report); c) Appropriate methods and formulae for calculating project SDG impact were followed; The calculation of project situation of each SDG impact is correct.

E.7.3. Calculation of leakage

Means of verification	As per the CDM Methodology AMS-III.AV. "Low greenhouse gas emitting safe drinking water production system – Version 04.0", it requested to account the leakage emissions with default value of 5% of the baseline emission. Based on above 5%, and the baseline emission value from E.7.1 of this report, PD has calculated Leakages during this monitoring period is 2,435 tCO_2e.
Findings	CL 03 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The verification team confirms that a) The complete data was available and is duly reported; b) As indicated above, the description with regards to cross-check of reported data is included under respective parameter (refer Section E.6.2. of this report); c) Appropriate methods and formulae for calculating leakages were followed.

E.7.4. Calculation of net benefits or direct calculation for each SDG Impact

Means of verification

Calculation of net benefits as difference of baseline and project, leakage values or direct calculation for each SDG impact is as following,

Goal 1 Net Benefits

Net benefit (a) of SDG1 = Project impact (a) of SDG1 – Baseline Impact (a) of SDG1

Net benefit (b) of SDG1 = Project impact (b) of SDG1 – Baseline Impact (b) of SDG1

Net benefit (c) of SDG1 = Project impact (c) of SDG1 – Baseline Impact (c) of SDG1

Net benefit (d) of SDG1 = Project impact (d) of SDG1 – Baseline Impact (d) of SDG1

From 19/12/2020 to 31/12/2020

Indicator	Unit	Baseline Impact	Project impact	Net benefits
SDG1 (a) Amount of biomass use	t	0	361.06	361.06
SDG1 (b) Amount of LPG use	t	0	185.52	185.52
SDG1 (c) % of household noted on	%	0	79.63	79.63

money save after using the project technology				
SDG1 (d) of % of household noted on time save after using the project technology	%	0	99.10	99.10

From 01/01/2021 to 31/12/2021

Indicator	Unit	Baseline Impact	Project impact	Net benefits
SDG1 (a) Amount of biomass use	t	0	10,089.28	10,089.28
SDG1 (b) Amount of LPG use	t	0	5,183.96	5,183.96
SDG1 (c) % of household noted on money save after using the project technology	%	0	79.63	79.63
SDG1 (d) of % of household noted on time save after using the project technology	%	0	99.10	99.10

From 01/01/2022 to 18/12/2022

Indicator	Unit	Baseline Impact	Project impact	Net benefits
SDG1 (a) Amount of biomass use	t	0	9,582.02	9,582.02
SDG1 (b) Amount of LPG use	t	0	4,923.33	4,923.33
SDG1 (c) % of household noted on money save after using the project technology	%	0	79.63	79.63
SDG1 (d) of % of household noted on time save after using the project technology	%	0	99.10	99.10

Goal 3 Net Benefits

From 19/12/2020 to 31/12/2020

Net benefit of SDG3 = Project impact of SDG3 (308,452) – Baseline Impact of SDG3 (0) = 308,452 people who notice less smoke in kitchen after having water filter

From 01/01/2021 to 31/12/2021

Net benefit of SDG3 = Project impact of SDG3 (308,452) – Baseline Impact of SDG3 (0) = 308,452 people who notice less smoke in kitchen after having water filter

From 01/01/2022 to 18/12/2022

Net benefit of SDG3 = Project impact of SDG3 (308,452) – Baseline Impact of SDG3 (0) = 308,452 people who notice less smoke in kitchen after having water filter

Goal 5 Net Benefits

From 19/12/2020 to 31/12/2020

Net benefit of SDG 5 = Project impact of SDG5 (331,818) – Baseline Impact of SDG5 (0) =331,818 women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel

From 01/01/2021 to 31/12/2021

Net benefit of SDG 5 = Project impact of SDG5 (331,818) – Baseline Impact of SDG5 (0) =331,818 women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel

From 01/01/2022 to 18/12/2022

Net benefit of SDG 5 = Project impact of SDG5 (331,818) – Baseline Impact of SDG5 (0) =331,818 women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel

Goal 6 Net Benefits

From 19/12/2020 to 31/12/2020

Net benefit of SDG 6 = Project impact of SDG5 (364,515) – Baseline Impact of SDG6 (0) =364,515 people with access to safe drinking water

From 01/01/2021 to 31/12/2021

Net benefit of SDG 6 = Project impact of SDG5 (364,515) – Baseline Impact of SDG6 (0) =364,515 people with access to safe drinking water

From 01/01/2022 to 18/12/2022

Net benefit of SDG 6 = Project impact of SDG5 (364,515) – Baseline Impact of SDG6 (0) =364,515 people with access to safe drinking water

Goal 8 Net Benefits

From 19/12/2020 to 31/12/2020

Net benefit of SDG 8 = Project impact of SDG8 (27) – Baseline Impact of SDG8 (0) =27 people were created jobs with safe and healthy work environment

From 01/01/2021 to 31/12/2021

Net benefit of SDG 8 = Project impact of SDG8 (27) – Baseline Impact of SDG8 (0) =27 people were created jobs with safe and healthy work environment

From 01/01/2022 to 18/12/2022

Net benefit of SDG 8 = Project impact of SDG8 (27) – Baseline Impact of SDG8 (0) =27 people were created jobs with safe and healthy work environment

Goal 13 Net Benefits

In accordance with applied methodology, registered PDD and validation report,

Net benefit of SDG 13 = baseline emission – project emission – leakage emission

= 48,654 tCO_2e – 0 tCO_2e -2,435 tCO_2e

= 46,219 tCO_2e

Emission Reductions Calculation

Parameters / Period	Baseline Emissions BE_y (tCO_2e)	Project Emissions PE_y (tCO_2e)	Leakage Emissions LE_y (tCO_2e)	Emission Reductions ER_y (tCO_2e)
19/12/2020-31/12/2020	860	0	44	816
01/01/2021-31/12/2021	24,504	0	1,226	23,278
01/01/2022-18/12/2022	23,290	0	1,165	22,125
Total	**48,654**	**0**	**2,435**	**46,219**

Goal 15 Net Benefits

From 19/12/2020 to 31/12/2020

Net benefit of SDG 15 = Project impact of SDG15 (1.54) – Baseline Impact of SDG15 (0) =1.54 ha of forest save

From 01/01/2021 to 31/12/2021

	Net benefit of SDG 15 = Project impact of SDG15 (42.90) – Baseline Impact of SDG15 (0) =42.90 ha of forest save From 01/01/2022 to 18/12/2022 Net benefit of SDG 15 = Project impact of SDG15 (40.74) – Baseline Impact of SDG15 (0) =40.74 ha of forest save Total for this MP = Project impact of SDG15 (85.17) – Baseline Impact of SDG15 (0) =85.17 ha of forest save All the figures as per the monitoring report were cross-checked by the verification team against basic monitored data. Refer to section E.6.2 for detail assessments.
Findings	N/A
Conclusion	The verification team confirms that a) The complete data was available and is duly reported; b) As indicated above, the description with regards to cross-check of reported data is included under respective parameter (refer Section E.6.2 of this report); c) Appropriate methods and formulae for calculating net benefits for each SDG impact were followed; The calculation of net benefits for each SDG impact is correct.

E.7.5. Comparison of actual value of impacts with estimates in approved PDD

Means of verification

The verification team has checked if the MR includes a comparison of actual values of the monitoring period with the estimations in the PDD for each SDG impact. Conclusion is as below table

Indicator	Period	Ex ante values estimated in PDD[2]	Actual values achieved during this MP
SDG 1 (a) – The amount of biomass save (tonnes)	19/12/2020-18/12/2022	N/A	20,032.36
SDG 1 (b) - The amount of LPG save (tonnes)	19/12/2020-18/12/2022	N/A	10,292.80
SDG 1 (c) - % of household noted on money save after using the project technology	19/12/2020-18/12/2022	N/A	79.63%
SDG 1 (d) - % of household noted on time save after using the project technology	19/12/2020-18/12/2022	N/A	99.10%
SDG 3 - Number of people who notice less smoke in kitchen after having water filter	19/12/2020-18/12/2022	N/A	308,452
SDG 5 - Number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel	19/12/2020-18/12/2022	N/A	331,818
SDG 6 - Number of people with access to safe drinking water	19/12/2020-18/12/2022	N/A	364,515
SDG 8 - The number of new job created by the project with safe and healthy work environment	19/12/2020-18/12/2022	N/A	19.00
SDG 13 - Amount of emission reduction (t CO_2e)	19/12/2020-18/12/2022	78,730	46,219

[2] Via checking the registered PDD and Transition Annex of the project, it is confirmed that no ex-ante value is calculated for each SDG except the ER value.

	SDG15 - The areas of forest save (ha)	19/12/2020-18/12/2022	N/A	85.17
Findings	N/A			
Conclusion	The MR includes a summary table of comparison of actual values of the monitoring period with the estimations in the approved PDD for each SDG impact and the comparison results are confirmed as correct.			

E.7.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

Means of verification	Through checking the above comparison of actual values of this monitoring period with the estimations in the approved 2nd crediting period PDD, CTI confirmed that for SDG13, the actual value achieved during this MP are 41.3% lower than estimation in PDD, the reason is justified as accurate and plausible as below, Based on the monitoring parameter assessment as provided in section E.6.2, CTI confirmed that for this MP, the CWP sale number is much lower than expected value in PDD, it was expected to have cumulative 288,373 units where it is only achieved to 139,579 units at the end of this MP, only finished half of the plan. And for the sales in this MP, 23,357 units sold where it was expected to be 118,789 units, but with the higher usage rate achieved in this MP, it is verified that the actual value achieved during this MP are 41.3% lower than estimation in PDD is reasonable.
Findings	CL 04 was raised and resolved. Refer to Appendix 4 in this report for detail assessment.
Conclusion	The actual impact for SDG13 during this MP is lower than estimation in PDD which is assessed as appropriate and accepted.

E.8. Safeguards reporting

Means of verification	Through checking the Section B of the Transition Annex/6/, CTI confirmed that there are no Safeguarding principles need to be monitored. However, the project involves in the application of silver colloid the production of water filter which involves use of hazardous and non-hazardous chemicals and/or materials? However, via site inspection of the CWF production, the verification team confirmed that project involves in the application of silver colloid in production, as per the Transition Annex/6/, it is confirmed that Cimahi City Government and the Indonesian investment Authority have determined the environmental impact of Nazava and because no chemicals are emitted no monitoring is deemed necessary. Besides, through checking the business license for PHT/8/, it is verified that Nazava has followed and fulfilled the national environmental requirements as proven by its license which is only issued once all environmental regulations are fulfilled. So no any negative impacts to the safeguarding principles occurred during this monitoring period.
Findings	N/A
Conclusion	All the Information on any assessment questions answered as “No”, so there is no need to re-assessment the Safeguarding principles during this monitoring period.

E.9. Stakeholder inputs and legal disputes

Means of verification	As confirmed through the onsite visit and interview with the local stakeholders, CTI verified that the inputs/grievances mechanism has been in place. As per onsite checking the Grievance Book kept in the PP’s office and phone number/internet/email address which has been attached to the CWF cover, CTI verified that stakeholders have access to provide issues or comments through given methods. And via checking the Grievance Books and other different approach and site visit with end users, CTI verified that there were no inputs/grievances received during this monitoring period as checking the Grievance Book. However, via checking the other channel, which is a new line opened for online customer care service (WhatsApp), by verifying the screenshots of the online WhatsApp/56/, CTI confirmed that there were 586 support tickets opened which includes questions on how the filters works from non-users. And PD has closed all

	the tickets and customers confirmed all the issues have been resolved.
Findings	N/A
Conclusion	All the methods of continuous input /grievance mechanism are confirmed during site visit and interviews. CTI verified that there were no negative comments/complaints received from the stakeholders during this monitoring period of the project activity.

SECTION F. Internal quality control

The final verification report was undergone a technical review by a qualified independent reviewer before requesting issuance of the project activity. The technical review was performed by a technical reviewer qualified in accordance with CTI's qualification scheme for GS validation and verification that meets the criteria of GS4GG guidelines for qualification.

SECTION G. Verification opinion

The verification team assigned by the VVB (CTI) concludes that the 3rd periodic verification of GS programme of activities "Nazava Water Filter Project" in Kenya as described in the validated PDD and final version of monitoring report, meets all relevant requirements set by the Gold Standard for the Global Goals Principles and Requirements.

The project activity was correctly implemented according to selected monitoring methodology and monitoring plan. The collected monitoring data allowed to verify the amount of achieved SDG impacts. And the project is contributed to sustainability development. Thus, the VVB is pleased to issue a positive verification opinion.

SECTION H. Certification statement

CTI Certification Co., Ltd (CTI) has performed the 3rd periodic verification of the SDG outcomes that have been reported for the GS project activity "Nazava Water Filter Project" in Indonesia for the monitoring period from 19/12/2020 to 18/12/2022.

The verification is based on the baseline and monitoring methodology AMS-III.AV. Low greenhouse gas emitting safe drinking water production system (Version 04.0), the PDD, Transition Annex, and the final version of monitoring report. The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up site visit and interviews with project participants; iii) resolution of outstanding issues and the issuance of the final verification and certification report.

The PPs are responsible for the collection, calculation and determination of the SDG impacts data in accordance with the monitoring plan and the reporting of SDG impacts on the basis set out within the project monitoring report.

It is CTI's responsibility to provide an independent verification statement on the reported SDG impacts for the project. Based on an understanding of the risks associated with reporting of SDG impacts data and the controls in place to mitigate these, CTI planned and performed our work to obtain the information and explanations that we considered necessary to provide reasonable assurance that reported SDG impacts are fairly stated.

CTI confirms that the SDG impacts are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that SDG impacts are appropriately calculated, CTI confirms that the SDG impacts from the "Nazava Water Filter Project" during the monitoring period from 19/12/2020 to 18/12/2022 as follows:

Monitoring period Number: 3rd

Monitoring period: 19/12/2020 to 18/12/2022

The verified amount of impact for each SDG in the PA as per commitment period is stated below;

SDG No.	**Total for this MP**
	19/12/2020 to 18/12/2022
SDG 1 (a) – The amount of biomass save (tonnes)	20,032.36
SDG 1 (b) - The amount of LPG save (tonnes)	10,292.80
SDG 1 (c) - % of household noted on money save after using the project technology	79.63%
SDG 1 (d) - % of household noted on time save after using the project technology	99.10%
SDG 3 - Number of people who notice less smoke in kitchen after having water filter	308,452
SDG 5 - Number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel	331,818
SDG 6 - Number of people with access to safe drinking water	364,515
SDG 8 - The number of new job created by the project with safe and healthy work environment	19.00
SDG 13 - Amount of emission reduction (t CO_2e)	46,219
SDG15 - The areas of forest save (ha)	85.17

Appendix 1. Abbreviations

Abbreviations	Full texts
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
CP	Crediting Period
CP2	Second Crediting Period
CWF	Ceramic Water Filter
DverR	Draft Verification Report
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GS	Gold Standard
GSR	Gold Standard Requirement
GST	Gold Standard Toolkit
GSP	Gold Standard Passport
MP	Monitoring Period
MR	Monitoring Report
MSR	Monitoring survey records
NGO	Non-Governmental Organization
PA	Project Activity
PDD	Project Design Document
PP	Project Participant
PS	Project Survey/Project Standard
PSG	Project Sample Group
PTH	PT Holland for Water
QA/QC	Quality Assurance / Quality Control
SD	Sustainability Development
SDI	Sustainability Development Indicator
SDM	SD Matrix
SN	Serial Number
UNFCCC	United Nations Framework Convention on Climate Change
US	Usage Survey
VER	Voluntary Emission Reduction
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

CERTIFICATE OF APPOINTMENT

Ms. Jia Yu

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	-	-

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation
	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu LIN Wu Lin

Technical Competent Manager

Shenzhen, 25/10/2022

Mr. Pradana Fitra Zumario

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification
Local Expert

Appointed Geography Area As Local Expert
Indonesia

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by: Shunrong Lin

Shunrong LIN

Technical Competent Manager

Shenzhen, 07/03/2023

Ms. Shunrong LIN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure
SS 14: Afforestation and reforestation	TA 14.1: Afforestation and reforestation
SS 15: Agriculture	TA 15.1: Agriculture

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu LIN Wu Lin

Technical Competent Manager

Shenzhen, 25/10/2022

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1.	Nexus for Development	3rd periodic Monitoring Report of the project	- Draft Version No. 1.0, dated 27/07/2023 - Final Version No. 2.0, dated 25/09/2023 - Final Version No. 3.1, dated 26/11/2023	PD
2.	Nexus for Development	3rd Periodic Emission Reduction Calculation spreadsheet of the project	- Draft Version No. 1.0, dated 27/07/2023 - Final Version No. 2.0, dated 25/09/2023	PD
3.	Nexus for Development	Approved GS Project Design document of the project	- Version No. 3.0, dated 13/04/2016	PD
4.	VVB	Approved Validation report of the project	https://platform.sustain-cert.com/public-project/782	Website
5.	VVBs	Previous Verification reports of the project	https://platform.sustain-cert.com/public-project/782	Website
6.	Nexus for Development	GS4GG transition Annex	GS4GG transition Annex for the project activity	PD
7.	Nexus for Development	Gold Standard Passport	Gold Standard Passport for the project dated 31/08/2015, Version 2.1	Gold Standard
8.	PTH&Factory	Business License	Business License of PTH and its full-fledged factory situated in Bandung City, Indonesia	PD
9.	PTH	Monitoring Survey records	Nazava_MP3_ProjectSurvey_Test_V3, List of users using water filter_SurveyResult	PD
10.	PTH	Monitoring Survey Questionnaires	Monitoring Survey Questionnaires filled by end-user samples	PD
11.	PD	Nazava CWF specifications	Nazava CWF specifications	PD
12.	PD	User manual	Nazava CWF user manual	PD
13.	PD	Warranty card	one-year warranty card	PD
14.	PD	Sales database	Sales database for this MP: bulk_sales_Upto18Dec2022_Final	PD
15.	PD	Project database	Project_Database which containing the contact details of all end users, to the extent possible.	PD
16.	PD	List of retailers	List of retailers	PD
17.	PD	List of NGO	List of NGO	PD
18.	PD and users, retailers and NGOs	Sales invoices of CWF	50 samples - Sales invoices of CWF during this MP	PD
19.	PD	Water Quality Test Reports	WQ test results Nazava MP3	PD
20.	PD	Sampling plan	Nazava_MP3(2023)_Sampling_Village	PD
21.	PD	Sample size calculation sheet	Nazava_MP2(2020)_Sample_size_calculation	PD
22.	PD	Staff report	Nazava_MP3(2022)_Staff_Report	PD
23.	PD	SDW monitoring report	Nazava_MP3(2022)_SDW_MonitoringReport	PD
24.	PD	Training manual	Training manual for monitoring activities, Version 1.0, dated 01/06/2016	PD
25.	PD and carbon consultant from	Training records	Write-up of a training about how to conduct surveys of Nazava	PD

	Nexus		customers	
26.	PD	Data from Nazava_MP1	Data from Nazava_MP1(2018)_ProjectSurvey Data_20181212, tab Analysis, Cell C7	PD
27.	UNFCCC	Applied CDM approved methodology	AMS-III.AV - Low greenhouse gas emitting safe drinking water production system, version 04.0	UNFCCC
28.	UNFCCC	CDM approved methodology	AMS-I.E - Switch from non-renewable biomass for thermal applications by the user Version 06.0	UNFCCC
29.	UNFCCC	Guideline of Sampling and surveys	Guideline of Sampling and surveys for CDM project activities and programmes of activities, version 04.0	UNFCCC Website
30.	UNFCCC	Standard of Sampling and surveys	Sampling and Surveys for CDM Project Activities and Programme of Activities version 09.0	UNFCCC Website
31.	GS	Deviation Request form	Deviation Request_form_GS4290_GS_Nexus FINAL approved by GS	PD
32.	GS	GS Validation and Verification Standard	GS Validation and Verification Standard, Version 1.0	GS Website
33.	GS	GS4GG MR template	Gold Standard for the Global Goals Monitoring Report (MR) Template, version 1.1 in October 2020	GS Website
34.	GS	Gold Standard for the Global Goals Principles and Requirements	Version 1.2	GS Website
35.	GS	Gold Standard for the Global Goals Safeguarding Principles & Requirements	Version 1.2	GS Website
36.	GS	Gold Standard for the Global Goals Community Services Activity Requirements	Version 1.2	GS Website
37.	GS	Gold Standard for the Global Goals Stakeholder Consultation and Engagement Requirements	Version 1.2	GS Website
38.	GS	GS4GG GHG Emissions Reduction & Sequestration Product Requirements	Version 2.1	GS Website
39.	International Renewable Energy Certificate	I-REC	https://www.irecstandard.org/	Website
40.	Global Carbon Council	GCC	https://projects.globalcarboncouncil.com/	Website
41.	Gold Standard Organization	Gold Standard	http://www.goldstandard.org/	Website
42.	UNFCCC	UNFCCC	http://cdm.unfccc.int	Website
43.	VCS	VCS	http://www.v-c-s.org/	Website
44.	IREC	IREC	https://www.irecstandard.org/	Website
45.	VVB	VVB questionnaires	Questionnaire used by CTI for site visit interview	N/A
46.	IPCC	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories www.ipcc-nggip.iges.or.jp	Public Website

47.	World Health Organization	WHO recommendations	https://www.nazava.com/wp-content/uploads/2019/03/WHO-Product-report-Nazava.pdf	Public Website
48.	Nazava website	Other international test reports	https://www.nazava.com/en/laboratory-test-results-nazava-water-filters/	Public Website
49.	FAO	FAO	FAO Global Forest Resources Assessment 2010 FAO data 2015, Global Forest Resources Assessment 2015 (page 81) FAO, Global forest assessment 2000 report, Appendix 3, Table 7	Public Website
50.	WHO Regional Office for South-East Asia	Minimum water quantity	"Minimum water quantity needed for domestic uses" by WHO Regional Office for South-East Asia	Public Website
51.	WHO/UNICEF	WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation	https://washdata.org/data/household#!/idn	Public Website
52.	Indonesian Ministry of Health	Demographic and health survey report	Indonesian Demographic and health survey report published by Indonesian Ministry of Health on Aug 2013	Public Website
53.	National library of Medicine	Comparative Study	https://www.ncbi.nlm.nih.gov/pubmed/16512235	Public Website
54.	NISSUI	Manual of the product mobile test kit	http://www.fcbiotech.com.tw/wp-content/uploads/2017/10/Compact Dry_EC_E.pdf	Public Website
55.	LinovHR	Indonesia minimum wage level	https://www.linovhr.com/umr-bandung-terbaru/	Public Website
56.	PD	Screenshots of the online WhatsApp	A new line opened for online customer care service (WhatsApp) for stakeholder's inputs/grievances	PD

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verification

Refer to section E.3 of this report for detail assessment of the FAR from GS review and previous verifications.

Table 2. CL from this verification

CL ID	01	**Section no.**	A.1	**Date:** 22/08/2023
Description of CL				
In the section A.1 of MR, the description of project is not completed as per the PDD. Clarification is requested.				
Project participant response				**Date:** 25/09/2023
Section A.1 Revised with more details in project technology, baseline and ER data.				
Documentation provided by project participant				
/1/ version 02 /11/ /14/ /13/ /47/ /48/				
VVB assessment				**Date:** 03/10/2023
The revised MR is checked, CTI confirmed that clarification has been added and verified as reasonable. The Project activity involves production, sale and distribution of Ceramic Water Filters (CWF) in Indonesia. There was limited access to clean drinking water in rural and urban areas. Lack of ready access to a water source also limit the quantity of suitable drinking water that is available to a household. Nationally, boiling water prior to drinking is the most common treatment method. While boiling water, people use non-renewable biomass or fossil fuel which has been verified by site interview with CWF users. The objective of the project is to reduce / eliminate the water boiling practice and thereby reduce the CO_2 emissions due to usage of non-renewable biomass and fossil fuel. PTH's core product is the Nazava Ceramic filter candle, a ceramic filter candle that is mixed with colloidal silver and filled with activated carbon. The water filters are made at the facilities of PTH and tested by the WHO/47/. After the filters are assembled and checked for quality at the Nazava's factory, they are distributed through different market channels. The filters are made of diatomaceous earth with pores of 0.4 micron (0.0004 milimeter) and remove micro-organisms: bacteria, cysts, parasites, fungi, sand, clay and other particles greater than 0.4 micron. PTH's water filter technologies conservatively purifies 3 litres per hour/11/, is certified to last for 7,000 litres/11/. Using this technology, households can filter their own tap, well, river or rain water. All of these filters come with an Indonesian-language user manual with clear directions/12/, an indicator for filter replacement, and a one-year warranty card/13/. The Nazava CWF has been one of the solutions for providing safe drinking water. They have been shown to effectively reduce diarrhoea diseases, with independent tests and assessments available/47/,/48/. PTH is producing a ceramic filter from the activated carbon which reduces the content of harmful chemicals such as pesticides and chlorine. It improves the taste and reduces smell. The ceramic is impregnated with silver (0.08 % by weight), which kills micro-organisms like bacteria that are trapped at the surface of the ceramic. PTH has a purpose-built factory situated in Bandung, Java, where these filters are produced utilising local workers. By implementing the project, PTH has provided opportunities for local community to generate steady and continual income for their livelihood. PT Holland for Water has so far distributed total 139,579 units of CWF in different provinces of host country cumulatively up to 18/12/2022, and 23,357 units sold during this monitoring period from 19/12/2020 to 18/12/2022, which is verified by checking the sales database/14/. The Certified Emissions Reduction for the current 3rd monitoring period from 19/12/2020 to 18/12/2022 is 46,219 tCO_2e. CL 01 is closed.				

CL ID	02	**Section no.**	D.2	**Date:** 22/08/2023
Description of CL				

In the section D.2, for parameter Usage rate, PD did not clarify of why the CWF will be counted for ER calculation after 4 months, clarification is requested.	
Project participant response	**Date:** 25/09/2023
Information about time gap accounting during ER added in section B.1 and section D.2 revised.	
Documentation provided by project participant	
/1/ version 02	
VVB assessment	**Date:** 03/10/2023
CTI confirmed that the clarification has been provided accordingly. For the usage of the CWF status, PD has considered that the age of CWF is considered by each CWF counted for ER calculation after 4 months which is verified as conservative for ER calculation. Via site inspection of CWF factory, it is observed that the CWF is a simple water purifier device in which the fragile part being ceramic candle which can be replaced easily if needed. With the system set up via retailer shops and online sale, the replacement parts (ceramic candle) can be purchased and delivered easily nationwide. Furthermore, there was no consideration on the lifetime of the filter system. The calculation of ER is based on usage rate which reflects well the actual use of CWF instead of lifetimes of the filter. CL 02 is closed.	

CL ID	03	**Section no.**	E.3	**Date:** 22/08/2023
Description of CL				
In the section E.3, PD stated that “Based on the registered methodology (AMS-III.AV, version 04.0), the default value for leakage is 5% of the baseline outcome”, and PD calculate the leakage for SDG 1, 13 and 15, however, registered methodology (AMS-III.AV, version 04.0) only related to SDG 13, why the SDG 1 and 15 has to consider the leakage is not clarified.				
Project participant response				**Date:** 25/09/2023
Section revised, leakage of 5% only applied for ER related SDG13 in line with methodology.				
Documentation provided by project participant				
/1/ version 02				
VVB assessment				**Date:** 03/10/2023
CTI confirmed that the revision has been conducted accordingly. Only ER of SDG 13 has considered the leakage which is verified in line with the methodology. CL 03 is closed.				

CL ID	04	**Section no.**	E.6	**Date:** 22/08/2023
Description of CL				
In section E.6, it is observed that the SDG Impacts of SDG13 for this monitoring period is about 41% lower than what was estimated in the approved PDD, the reason is not clarified.				
Project participant response				**Date:** 25/09/2023
In the PDD calculation it is expected to have cumulative 288,373 units where it is only achieved to 139,579 units at the end of this MP which is less than half. During the monitoring period total of 23,357 units sold where it was expected to be 118,789 units where it is almost lower 5 times. Achieved usage rates are higher than what is expected in the PDD, so in total achieved ER is lower 41%.				
Documentation provided by project participant				
/1/ version 02				
VVB assessment				**Date:** 03/10/2023
The revised MR is checked, CTI confirmed that the clarification has been added. Based on the monitoring parameter assessment as provided in section E.6.2, CTI confirmed that for this MP, the CWP sale number is much lower than expected value in PDD, it was expected to have cumulative 288,373 units where it is only achieved to 139,579 units at the end of this MP, only finished half of the plan. And for the sales in this MP, 23,357 units sold where it was expected to be 118,789 units, but with the higher usage rate achieved in this MP, it is verified that the actual value achieved during this MP are 41.3% lower than estimation in PDD is reasonable. CL 04 is closed.				

Table 3. CAR from this verification

CAR ID	01	**Section no.**	A.2	**Date:** 22/08/2023
Description of CAR				
For the location and geographic coordinates of the project factory, PP just copied the information from PDD, however, during site visit, it is confirmed that the location of the factory has been changed in this MP. The actual information is requested.				
Project participant response				**Date:** 25/09/2023

Location revised according to new factory location (6.9450S, 107.5344E)	
Documentation provided by project participant	
/1/ version 02	
VVB assessment	**Date:** 03/10/2023
The revised MR is checked, CTI confirmed that the location and geographic coordinates of the project factory has been updated to the actual ones which has been verified by site inspection. CAR 01 is closed.	

CAR ID	02	**Section no.**	B.1	**Date:** 22/08/2023
Description of CAR				
In section B.1, 1. The figure of purified litres per hour from the PTH's water filter technologies is not same to the specification of the CWF. 2. PD stated "Nazava has maintained a user database containing the contact details of all end users, to the extent possible", however the exact number is missing.				
Project participant response				**Date:** 25/09/2023
1. Revised according to product data sheet where the new name of filter is PROT3CT (old name tulip) inline with PDD value. 2. Project database where the end-user information is stored is derived from sales database that the ones are sold by resellers generally hard to collect and missing in this project database. Up to now, 24,970 end user information are collected, statement revised in the MR.				
Documentation provided by project participant				
/1/ version 02 /11/				
VVB assessment				**Date:** 03/10/2023
1. The revised MR is checked, CTI confirmed that the figure of purified litres per hour from the PTH's water filter technologies has been changed to 3 which is in line with the specification of the CWF/11/. 2. The revised MR is checked, CTI confirmed that the exact number has been added as per the project database/15/. CAR 02 is closed.				

CAR ID	03	**Section no.**	C	**Date:** 22/08/2023
Description of CAR				
In the section C, no double counting demonstration is missing.				
Project participant response				**Date:** 25/09/2023
Section revised, also part in section B.1 moved to section C.				
Documentation provided by project participant				
/1/ version 02				
VVB assessment				**Date:** 03/10/2023
The revised MR is checked, CTI confirmed that the demonstration has been added. The VVB has checked for double counting by reviewing all relevant registries including CDM/42/, VCS/43/ and other GHGs programs such as IREC/44/, GCC/40/. CTI confirmed that there is no potential exists for Double Counting of emissions reductions due to issuance of Gold Standard VERs/CO_2-certificates from the considered project activity for this monitoring period. Furthermore, for the project users and water purifiers number sold management, to avoid the double counting, PD has implemented the related actions as following, i. PD has added a serial number to all water filters produced and kept the numbers in a database; Verifier checked the database of Serial number to all water filters produced and kept the numbers in the sale database/14/ and found no duplication of the serial number to all water filters. ii. The design of the water filters from Nazava looks physically different from other water filters in the market, making it easy to recognize them; and Through on-site observation and checking the look of the PTH CWF, it is found that the water filters assembled in the factory have their unique brand attached to the devices so that to be easily recognized comparing with others. Furthermore, through on-site investigation, verification team found that sampled water filters have a unique serial number attached to the devices. In conclusion, CTI verified that Project Developer has provided Gold Standard with satisfactory justification that no double counting of emission reductions occurred for this monitoring period. CAR 03 is closed.				

CAR ID	04	**Section no.**	D.2	**Date:** 22/08/2023

Description of CAR	
In the section D.2, Number of new job created by the project with safe and healthy work environment is not same to the provided evidence.	
Project participant response	**Date:** 25/09/2023
Revised as 27 according to staff report.	
Documentation provided by project participant	
/1/ version 02 /22/	
VVB assessment	**Date:** 03/10/2023
The revised MR is checked, CTI confirmed that the figure is updated and confirmed in line with the Staff report/22/. CAR 04 is closed.	

CAR ID	05	**Section no.**	E.4	**Date:** 22/08/2023
Description of CAR				
In section E.4, the vintage values for each SDG impact are missing.				
Project participant response				**Date:** 25/09/2023
Section E.4 revised for the related SDGs where the values are cumulative of Vintages. The other SDGs based on surveys or maximum and average calculation values were kept the same.				
Documentation provided by project participant				
/1/ version 02				
VVB assessment				**Date:** 03/10/2023
The revised MR is checked, CTI confirmed that the figures are provided with vintage which are verified as correct. CAR 05 is closed.				

Table 4. FAR from this verification

FAR ID	01	**Section No.**	-	**Date:** 24/11/2023
Description of FAR				
During the next verification/Issuance, PD should be able to clarify how it takes into account households not using their filters every day into the emission calculation				
Project participant response				**Date:** 24/11/2023
-				
Documentation provided by project participant				
-				
VVB assessment				**Date:** 24/11/2023
Will be checked during next verification/Issuance.				