

Gold Standard for the Global Goals
Transition Annex

*(To be used by all GS CDM/VER stand alone projects and
PoAs, Micro Scale stand alone projects and Micro PoAs)*



Version 1 – September 2017

KEY PROJECT INFORMATION

Title of Project/PoA/Activity:	Nazava Water Filter Project
GS ID of the project/PoA/activity:	GS4290
GS Version:	GS2.2
Brief description of Project:	The project owner PT Holland for Water is a social enterprise that distributes ceramic candle water filters across Indonesia, targeting low-income households (<\$7/day) in rural and urban areas through a wide network of resellers or micro-entrepreneurs. The activity is the sale and distribution of Nazava water filtration technology in regions of Indonesia. The applied technology is a ceramic water filter that produces water of safe drinking water quality. The project was registered under GS on 15 Feb 2016. The crediting period is fixed for 10 years starting from 01/03/2014-29/02/2024.
Project type: Energy/Land Use	Energy
For Renewable Energy Projects – intention to apply RECs Labels (y/n)	NA
GS Stream (CDM/VER):	VER
Scale (large/small/micro):	Small Scale
GS Registration Date:	15/02/2016
GS Crediting period start date:	01/03/2014
CDM Registration Date:	NA
CDM Crediting period start date:	NA
Project Developer:	PT Holland For Water
Project Representative:	Guido van Hofwegen
Project Participants and any communities involved:	- PT Holland For Water - Nexus Carbon for Development Ltd.
Host Country/Location:	Indonesia
Methodologies applied:	AMS-III.AV, version 04.0, Small-scale Methodology, "Low greenhouse gas emitting safe drinking water production systems"
SDG Impacts:	1 – SDG1: Livelihood of the poor – Amount of fuel save after using project technology, percentage of household noted on money save and percentage of household noted on time save after using the project technology. 2 – SDG3: Air quality – number of people who notice less smoke in kitchen after having water filter 3 – SDG5: Achieve gender equality and empower all women and girls- Number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel. 4 – SDG6: Access to safe and affordable drinking water – Number of people with access to safe drinking water.

	5 – SDG8: Quantitative employment and income generation - Number of new job created by the project with safe and healthy work environment. 6 –SDG13: Climate change action – Total emission reduction 7. -SDG15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss – the areas of forest save.
Estimated amount of SDG Impact (GSVERs and others)	22,735 VERs/year ¹

¹ Nazava_PDD_v3.0_20160413.clean, page (25).

SECTION A Sustainable Development Goals (SDG) outcomes

A.1 Relevant target for each of the three SDGs

Based on the most recent UN's SDG (<https://sustainabledevelopment.un.org/sdgs>), SDG goal, target and its corresponding indicators were described. However, it should be noted that not all the indicators are aligned or relevant for carbon project. Therefore, in the following section A.2, proposed indicators for each target will be made.

No	SDGs	Target	UN's SDG indicators ²	Project's SDG indicator
1.	Goal 1. End poverty in all its forms everywhere	1.1 by 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural).	- The amount of fuel save - Percentage of household noted on money save - Percentage of household noted on time save after using the project technology.
2.	Goal 3. Ensure healthy lives and promote well-being for all at all ages	3.9 by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution.	The number of people who notice less smoke in kitchen after having water filter.
3.	Goal 5. Achieve gender equality and empower all women and girls	5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	The number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel.
4.	Goal 6. Ensure availability and sustainable management of water and sanitation for all	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services	The number of people with access to safe drinking water.
5.	Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive	8.5 By 2030 achieve full and productive employment and decent work for all women and men	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities.	The number of new job created by the project with safe and healthy work environment.

²This indicator is taken from the UN SDG document (<https://sustainabledevelopment.un.org/>) accessed on 26 Mar 2019, some may not be relevant to the project.

	employment and decent work for all			
6.	Goal 13. Take urgent action to combat climate change and its impacts	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula	The total amount of emission reduction.
7.	Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a proportion of total land area	Area of forest save.

A.2 Explanation of methodological choices/approaches for estimating the SDG outcome

Except the SDG 13, the selected methodology AMS-III.AV Version 4.0 does not provide the approach for calculating the other SDGs outcomes. Below are the proposed approaches for calculating the baseline and project outcomes.

Goal 1 Contribution

The project technology help users to save time spending on fuel collection/purchase and boiling water, and save household expenditure on fuel purchased for boiling water. The indicator for this SDG1 would be ***the amount fuel saves, the percentage of household noted on money save and the percentage of time save after using the project technology*** which are relevant to 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).

Estimating baseline outcome:

In the baseline situation, no fuel save and no percentage of household noted on time save after using the project technology. Therefore, the two baseline outcome benefits are zero.

Estimating project outcome:

In the project situation, the project outcome can be estimated as following:

Project outcome (a) of SDG1

The amount of Biomass saves = $[QPWy * SEC * 10^{-9} * \%HH \text{ using wood}] / NCV_{wood}$

Equation 1

Project outcome (b) of SDG1

The amount of LPG saves = $[QPWy * SEC * 10^{-9} * \%HH \text{ using LPG}] / NCV_{LPG}$

Equation 2

Project outcome (c) of SDG1 = % of household noted on money save after using the project technology

Project outcome (d) of SDG1 = % of household noted on time save after using the project technology

Where

Parameters	Description	Source/value
Project outcome (a) of SDG1	Total amount of biomass fuel saves (tonne)	To be calculated Error! Reference source not found.
Project outcome (b) of SDG1	Total amount of LPG fuel saves (tonne)	To be calculated Equation 2
QPW _y	Quantity of purified water in year y (litre)	Equation 5
SEC	Specific energy consumption required to boil one litre of water (kJ/L)	Equation 6
%HH using biomass	Percentage of household using biomass for boiling water (%)	38% (see section A3)
%HH using LPG	Percentage of household using LPG for boiling water (%)	51.8% (see section A3).
NCV _{wood}	Net calorific value of wood (TJ/ton)	0.0156 TJ/tonne ((see section A3)
NCV _{LPG}	Net calorific value of LPG (TJ/ton)	0.0474 TJ/tonne (see section A3)
Project outcome (c) of SDG1	Percentage of household noted on money save after using the project technology (%)	Monitoring survey
Project outcome (d) of SDG1	Percentage of household noted on time save after using the project technology (%)	Monitoring survey

Estimating net benefit

Net benefit (a) of SDG1 = Project outcome (a) of SDG1 – Baseline outcome (a) of SDG1

Net benefit (b) of SDG1 = Project outcome (b) of SDG1 – Baseline outcome (b) of SDG1

Net benefit (c) of SDG1 = Project outcome (c) of SDG1 – Baseline outcome (c) of SDG1

Net benefit (d) of SDG1 = Project outcome (d) of SDG1 – Baseline outcome (d) of SDG1

Goal 3 contribution

The project technology help reducing smoke and dust coming from boiling water with solid biomass. Therefore, it could help contributing to the target 3.9 “by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination” of Goal 3.

With the information from the monitoring survey, the Goal 3 will be estimated as following:

Estimating Baseline outcome:

In baseline situation, no change in smoke level from boiling water. Therefore, baseline outcome benefit is zero.

Estimating Project outcome:

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

$$SDG3 \text{ contribution (number of people)} = T_{y,i} * N_{y,i} * U_{p,y} * WQ_{Passed,y} * N_{Less_smoke,y}$$

Parameters	Description	Source/value
Project outcome of SDG3	Number of people using CWF and note that their kitchen is less smoke	To be calculated
$T_{y,i}$	Total distributed water purification units	Sale database
$N_{y,i}$	The average population serviced by water purification system	Monitoring survey

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Up,y	Usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate	Monitoring survey
$WQ_{Passed,y}$	Water Quality passing rate of water quality standard (WHO standard)	Water quality survey test
$N_{Less_smoke,y}$	% of households notice that their kitchen is less smoke	Monitoring survey

Estimating net benefit

Net benefit of SDG3 = Project outcome of SDG3 – Baseline outcome of SDG3

Goal 5 contribution

The project technology help reducing the work load on women and girls who are responsible for boiling water and collecting/purchasing cooking fuel which is contributing to the target 5.4 " Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate" of Goal 5. The SDG's indicator of this target is **the number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel** which is relevant to the UN's SDG indicator "5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location".

This indicator is continuously monitored and can be estimated as following

Estimating Baseline outcome:

In baseline situation, no distribution of project technology. Therefore, baseline outcome benefit is zero.

Estimating Project outcome:

In the project situation, the *number of women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel* can be estimated as following

$$SDG5 \text{ contribution (number of people)} = T_{y,i} * N_{y,i} * Up,y * WQ_{Passed,y} * X_{boil} * Women\%$$

Parameters	Description	Source/value
Project outcome of SDG5	Number of women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel	To be calculated
$T_{y,i}$	Total distributed water purification units	Sale database
$N_{y,i}$	The average population serviced by water purification system	Monitoring survey
Up,y	Usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate	Monitoring survey
$WQ_{Passed,y}$	Water Quality passing rate of water quality standard (WHO standard)	Water quality survey test
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	Data fixed ex-ante
<i>Women%</i>	Average percentage of women and girls responsible for water boiling and collecting/purchasing cooking fuel before having CWFs.	Monitoring survey

Estimating net benefit

Net benefit of SDG5 = Project outcome of SDG5 – Baseline outcome of SDG5

Goal 6 contribution

The project technology provides a clean water supply to the users which is contributing to the target 6.1 "by 2030, achieve universal and equitable access to safe and affordable drinking water for all". The SDG's indicator of this target

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is **the number of people access to safe drinking water** which is relevant to the UN's SDG indicator "6.1.1 Proportion of population using safely managed drinking water services"

This indicator is continuously monitored and can be estimated as following:

Estimating Baseline outcome:

In baseline situation, no distribution of project technology. Therefore, baseline outcome benefit is zero.

Estimating Project outcome:

In the project situation, the number of people with access to safe drinking water can be estimated as following:

$$\text{Project outcome of SDG6} = T_{y,i} \times N_{y,i} * U_{p,y} * WQ_{\text{Passed},y}$$

Where

Parameters	Description	Source/value
Project outcome of SDG6	Number of people with access to safe drinking water	To be calculated
$T_{y,i}$	Total distributed water purification units	Sale database
$N_{y,i}$	The average population serviced by water purification system	Monitoring survey
$U_{p,y}$	Usage rate for technologies in project scenario p during year y, based on cumulative installation rate and drop off rate	Monitoring survey
$WQ_{\text{Passed},y}$	Water Quality passing rate of water quality standard (WHO standard)	Water quality survey test

Estimating the net benefit

The net benefit of SDG6 = Project outcome of SDG6 – Baseline outcome of SDG6

Goal 8 contribution

Through the project activities, it will create jobs which contribute to the target 8.5 "by 2030 achieve full and productive employment and decent work for all women and men". **The number of new job created by the project with safe and healthy work environment is used as indicator of this SDG8** which is relevant to the UN's SDG indicator "8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities".

The expected job created are logistic manager, production manager, worker, admin and finance officer, sale officer.

Estimating baseline outcome:

In baseline situation, no new job created with safe and healthy work environment. Therefore, baseline outcome benefit is zero.

Estimating project outcome:

In project situation, the number of created jobs with safe and healthy work environment will be recorded by the project implementer as well as producers/retailers:

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

Estimating net benefit

Net benefit of SDG8= Project outcome of SDG8 – Baseline outcome of SDG8

Goal 13 contribution

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According to the selected methodology AMS-III.AV Version 4.0, the project will help to save fuel which therefore reduce the GHG emission. Amount of ER will be calculated according to the selected methodology **which is relevant to the UN's SDG indicator SDG13.3.1**. The following section will describe a step by step in estimating ER.

The overall GHG reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad \text{Equation 3}$$

Parameters	Description	Source/value
ER _y	Emission reduction	Calculated
BE _y	Baseline emission	Equation 4
PE _y	Project emission	Zero (AMS-III. AV)
LE _y	Leakage emission	5% of total ER (AMS-III. AV)

Calculating Baseline Emissions (BE_y)

$$BE_y = QPW_y \times SEC \times f_{NRB,y} \times EF_{\text{projected fossil fuel}} \times 10^{-9} \quad \text{Equation 4}$$

Where:

Parameters	Description	Source/value
BE _y	Emission reduction	Calculated
QPW _y	Quantity of purified water in year y in litre	Equation 5
SEC	Specific energy consumption required to boil one litre of water	Equation 6
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	82.1 (see section A.3)
EF _{projected fossil fuel}	Emission factor for the substitution of non-renewable woody biomass or the emission factor of the fossil	0.4 (see section A.3)

Estimating quantity of purified water (QPW_y)

$$QPW_y = T_{y,i} \times N_{y,i} \times R_{y,i} \times 365 \times \text{Water Quality} \times \text{Operation Units} \times X_{\text{boil}} \quad \text{Equation 5}$$

Where:

Parameters	Description	Source/value
QPW _y	Quantity of purified water in year y (liter)	To be calculated
T _{y,i}	Total distributed water purification units	Sale database
N _{y,i}	The average population serviced by water purification system	Monitoring survey
R _{y,i}	The average volumes of drinking water per person per day (liter)	3.5
Water Quality	Water quality passing WHO standard rate	Water quality survey
Operation Units	Usage rate of the sold units based on its age group	Monitoring survey
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	88.26%

Estimating Specific energy consumption required to boil one litre of water (SEC)

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

Where:

Parameters	Description	Source/value
SEC	Specific energy consumption required to boil one litre of water	To be calculated
WH	Specific heat of water	4.186 kJ/L/°C (see section A.3)
T _f	Final temperature	100 °C (see section A.3)
T _i	Initial temperature	20 °C (see section A.3)
WHE	Latent heat of water evaporation	2,2600 kJ/L (see section A.3)
η _{wb}	Stove's thermal efficiency	81.6 (fraction) (see section A.3)

Net benefit of SDG13 = Amount of ER

Goal 15 Contribution

The project technology help users to reduce amount of fuel collected or purchased especially biomass save which contribute to the area of forest save. The indicator for this SDG15 would be **the area of forest save** which is relevant to the UN's SDG indicator "15.1.1 Forest area as a proportion of total land area".

Estimating baseline outcome

In baseline situation, no area of forest save. Therefore, baseline outcome benefit is zero.

Estimating project outcome

Project outcome of SDG15 = [(Amount of wood save/converting factor of biomass from m³ to tonne)* f_{NRBy} /Growth stock in forest]

Parameter	Description	Value/source
Amount of wood save	Amount of wood save per year [tonne]	Equation 1
f _{NRBy}	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable	82.1 (see section A.3 below)
Converting factor of biomass from m ³ to tonne	Converting factor of biomass from m ³ to tonne	1.725 tonne/m ³ (see section A.3 below)
Growth stock in forest	Growth stock in forest in Indonesia	112 m ³ /ha (see section A.3 below).

Estimating net benefits

Net benefit of SDG15= Project outcome of SDG8 – Baseline outcome of SDG8

A.3 Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
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Data/parameter	fNRB,y
Unit	%
Description	Fraction of woody biomass used in the absence of the project activity in year y that can be established as non-renewable
Source of data	FAO Global Forest Resources Assessment 2010 2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value(s) applied	82.1%
Choice of data or Measurement methods and procedures	The assessment of the non-renewability of biomass within the project boundary is performed as per the procedure contained in AMS-I.E. The calculation is shown in Appendix IV of the registered PDD.
Purpose of data	Calculation of baseline and project emissions
Additional comment	Ex ante physical survey by the project participant is not required as the data was publicly available by an independent parties.

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	Ry,i
Unit	liters/person/day
Description	The average volume of drinking water per person per day
Source of data	"Minimum water quantity needed for domestic uses "by WHO Regional Office for South-East Asia
Value(s) applied	3.5
Choice of data or Measurement methods and procedures	Official data from standard water requirements
Purpose of data	Calculation of baseline/project emissions
Additional comment	Ex ante physical survey by the project participant is not required as the data was publicly available by an independent parties.

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	EF _{projected_fossilfuel}
Unit	tCO ₂ /TJ
Description	Emission factor for the substitution of non-renewable woody biomass or the emission factor of the fossil fuel substituted by similar consumers.
Source of data	Default value from AMS-I.E as referenced by AMS-III.AV Version 4
Value(s) applied	81.6

Choice of data or Measurement methods and procedures	Default value from AMS-I.E. This value represents the emission factor of the substitution fuels likely to be used by similar users, on a weighted average basis. It is assumed that the mix of present and future fuels used would consist of a solid fossil fuel (lowest in the ladder of fuel choices), a liquid fossil fuel (represents a progression over solid fuel in the ladder of fuel use choices) and a gaseous fuel (represents a progression over liquid fuel in the ladder of fuel use choices). Thus a 50 per cent weight is assigned to coal as the alternative solid fossil fuel (96 t CO ₂ /TJ) and a 25 per cent weight is assigned to both liquid and gaseous fuels (71.5 t CO ₂ /TJ for kerosene and 63.0 t CO ₂ /TJ for liquefied petroleum gas (LPG).
Purpose of data	Calculation of baseline emissions
Additional comment	-

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	WH
Unit	kJ/L °C
Description	Specific Heat of Water
Source of data	Default Value from AMS-III.AV Version 4
Value(s) applied	4.186
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	T _f
Unit	°C
Description	Final Temperature
Source of data	Default Value from AMS-III.AV Version 4
Value(s) applied	100
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	T _i

Unit	°C
Description	Initial Temperature
Source of data	Default Value from AMS-III.AV Version 4
Value(s) applied	20
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	WHE
Unit	kJ/L
Description	Latent Heat of Water Evaporation
Source of data	Default Value from AMS-III.AV Version 4
Value(s) applied	2,260
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	L
Unit	-
Description	Leakage relating to non-renewable woody biomass
Source of data	Default Value from AMS-I.E Version 6
Value(s) applied	0.95
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of leakage emissions
Additional comment	-

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
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Data/parameter	Case 1 or Case 2
Unit	-
Description	Classifies the proposed project as either Case 1 or Case 2
Source of data	WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation (http://www.wssinfo.org/fileadmin/user_upload/resources/Indonesia.xls , tab "Estimates")
Value(s) applied	Case 2
Choice of data or Measurement methods and procedures	According to data which is available from WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation (http://www.wssinfo.org/fileadmin/user_upload/resources/Indonesia.xls , tab "Estimates"), the proportion of urban, rural and total population using an improved drinking-water source of the most recent year (2015) is 94%, 79% and 87% respectively. These proportion are higher than 60% therefore the project case is Case 2.
Purpose of data	Calculation of baseline /project emissions
Additional comment	The proposed project is classified as Case 1 or Case 2 depending on the fraction of the population using an improved drinking-water source prior to the implementation of the proposed project. This proposed project is classified as Case 2.

Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data/parameter	X_{boil}
Unit	%
Description	Fraction of the population serviced by the project activity for which the common practice of water purification is or would have been water boiling
Source of data	Nazava_MP1(2018)_ProjectSurveyData_20181212, tab Analysis, Cell C7
Value(s) applied	88.26%
Choice of data or Measurement methods and procedures	Result of the monitoring survey
Purpose of data	Calculation of baseline /project emissions

Additional comment	According to the applied methodology, the project falls to Case 2. Therefore, the following adjustment is required: <i>«For Case 2, total project population needs to be adjusted for the fraction of the population serviced by the project equipment at households/buildings for which it can be demonstrated through documentation or survey that the practice of water purification would have been water boiling» - AMS III.AV, version 4, paragraph 11.</i> During the validation stage, due to no available survey with the project filter users (or «the population serviced by the project equipment»), PP applied the Xboil factor of 70.1% according to the Indonesian Demographic and health survey 2012 report for ex-ante ER calculation. This survey was a general survey and was not targeted the specific project user group of having CWF. Therefore, during the first verification, the PP conducted the survey according to methodology requirement. Thus, PP proposes to apply this latest survey result which well reflects the baseline situation of the project targeted households.
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Relevant SDG Indicator	- SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter. - 15.1.1 Forest area as a proportion of total land area. Area of forest save is the monitored parameter.																								
Data/parameter	$\eta_{wb,y}$																								
Unit	fraction																								
Description	Efficiency of water boiling system being replaced																								
Source of data	Default efficiencies from AMS-III.AV Version 4 for each baseline technology Percentage of fuel types																								
Value(s) applied	0.4																								
Choice of data or Measurement methods and procedures	Weighted average efficiency is calculated from default values from AMS III.AV and percentage of fuel types according to the table below: <table><tr><th>Fuel type</th><th>Percentage³</th><th>Efficiency</th></tr><tr><td>LPG</td><td>51.8%</td><td>0.5</td></tr><tr><td>Kerosene</td><td>7.4%</td><td>0.5</td></tr><tr><td>Wood</td><td>37.6%</td><td>0.2</td></tr><tr><td>Charcoal</td><td>0.4%</td><td>0.2</td></tr><tr><td>Other</td><td>2.8%</td><td>1</td></tr><tr><td colspan="2">Weigh averaged efficiency</td><td>0.4</td></tr><tr><td colspan="3">η_{wb}</td></tr></table>	Fuel type	Percentage ³	Efficiency	LPG	51.8%	0.5	Kerosene	7.4%	0.5	Wood	37.6%	0.2	Charcoal	0.4%	0.2	Other	2.8%	1	Weigh averaged efficiency		0.4	η_{wb}		
Fuel type	Percentage ³	Efficiency																							
LPG	51.8%	0.5																							
Kerosene	7.4%	0.5																							
Wood	37.6%	0.2																							
Charcoal	0.4%	0.2																							
Other	2.8%	1																							
Weigh averaged efficiency		0.4																							
η_{wb}																									
Purpose of data	Determination of baseline emissions																								

³ Indonesian Demographic and health survey report published by Indonesian Ministry of Health on Aug 2013

Additional comment	The efficiency of 0.5 was applied for LPG and Kerosene stoves according to the methodology AMS III.AV, version 4, section 5.2: <i>"(c) 0.5 default value may be used if the replaced system or the system that would have been used is a fossil fuel combusting system"</i> Similarly, the efficiency of 0.2 was applied for wood and charcoal stoves as below: <i>"(b) 0.10 default value may be optionally used if the replaced system or the system that would have been used is a three stone fire or a conventional system for woody biomass lacking improved combustion air supply mechanism and flue gas ventilation system i.e. that is without a grate as well as a chimney; for the rest of the systems using woody biomass 0.2 default value may be optionally used"</i> Regarding the "Other" stoves, the efficiency 1 (or 100%) was applied as conservative approach for ER estimation.
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Relevant SDG Indicator	SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter. 15.1.1 Forest area as a proportion of total land area. Area of forest save is the monitored parameter.								
Data/parameter	%HH using biomass								
Unit	%								
Description	Percentage of household using biomass for boiling water								
Source of data	Indonesian Demographic and health survey report published by Indonesian Ministry of Health on Aug 2013								
Value(s) applied	38%								
Choice of data or Measurement methods and procedures	Weighted average efficiency is calculated from default values from AMS III.AV and percentage of fuel types according to the table below: <table border="1"> <thead> <tr> <th>Fuel type</th><th>Percentage</th></tr> </thead> <tbody> <tr> <td>Wood</td><td>37.6%</td></tr> <tr> <td>Charcoal</td><td>0.4%</td></tr> <tr> <td></td><td>38%</td></tr> </tbody> </table>	Fuel type	Percentage	Wood	37.6%	Charcoal	0.4%		38%
Fuel type	Percentage								
Wood	37.6%								
Charcoal	0.4%								
	38%								
Purpose of data	Determination of baseline emissions								
Additional comment	Since the proportion of people using charcoal is small, it is added up to woody proportion directly. This is a simplified calculation with conservativeness.								

Relevant SDG Indicator	- SDG13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter. - 15.1.1 Forest area as a proportion of total land area. Area of forest save is the monitored parameter.
Data/parameter	%HH using LPG
Unit	%
Description	Percentage of household using LPG for boiling water
Source of data	Indonesian Demographic and health survey report published by Indonesian Ministry of Health on Aug 2013
Value(s) applied	51.8%

Choice of data or Measurement methods and procedures	Weighted average efficiency is calculated from default values from AMS III.AV and percentage of fuel types according to the table below:			
	<table> <tr> <th>Fuel type</th><th>Percentage</th></tr> <tr> <td>LPG</td><td>51.8%</td></tr> </table>	Fuel type	Percentage	LPG
Fuel type	Percentage			
LPG	51.8%			
Purpose of data	Determination of baseline emissions			
Additional comment	NA			

Relevant SDG Indicator	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of household noted on money save and Percentage of household noted on time save after using the project technology. 15.1.1 Forest area as a proportion of total land area. The area of forest save is the monitored parameter.
Data/parameter	NCVwood
Unit	TJ/tonne
Description	Net calorific value of wood
Source of data	IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.19
Value(s) applied	0.015 TJ/tonne
Choice of data or Measurement methods and procedures	IPCC default factor
Purpose of data	Calculation of amount of biomass save and area of forest save
Additional comment	-

Relevant SDG Indicator	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of household noted on money save and Percentage of household noted on time save after using the project technology. 15.1.1 Forest area as a proportion of total land area. The area of forest save is the monitored parameter.
Data/parameter	NCV _{LPG}
Unit	TJ/tonne
Description	Net calorific value of LPG
Source of data	IPCC (2006) "IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Energy, Chapter 1, Introduction, Table 1.2, p 1.18
Value(s) applied	0.0474 TJ/tonne
Choice of data or Measurement methods and procedures	IPCC default factor
Purpose of data	Calculation of amount of LPG save
Additional comment	-

Relevant SDG Indicator	15.1.1 Forest area as a proportion of total land area. The area of forest save is the monitored parameter.
Data/parameter	Growth stock in forest
Unit	m ³ /Hectare
Description	Growth stock in forest in Indonesia
Source of data	FAO data 2015, Global Forest Resources Assessment 2015 (page 81)
Value(s) applied	112 m ³ /Hectare
Choice of data or Measurement methods and procedures	Using existing study/report from FAO.
Purpose of data	Calculation of area of forest save
Additional comment	-

Relevant SDG Indicator	15.1.1 Forest area as a proportion of total land area. The area of forest save is the monitored parameter.
Data/parameter	Converting factor of biomass from m ³ to tonne
Unit	fraction
Description	Converting factor of biomass from m ³ to tonne
Source of data	FAO, Global forest assessment 2000 report, Appendix 3, Table 7; http://www.fao.org/3/Y1997E/y1997e1u.htm#bm66
Value(s) applied	1.72
Choice of data or Measurement methods and procedures	In the FAO, Global forest assessment 2000 report, Appendix 3, Table 7, it was reported that for Indonesia 79 m ³ /hectare = 136 tonne/hectare.
Purpose of data	Calculation of area of forest save
Additional comment	-

SECTION B Safeguarding Principles Assessment

B.1 Analysis of social, economic and environmental impacts

The assessment of following Safeguarding Principles Assessment is required to be carried out by GS Version 2.2 project:

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
3.2 Gender Equality and Women's Rights	1. The Project shall complete the following gender assessment questions to inform Requirements 3-2, below: a) Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? b) Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)? c) Is there a possibility that the Project might not take into account gender roles and the	NO	1. The gender assessment are below: a) The Project does not reduce or put at risk women's access to or control of resources, entitlements and benefits as it would bring benefits on time and resources saving as well as health benefit to women who are mainly using cookstove for boiling water. b) Project does not adversely affect men and women in marginalised or vulnerable communities c) Project has taken into account gender roles and the abilities of women or men to participate in the decisions/designs	

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	abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)? d) Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)? e) Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities? f) Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits? g) Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in		of the project's activities by welcoming all comments/feedback from users and stakeholders. Anyone could contact the project via the publicable telephone number or email address whenever is suitable for them. d) The Project has taken into account gender roles and the abilities of women or men to benefit from the Project's activities. Anyone could use project's technology (CWF) by purchasing it. e) Project design contribute to a decrease in women's workload by reducing time from collecting fuel as well as water boiling time. Then it allow them to engaging in other activities which could generate an extra income. f) The Project does not reproduce or further deepen discrimination against women based on gender. In fact, the project technology brings more benefits to women who are mostly boiling water with their baseline stove for drinking. g) The Project does not limit women's ability to use, develop and protect	
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	accessing and managing environmental goods and services? h) Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards? 2. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. Specifically, this shall include (not exhaustive): a) Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. b) Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls. c) Restriction of women’s rights or access to resources (natural or economic). d) Recognise women’s ownership rights regardless of marital status – adopt project measures where possible to support to women’s access to inherit and own land, homes, and other assets or natural resources.		natural resources as it would help women to use natural resources (fuel wood and other type of fuel) effectively. They would drink water directly from the filter instead of boiling it. This would contribute to the natural resource conservation. h) The proposed Project does not expose women and girls to further risks or hazards. The project technology brings more benefits to women and girls who are mostly using stoves for daily boiling water. 2. The Project does not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women including: a) Sexual harassment and/or any forms of violence against women – address the multiple risks of gender-based violence, including sexual exploitation or human trafficking. b) Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.	
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	3. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically: a) Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities. b) Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status. c) Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits. 4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.		c) Restriction of women's rights or access to resources (natural or economic). d) Recognise women's ownership rights regardless of marital status – adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources. 3. The project complies with Convention on the Elimination of All Forms of Racial Discrimination (ICERD, 1980); Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW, 1985); Convention Against Torture and Other Forms of Cruel, Inhuman and Degrading Treatment (CAT, 1986); International Covenant on Economic, Social and Cultural Rights (ICESCR, 1987); International Covenant on Civil and Political Rights (ICCPR, 1995); Convention on the Rights of the Child (CRC, 1990); International Convention on the Rights of Migrant Workers and All Members of their Family (ICRMW, 1995); and Convention on the Rights of Persons with Disability (CRPD, 2008), Act No. 21 of 2000 on Trade Unions, Act No. 13 of 2003 on Manpower (In line with the Constitutional Court Decision No.	
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			012/PUU-I/2003), and Act No. 2 of 2004 on Industrial Relations Disputes Settlement. Projects has been applying the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically: a) Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities. b) Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status. c) Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits. 4. Articles 28D and 24H in the Indonesian constitution affirm the equal rights for women and men. Article 28D of Indonesian Constitution states that every citizen has the	
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			same opportunities in government. As Article 28H which states that every person is entitled to special treatment facilities and to obtain the same opportunities and benefits in order to achieve equality and justice. With its Staff Employment Policies and Guideline, Nazava has committed to respect the worker rights and gender associated laws.	
3.4.3 Land Tenure and Other Rights	1. Does the Project require any change to land tenure arrangements and/or other rights? 2. For Projects involving land-use tenure, are there any uncertainties with regards land tenure, access rights, usage rights or land ownership? Examples include, but are not limited to water access rights, community-based property rights and customary rights.	No	1. The proposed project will distribute and install ceramic water filter at user households on a voluntary basis and does not require any change to land tenure arrangements and/ or other rights. 2. The project does not lead to a change in settlement in any way. No one will need to move/change their living conditions/situations by using the project technology. The project does not involve and is not complicit with involuntary settlements.	
3.6.2 Negative Economic Consequences	Requirement 1. The Project Developer shall demonstrate the financial sustainability of the Projects		1. The project is running on a commercial base. With the current market demand (annual sale of 15,000 CWFs) and the exiting sale network, it is expected that the project	

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	implemented, also including those that will occur beyond the Project Certification period. 2. The Projects shall consider economic impacts and demonstrate a consideration of potential risks to the local economy and how these have been taken into account in Project design, implementation, operation and after the Project. Particular focus shall be given to vulnerable and marginalised social groups in targeted communities and that benefits are socially-inclusive and sustainable.		will continue to operate beyond the project certification period. 2. Project creates jobs for local people in various positions ranging from office staffs, sales and CWF manufacturing workers. In average about 34 staffs were employed by the project. To avoid any potential risks to the local economy, the project is committed to fully comply with the Indonesia's Labour law as mentioned in its Staff Employment Policies and Guideline.	
4.1.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project technology help to save fuel by encouraging people to drinking water from the filter directly without boiling it. Therefore, reduce the GHG emission compare to the baseline scenario. Please refer to the above Section A.2.	
4.1.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The project technolgy do not use local grid or power supply that provide to other local users. The project user same type but less amount of fuel resource as in the baseline situation.	

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4.2.1 Impact on natural water patterns and flow	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project technology doesn't not involve or affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity.	
4.2.1 Erosion and/or water body stability	1. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2. 2. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	1. Project does not directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion	
4.3.1 Landscape modification and soil	Does the Project involve the use of land and soil for production of crops or other products?	No	The project doesn't involve in the landscape or modification and soil directly. PP import ceramic candle from company in China in which they are legally registered under Chinese law as seen in its registration certificates.	
4.3.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	NA	
4.3.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs	No	NA	

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	(e.g., contamination, collection and/or harvesting, commercial development)?			
4.3.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	No	NA	
4.3.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Potentially	The project involves in the application of silver colloid the production of water filter. 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. Nazava has followed and fulfilled the national environmental requirements as proven by its Investment license⁴ which is only issued once all environmental regulations are fulfilled.	The silver colloid has no waste by product on site or otherwise as it is fully applied and permanently adhered to the ceramic filter body.
4.3.6 Pesticides and fertilizers	Will the Project involve the application of pesticides and/or fertilisers?	No	NA	
4.3.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	NA	
4.3.8 Food	Does the Project modify the quantity or nutritional quality of food available such as	No	NA	

⁴ Nazava_Business_license

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	through crop regime alteration or export or economic incentives?			
4.3.9 Animal Husbandry	Will the Project involve animal husbandry?	No	NA	

SECTION C Monitoring plan

C.1 Data and parameters to be monitored

Relevant SDG Indicator/Safeguarding Principle	- 1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of household noted on money save and Percentage of household noted on time save after using the project technology. - 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter. - 15.1.1 Forest area as a proportion of total land area. Area of forest save is the monitored parameter.																								
Data / Parameter	QPW _y																								
Unit	Litres/yr/unit																								
Description	Quantity of purified water in year y (litres)																								
Source of data	Calculation																								
Value(s) applied	To be estimated in below equation																								
Measurement methods and procedures	The quantity of purified water per year is estimated by using below equation. $QPW_y = \sum_0^i T_{y,i} * N_{y,i} * R_{y,i} * 365 * Water\ Quality * Operational\ Units * X_{boil}$ <table><tr><th>Parameter</th><th>Description</th><th>Value</th></tr><tr><td>QPW_y</td><td>Quantity of purified water in year y (litres)</td><td>To be calculated</td></tr><tr><td>T_{y,i}</td><td>Distributed water purification units</td><td>1 for 1 unit</td></tr><tr><td>N_{y,i}</td><td>The average population serviced by water purification system</td><td>See below table</td></tr><tr><td>R_{y,i}</td><td>The average volume of drinking water per person per day</td><td>3.5 See section A.3</td></tr><tr><td>Water Quality</td><td>Water quality passing WHO standard rate.</td><td>88.71% (See below table)</td></tr><tr><td>Operational Units</td><td>Usage rate of the sold units based on its age group</td><td>Monitoring survey</td></tr><tr><td>X_{boil}</td><td>Fraction of the population serviced by the project activity for which the common practice of water purification is or would have been water boiling</td><td>88.26% (See section A.3)</td></tr></table>	Parameter	Description	Value	QPW _y	Quantity of purified water in year y (litres)	To be calculated	T _{y,i}	Distributed water purification units	1 for 1 unit	N _{y,i}	The average population serviced by water purification system	See below table	R _{y,i}	The average volume of drinking water per person per day	3.5 See section A.3	Water Quality	Water quality passing WHO standard rate.	88.71% (See below table)	Operational Units	Usage rate of the sold units based on its age group	Monitoring survey	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	88.26% (See section A.3)
Parameter	Description	Value																							
QPW _y	Quantity of purified water in year y (litres)	To be calculated																							
T _{y,i}	Distributed water purification units	1 for 1 unit																							
N _{y,i}	The average population serviced by water purification system	See below table																							
R _{y,i}	The average volume of drinking water per person per day	3.5 See section A.3																							
Water Quality	Water quality passing WHO standard rate.	88.71% (See below table)																							
Operational Units	Usage rate of the sold units based on its age group	Monitoring survey																							
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	88.26% (See section A.3)																							
Monitoring frequency	Every two years																								
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.																								
Purpose of data	Calculation of ER.																								
Additional comment	NA																								

Relevant SDG Indicator/Safeguarding Principle	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of household noted on money save and Percentage of household noted on time save after using the project technology.
Data / Parameter	Net benefit (a) of SDG1
Unit	tonne
Description	Total amount of biomass fuel saves
Source of data	Calculated
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Please refer to section A2 for the detail calculation method
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG1 contribution
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of household noted on money save and Percentage of household noted on time save after using the project technology.
Data / Parameter	Net benefit (b) of SDG1
Unit	tonne
Description	Total amount of LPG saves
Source of data	Calculated
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Please refer to section A2 for the detail calculation method
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG1 contribution
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of household noted on money save and Percentage of household noted on time save after using the project technology.
Data / Parameter	Net benefit (c) of SDG1
Unit	%

Description	Percentage of household noted on money save after using the project technology		
Source of data	Monitoring survey		
Value(s) applied	Will be reported for each monitoring period		
Measurement methods and procedures	Monitoring survey will be conducted in line with the AMS-III.AV, version 04.0		
Monitoring frequency	Every two years		
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.		
Purpose of data	To estimate SDG1 contribution		
Additional comment	Questions and analytical method will be added to the monitoring survey to capture this parameter.		
	Does water filter save you money?	# HH	Percentage
	Yes		
	No		
	Total Responses		

Relevant SDG Indicator/Safeguarding Principle	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of household noted on money save and Percentage of household noted on time save after using the project technology.		
Data / Parameter	Net benefit (d) of SDG1		
Unit	%		
Description	Percentage of household noted on time save after using the project technology		
Source of data	Monitoring survey		
Value(s) applied	Will be reported for each monitoring period		
Measurement methods and procedures	Monitoring survey will be conducted in line with the AMS-III.AV, version 04.0		
Monitoring frequency	Every two years		
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.		
Purpose of data	To estimate SDG1 contribution		
Additional comment	Questions and analytical method will be added to the project survey to capture this parameter.		
	Are you saving time collecting or purchasing fuel (With Filter)?	# HH	Percentage
	Yes		
	No		
	Total Responses		
	Are you saving time not boiling water (With Filter)	# HH	Percentage
	Yes		
	No		
	Total Responses		

Relevant SDG Indicator/Safeguarding Principle	3.9.1 Mortality rate attributed to household and ambient air pollution. The number of people who notice less smoke in kitchen after having water filter is the monitored parameter
Data / Parameter	Net benefits of SDG3
Unit	Number
Description	Number of people using CWF and note that their kitchen is less smoke
Source of data	Calculated
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Please refer to section A2 for the detail calculation method
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG3 contribution
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	3.9.1 Mortality rate attributed to household and ambient air pollution. The number of people who notice less smoke in kitchen after having water filter is the monitored parameter		
Data / Parameter	$N_{Less_smoke,y}$		
Unit	%		
Description	% of households notice that their kitchen is less smoke		
Source of data	Monitoring survey		
Value(s) applied	Will be reported for each monitoring period		
Measurement methods and procedures	Monitoring survey will be conducted in line with the AMS-III.AV, version 04.0		
Monitoring frequency	Every two years		
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.		
Purpose of data	To estimate SDG3 contribution		
Additional comment	Questions and analytical method will be added to the monitoring survey to capture this parameter.		
	Do you note that your kitchen is less smoke after using the water filter?	# HH	Percentage
	Yes		
	No		
	Total Responses		

Relevant SDG Indicator/Safeguarding Principle	- 3.9.1 Mortality rate attributed to household and ambient air pollution. The number of people who notice less smoke in kitchen after having water filter is the monitored parameter. - 6.1.1 Proportion of population using safely managed drinking water services. The number of people with access to safe drinking water is the monitored parameter. - 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter
Data / Parameter	T _{y,i}
Unit	Number
Description	Total distributed water purification units
Source of data	Sale database
Value(s) applied	Values are shown in the Annex 4 of the PDD which is derived from the Project Database.
Measurement methods and procedures	The total number of units by technology type and date deployed is tracked in the Sale Database, using Sales Receipts. All units distributed will be recorded. Any unit not recorded in the sale database will not be credited for emission reductions.
Monitoring frequency	Continuous and aggregated monthly
QA/QC procedures	Sales database is cross checked with paper records to ensure transparent and robust data. They are available for VVB to be verified.
Purpose of data	Calculation of QPW _y and ER calculation- Quantity of purified water in year y (litres) and baseline emissions
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	- 3.9.1 Mortality rate attributed to household and ambient air pollution. The number of people who notice less smoke in kitchen after having water filter is the monitored parameter. - 6.1.1 Proportion of population using safely managed drinking water services. The number of people with access to safe drinking water is the monitored parameter. - 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data / Parameter	N _{y,i}
Unit	Persons/Units
Description	The average population serviced by water purification system
Source of data	Monitoring survey
Value(s) applied	Estimated based on monitoring survey result.
Measurement methods and procedures	Monitoring survey is conducted on sample of units
Monitoring frequency	Every two years
QA/QC procedures	According to the EB 86 Annex 3 "Standard for Sampling and Surveys for CDM PAs and PoAs" Version 05.0, paragraph 10 "Where there is no specific guidance in the applicable methodology, project proponents shall use 90/10 confidence/precision as the criteria for reliability of sampling efforts for small scale project activities and 95/10 for large-scale project activities." 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.
Purpose of data	Calculation of QPW _y - Quantity of purified water in year y (liter) and baseline emissions
Additional comment	The value of 4.57 person per unit is only for ex-ante emission reduction calculation. During verification, this parameter will be monitored as mentioned above. Ex ante physical survey by the project participant is not required as the data was publicly available by an independent party. The ex-ante number of people drinking water per household $N_{y,i}$ is based on the "Components of the Income Aggregate: "Indonesia Family Life Survey, Wave 1", prepared for the Rural Income Generating Activities (RIGA) Project of the Agricultural Development Economics Division, Food and Agriculture Organization December 2008, available online at the following link: http://www.fao.org/fileadmin/templates/riga/docs/Country_survey_information/14_Indonesia93-Components_of_the_Income_Aggregate.pdf

Relevant SDG Indicator/Safeguarding Principle	- 3.9.1 Mortality rate attributed to household and ambient air pollution. The number of people who notice less smoke in kitchen after having water filter is the monitored parameter. - 6.1.1 Proportion of population using safely managed drinking water services. The number of people with access to safe drinking water is the monitored parameter. - 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter
Data / Parameter	Water Quality
Unit	%
Description	Average water quality passing rate of water quality standard (WHO standard)
Source of data	Water Quality testing survey
Value(s) applied	Estimated based on water quality test survey.
Measurement methods and procedures	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. The results are as good as other testing methods: https://www.ncbi.nlm.nih.gov/pubmed/16512235. The manual of the product can be found here. The test can be done in the field with a mobile incubator because the tool is very light.
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	Calculation of QPW _y (Quantity of purified water in year y (litres)) and baseline emissions
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	- 1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural). Three parameter were selected to be monitored for this indicator: - The amount of fuel save, Percentage of
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	household noted on money save and Percentage of household noted on time save after using the project technology. - 6.1.1 Proportion of population using safely managed drinking water services. The number of people with access to safe drinking water is the monitored parameter. - 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter
Data / Parameter	Usage rate
Unit	%
Description	Percentage of sold unit in operation
Source of data	Usage survey data
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Survey questionnaire and observation
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	Baseline and project emission calculations
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location. The number of women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel is the monitored parameter.
Data / Parameter	Women%
Unit	Percentage
Description	Average percentage of women and girls responsible for water boiling and collecting/purchasing cooking fuel before having CWFs
Source of data	Monitoring survey
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Monitoring survey will be conducted in line with the AMS-III.AV, version 04.0
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG5 contribution

Additional comment	Questions and analytical method will be added to the monitoring survey to capture these parameters.		
	Before having CWF, who is the main responsible person for water boiling?	# HH	Percentage
	Woman		
	Girl		
	Man		
	Boy		
	Total response		
	Before having CWF, who is the main responsible person for collecting/purchasing cooking fuel?	# HH	Percentage
	Woman		
	Girl		
	Man		
	Boy		
	Total response		

Relevant SDG Indicator/Safeguarding Principle	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location. The number of women and girls benefiting from stop/reducing boiling water and collecting/purchasing cooking fuel is the monitored parameter.
Data / Parameter	Net benefits of SDG5
Unit	Number
Description	The number of women and girls benefiting from stop/reduce boiling water and collecting/purchasing cooking fuel.
Source of data	Calculated
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Please refer to section A2 for the detail calculation method
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG5 contribution
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	6.1.1 Proportion of population using safely managed drinking water services. The number of people with access to safe drinking water is the monitored parameter.
Data / Parameter	Net benefits of SDG6
Unit	Number
Description	Number of people with access to safe drinking water
Source of data	Calculated
Value(s) applied	Will be reported for each monitoring period

Measurement methods and procedures	Please refer to section A2 for the detail calculation method
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG6 contribution
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities. The number of new job created by the project with safe and healthy work environment is the monitored parameter.
Data / Parameter	Net benefit of SDG8
Unit	Number
Description	Number of new job created by the project with safe and healthy work environment
Source of data	Staff report
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	PP is monitoring and recording number of its employed staff
Monitoring frequency	Every two year
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To define SDG8's contribution
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	- 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
Data / Parameter	SDW
Unit	%
Description	Existence of public distribution network of safe drinking water
Source of data	Desk review and project survey
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Conducting desk review in combination with project survey
Monitoring frequency	Every year
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	Baseline and project emission calculations
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	- 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula. The total amount of emission reduction is the monitored parameter.
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Data / Parameter	Net benefits of SDG13
Unit	tCO2e
Description	Amount of ER
Source of data	Calculated
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Please refer to section A2 for the detail calculation method
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG13 contribution
Additional comment	

Relevant SDG Indicator/Safeguarding Principle	15.1.1 Forest area as a proportion of total land area. The area of forest save is monitored indicator.
Data / Parameter	Net benefits of SDG15
Unit	Hectare
Description	Area of forest save
Source of data	Calculated
Value(s) applied	Will be reported for each monitoring period
Measurement methods and procedures	Please refer to section A2 for the detail calculation method
Monitoring frequency	Every two years
QA/QC procedures	Transparent data analysis and reporting. The data will be analysed in the monitoring report and raw data will be available on request to the VVB.
Purpose of data	To estimate SDG15 contribution
Additional comment	

C.1.1 Other elements of monitoring plan (if applicable)

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N/A

SECTION D Duration and crediting period

D.1 Duration of project

D.1.1 Start date of project

09/11/2011

D.1.2 Expected operational lifetime of project

At least until 29/02/2024.

D.2 GS Crediting period of the project/activity

D.2.1 Start date of the ongoing GS crediting period

01/03/2014

D.2.3 End date of the ongoing GS crediting period

29/02/2024

D.2.3 Total length of the GS crediting periods

The total length of crediting period is 10 years.

SECTION E Stacking of new assets

No

Appendix 1. Contact information of project participants

Organization name	PT Holland for Water
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