Verification and certification report form for GS Voluntary Project Activity		
Complete this form in accordance with the instructions attached at the end of this form.		
BASIC INFORMATION		
Title and GS reference number of the Voluntary Project Activity (VPA)	Indonesia Domestic Biogas Programme of Activities (IDBP) VPA-1 (ID 1174) PoA: Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172) Project No: 21/012 – MY-PVerGS 21/13	
Version number(s) of the VPA-DD to which this report applies	10.0	
Version number of the verification and certification report	1.0	
Completion date of the verification and certification report	16/08/2021	
Monitoring period number and duration of this morning period	CPII MP: 3 Duration: 01/01/2020 – 31/12/2020 (both dates inclusive)	
Number and version number of the monitoring report to which this report applies	Number: 1 Version: 1.3	
Project Representative	Project Representative - HIVOS VPA Implementer: Yayasan Rumah Energi (YRE)	
Host Parties	Host Parties of the PoA	Is this a host Party to a VPA covered in this report? (yes/no)
	Indonesia	Yes
Applied methodologies and standardized baselines	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (version 3.1)	
Mandatory sectoral scopes linked to the applied methodologies	Scope 1: Energy industries (renewable-/non-renewable sources) Scope 13: Waste handling and disposal	
Conditional sectoral scopes linked to the applied methodologies, if applicable	-	
Estimated amount of ex-ante GHG emission reductions or GHG removals for this monitoring period in the included VPAs covered in this report	**55,056 tCO_2e**	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included VPAs covered in this report	**51,872 tCO_2e**	

Name of the VVB	TÜV NORD CERT GmbH
Name, position and signature of the approver of the verification and certification report	Kunal Rami Senior Assessor 

SECTION A. Executive summary

Yayasan Rumah Energi (YRE) has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 3rd periodic verification of the CPII of the Voluntary Project Activity:

"Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172), VPA-1 (ID 1174)"

The VPA was registered with GS on 31/05/2011 with the 2nd crediting period from 31/05/2018 to 30/05/2025 (including both dates) according to the GS registration review. The first biogas digester included in the VPA was commissioned on 24/10/2009, which is the VPA start date.

The VPA aims to reduce GHG emissions to stimulate the use of biogas systems to replace traditional thermal energy generation methods by making biogas systems affordable and available to households.

This verification report covers the monitoring period from 01/01/2020 to 31/12/2020 (including both days).

Details of the VPA location in table A-1 below:

Table A-1: Project Location

<table>
<tr><td>Item</td><td>Project Location</td></tr>
<tr><td>Host Country</td><td>Indonesia</td></tr>
<tr><td>Region:</td><td>9 active provinces during the current monitoring period</td></tr>
<tr><td>Project location address:</td><td>9 provinces during monitoring period</td></tr>
<tr><td>Latitude / longitude of program provinces:</td><td>
<table>
<tr><th>#</th><th>Province</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1</td><td>Lampung</td><td>5° 27' 0.0000" S</td><td>105° 16' 0.0120" E</td></tr>
<tr><td>2</td><td>West Java[1]</td><td>6° 54' 53.0784" S</td><td>107° 36' 35.3160" E</td></tr>
<tr><td>3</td><td>Central Java</td><td>7° 47' 49.4448" S</td><td>110° 22' 13.9044" E</td></tr>
<tr><td>4</td><td>East Java</td><td>7° 15' 1.6020" S</td><td>112° 46' 7.8420" E</td></tr>
<tr><td>5</td><td>Bali</td><td>8° 24' 34.2648" S</td><td>115° 11' 20.1084" E</td></tr>
<tr><td>6</td><td>Nusa Tenggara Barat</td><td>8° 39' 10.5602" S</td><td>117° 21' 41.9314" E</td></tr>
<tr><td>7</td><td>Nusa Tenggara Timur</td><td>8° 39' 26.575" S</td><td>121° 4' 45.732" E</td></tr>
<tr><td>8</td><td>Yogyakarta</td><td>7 ° 47 '49.4448' 'S</td><td>110 ° 22 '13.9044' E</td></tr>
<tr><td>9</td><td>South Sulawesi</td><td>5° 8' 51.5940" S</td><td>119° 25' 57.8352" E</td></tr>
</table>
</td></tr>
</table>

The biodigester type implemented is the fixed-dome type, constructed with bricks and stone masonry. The generated biogas intended for use as fuel for cooking

Table A-2: Technical data of the component project activity

Plant size	**4 m³**	**6 m³**	**8 m³**	**10 m³**	**12 m³**
Manure requirements (kg/day)	32	48	64	80	96
Estimated biogas production (m^3/day)	0.8	1.6	2.4	3.2	4.2
Estimated firewood savings (kg/day)	2.8	5.6	8.4	11.2	14.7

The VPA-1 meets the small-scale thresholds set forth by the CDM i.e., 15 MW or 45 MW_{th} for the renewable energy component and an emissions cap of 60,000 tCO_2e for the methane avoidance component.

The below table indicates the cumulative capacity of the VPA is 38.74 MW_{th} and below the 45 MW_{th} threshold

[1] Include Banten and Sumatera Selatan provinces

$\mathbf{Th_{cap}} = \frac{\mathbf{E}}{\mathbf{t}}$ *where* $\mathbf{E} = \eta * H_b * V_b$		
Where:	Value:	Comments:
t = hours/day usage	2.74	See "Crosstab BUS by Province_18May2016.xls", sheet "raw_data" cell J2683. Fixed for future verifications
η = efficiency of stove	50%	Indonesian Government standard on stove efficiency
H_b = heat of combustion per unit volume of biogas	21.0 MJ/m	Derived from IPCC defaults
V_b = volume of biogas	1.80 m^3/day	Data provided by Hivos
E = Energy available from the biogas system	18.87 MJ/day	Calculated
E_{th} =	5.24 kWh/day	1 MJ = 0.2778 kWh
Th_{cap} =	1.91 kW_{th}	Given a 2.74 hour/day usage
Total capacity	38.738 MW_{th}	Given 20,252 units installed

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the approved Transition Annex for the PoA and VPA.
- the monitoring plan is in accordance with the applied approved GS methodology, i.e., Technologies and Practices to Displace Decentralized Energy Consumption (version 3.1)
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 3rd periodic verification for CPII, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the VPA has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **51,872 tCO_2e**

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

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 review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	EI	Cheong	Chun Yuen (Robert)	TN Malaysia	x	-	x	x
2.	Enumerator	EI	Sutresniwati	-	-	-	x	x	-

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	EI	Lubanga	David	-
2.	Approver	IR	Rami	Kunal	TUV NORD CERT GmbH

SECTION C. Means of verification

C.1. Desk/document review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the approved Transition Annex the PoA including the monitoring plan/TA/;
- the registered version of the VPA-DD/VPADD/;
- the GS approved version of the VPA validation report/VAL/;
- the monitoring report, including the claimed emission reductions for the VPA/MR/,
- the emission reduction calculation spreadsheet/ER/.

Other supporting documents, such as any publicly available information and background information were reviewed.

C.2. Onsite & Remote inspection*

Duration of audit: Remote – 02/04/2021 & 05/04/2021; Onsite – 23/03/2021 to 26/03/2021				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Review of MR, ER, DB, Survey reports, KPT, Leakage	Kuala Lumpur	02/04/2021	Cheong, Chun Yuen (Robert)
2.	Discussion of MR, ER, DB, Survey reports, Leakage, KPT, interview results,		05/04/2021	

Interviews /IM/

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Mikolajczyk	Szymon	Consultant / Climate Focus /IM-01/	05/04/2021	MR, ER, DB, Survey reports, KPT, Leakage, Interviews Review of households' interviews results	Cheong, Chun Yuen (Robert)
2	Batur Romzini	Chabi (Bibah)	Senior Database Officer / Yayasan Rumah Energi /IM02/			
3	Ahmad	Jihan	Technical Field Officer / Yayasan Rumah Energi /IM02/			
4	Batur Romzini	Chabi (Bibah)	Senior Database Officer / Yayasan Rumah Energi /IM02/	23/03/2021 to 26/03/2021	Households Interviews onsite	Sutresniwati - Enumerator
5.	Rita	Maria	Director / JRI Research /IM03/	06/04/2021	Survey results	Cheong, Chun Yuen (Robert)

Telephone Interview of Construction Partner Organization /CPO/

CPO Code	CPO Name	Owner Name	Province
KT	CV. Karsa Tekad Mandiri	Iwan Atmojo	East Java
LS	Yayasan Sastra Loka Samgraha	Panji Oka	Bali
BT	UD. Bontomarannu	H. Harris	South Sulawesi
TK	Yayasan Trukajaya	Kristin	Central Java

Onsite and telephone Interview Mason /M/

Mason Code	Name	Province
DWM003	Komang Ginarsa	Bali
YMM009	Pahrudin	Nusa Tenggara Barat
SDM008	Shanan	Nusa Tenggara Barat
BLM001	Suparjo	Central Java
SSM002	Sulin	East Java

Interview of Households /LHH/

No.	List of randomly selected households.

No.	MoI[2]	Plant Code	Householder Name	Location			
				Village	Sub-district	District	Province
1	V	SGP0282	Nakwa Jedih	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
2	V	SGP0290	Sulip	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
3	V	SGP0292	Muhaimin	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
4	V	SGP0289	Dasiman	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
5	V	SGP0281	Upik	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
6	V	SGP0286	Jaya Usman	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
7	V	SGP0287	Ruslan	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
8	V	SGP0294	Yesi	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
9	V	SGP0295	Anem	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
10	V	SGP0293	Dani	Pringgarata	Pringgarata	Central Lombok	Nusa Tenggara Barat
11	V	MJP0096	Fathur Rahman	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
12	V	MJP0098	Rahma	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
13	V	MJP0101	Fauzi	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
14	V	MJP0100	Budi Astiwi	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
15	V	MJP0103	H Juaini	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
16	V	MJP0105	Jumaah	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
17	V	MJP0102	Damsiah	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
18	V	MJP0097	Mahyuddin	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat

[2] V = Visited; T = Telephone Interview

19	V	MJP0099	H Juaini	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
20	V	MJP0115	Syahdi	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
21	V	MJP0107	H Masruri	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
22	V	MJP0106	Hairul	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
23	V	MJP0108	Hj. Aminah	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
24	V	MJP0118	Mustani	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
25	V	MJP0117	Sugiah	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
26	V	MJP0132	Fadli	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
27	V	MJP0125	Darmawan	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
28	V	MJP0124	Samsul Hadi	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
29	V	SGP0283	Marni	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
30	V	SGP0285	Muhaimin	Aikmual	Praya	Central Lombok	Nusa Tenggara Barat
31	T	PAP0074	Mansyur (Pemda 2014)	Bre	Palibelo	Sumbawa	Nusa Tenggara Barat
32	T	PAP0127	Kiva Zainudin	Jamu	Lunyuk	Sumbawa	Nusa Tenggara Barat
33	T	PLP0290	Ardianto	Rempe	Seteluk	Sumbawa	Nusa Tenggara Barat
34	T	PLP0346	Nurdin	Rempe	Seteluk	Sumbawa	Nusa Tenggara Barat
35	T	PRP0184	Demplot Bpmpd Aluh Suasana	Sukarare	Jonggat	Lombok Tengah	Nusa Tenggara Barat
36	T	SGP0073	Demplot Pu M. Jalil	Kopang Rembige	Kopang	Lombok Tengah	Nusa Tenggara Barat
37	T	YMP0487	Rumesih	Pendua	Kayangan	Lombok Utara	Nusa Tenggara Barat
38	T	YSP0999	Sudirman	Gumantar	Kayangan	Lombok Utara	Nusa Tenggara Barat

39	T	YSP1120	I Ketut Karianta	Senaru	Bayan	Lombok Utara	Nusa Tenggara Barat
40	T	YSP1243	Nurhaei	Akar-Akar	Bayan	Lombok Utara	Nusa Tenggara Barat
41	T	YSP1460	Mahyuti	Pendua	Kayangan	Lombok Utara	Nusa Tenggara Barat
42	T	BEP0086	Jumedi	Wonolelo	Pleret	Bantul	D.I. Yogyakarta
43	T	PBP0572	Rubiyanto	Caturharjo	Pandak	Bantul	D.I. Yogyakarta
44	T	MJP0072	Fajar	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
45	T	MJP0074	Jumsah	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
46	T	MJP0087	Rasnun	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
47	T	MJP0088	Hairiah	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
48	T	MJP0089	Maknah	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
49	T	MJP0090	Darwan	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
50	T	PLP0086	Didi Pribadi	Moyo	Moyo Hilir	Sumbawa	Nusa Tenggara Barat
51	T	PSP0210	H. Abdullah	Kerembong	Janapria	Lombok Tengah	Nusa Tenggara Barat
52	T	YMP0503	Mahrum/H. Husnan	Pesanggrahan	Montong Gading	Lombok Timur	Nusa Tenggara Barat
53	T	YSP0458	Mariasah (Pemda 2013)	Sesait	Kayangan	Lombok Utara	Nusa Tenggara Barat
54	T	MJP0071	Nasip	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
55	T	ABP0216	Yatemun	Plancungan	Slahung	Ponorogo	East Java
56	T	ABP0247	Djoko Suprijono	Totokan	Mlarak	Ponorogo	East Java
57	T	ABP0248	Jeni Eko Ariyanto	Tanggaran	Pule	Trenggalek	East Java
58	T	ABP0249	Sugianto	Tanggaran	Pule	Trenggalek	East Java
59	T	ABP0305	Sutikno	Wagir Kidul	Pulung	Ponorogo	East Java

60	T	ABP0306	Saijo	Pudak Kulon	Pudak	Ponorogo	East Java
61	T	ABP0308	Tugi	Pudak Kulon	Pudak	Ponorogo	East Java
62	T	DJP0011	Gatot Laksono	Pucangsari	Purwodadi	Pasuruan	East Java
63	T	DJP0026	Saluki	Gerbo	Purwodadi	Pasuruan	East Java
64	T	KJP0093	Siswoyo (Almarhum)	Sukopuro	Jabung	Malang	East Java
65	T	KJP0096	Sulikah	Slamparejo	Jabung	Malang	East Java
66	T	KJP0119	Tamin	Slamparejo	Jabung	Malang	East Java
67	T	KJP0125	Sai	Jabung	Jabung	Malang	East Java
68	T	KPP0155	Ayu	Babadan	Ngancar	Kediri	East Java
69	T	KSP0086	Wito Warji	Krisik	Gandusari	Blitar	East Java
70	T	KSP0092	Sumarji	Krisik	Gandusari	Blitar	East Java
71	T	KSP0094	Kadar	Krisik	Gandusari	Blitar	East Java
72	T	KSP0100	Slamet	Semen	Gandusari	Blitar	East Java
73	T	KTP0097	Kuswanto	Karangsari	Bantur	Malang	East Java
74	T	NGP0014	Sukamar	Waturejo	Ngantang	Malang	East Java
75	T	NGP0404	Sukadi	Sidodadi	Ngantang	Malang	East Java
76	T	NGP0519	Kusnadi	Pagersari	Ngantang	Malang	East Java
77	T	NGP0522	Madiono	Pandansari	Ngantang	Malang	East Java
78	T	NGP0525	Jumangin	Pagersari	Ngantang	Malang	East Java
79	T	NGP0743	Suyono	Sidodadi	Ngantang	Malang	East Java
80	T	NGP0749	Sripit	Tulungrejo	Ngantang	Malang	East Java
81	T	NGP0934	Sukiyan	Waturejo	Ngantang	Malang	East Java
82	T	SJP0008	Bianto	Banyuanyar	Gurah	Kediri	East Java
83	T	SJP0023	Heru	Sepawon	Plosoklaten	Kediri	East Java

84	T	SJP0137	Juw ari	Wonomerto	Wonosalam	Jombang	East Java
85	T	SKP0462	Wardi	Tutur	Tutur	Pasuruan	East Java
86	T	SPP0177	Purnomo	Ngabab	Pujon	Malang	East Java
87	T	SPP0578	Tumini	Sukomulyo	Pujon	Malang	East Java
88	T	SPP0695	Suradi	Pandesari	Pujon	Malang	East Java
89	T	SPP0765	Zarkasi	Pujon Lor	Pujon	Malang	East Java
90	T	SSP0057	Mujiono	Dompyong	Bendungan	Trenggalek	East Java
91	T	SSP0089	Sujadi	Sendang	Sendang	Tulungagung	East Java
92	T	TMP0067	Rohman	Kandangtep us	Senduro	Lumajang	East Java
93	T	TWP0186	Jamari	Penjor	Pagerw ojo	Tulungagung	East Java
94	T	ALP0015	Elisabeth Hada Rendi	Prailiu	Kambera	Sumba Timur	Nusa Tenggara Timor
95	T	ALP0029	Bni Debie Yanti W Djara	Hambala	Kota Waingapu	Sumba Timur	Nusa Tenggara Timor
96	T	KKP0117	Nggiku Tarapanjang	Watu Hadang	Umalulu	Sumba Timur	Nusa Tenggara Timor
97	T	KKP0124	Melkanus Mbaku Jaw a	Watu Hadang	Umalulu	Sumba Timur	Nusa Tenggara Timor
98	T	LWP0056	Yohanes Ngongo	Wee Londa	Kota Tambolaka	Sumba Barat Daya	Nusa Tenggara Timor
99	T	NUP0028	Kiva Suparjo	Sumber Baru	Seputih Banyak	Lampung Tengah	Lampung
100	T	QTP0176	Agus Kurmanto	Kalibeji	Tuntang	Semarang	Central Java
101	T	QTP0184	Muhamad Rodhi	Watuagung	Tuntang	Semarang	Central Java
102	T	QTP0233	Karmo	Kadirejo	Pabelan	Semarang	Central Java
103	T	BOP0078	Ketut Supot	Puhu	Payangan	Gianyar	Bali
104	T	BOP0102	I Wayan Nyarka	Pengotan	Tembuku	Bangli	Bali
105	T	BOP0218	Ketut Jaya	Buahan	Payangan	Gianyar	Bali
106	T	IDP0135	Wayan Murtika	Yangapi	Tembuku	Bangli	Bali

107	T	IDP0147	I Wayan Dana	Penglumbaran	Susut	Bangli	Bali
108	T	LSP0031	I Nengah Konci	Jehem	Tembuku	Bangli	Bali
109	T	MKP0166	I Wayan Mager	Sulangai	Petang	Badung	Bali
110	T	EHP0004	Ren Hernawati	Sukajaya	Lembang	Bandung Barat	West Java
111	T	EHP0005	Dede Koswara	Sukajaya	Lembang	Bandung Barat	West Java
112	T	EHP0007	Ereh	Cihideung	Parongpong	Bandung Barat	West Java
113	T	EPP0032	Agus Doni	Cihideung	Parongpong	Bandung Barat	West Java
114	T	EPP0064	Dudi	Sukajaya	Lembang	Bandung Barat	West Java
115	T	KBP0126	H. Odih	Wangunsari	Lembang	Bandung Barat	West Java
116	T	KBP0156	Odih Suhenda	Mekarwangi	Lembang	Bandung Barat	West Java
117	T	KBP0157	Solihin Bin Oje	Mekarwangi	Lembang	Bandung Barat	West Java
118	T	KBP0368	Wahyudin	Wangunsari	Lembang	Bandung Barat	West Java
119	T	KBP0890	Entis	Cibodas	Lembang	Bandung Barat	West Java
120	T	KBP0902	Kel. Tani Cilangkap	Cikembar	Cikembar	Sukabumi	West Java
121	T	BSP0174	Kiva Bles Muh. Agus Hr	Benteng Gajah	Tompo Bulu	Maros	South Sulawesi
122	T	BTP0022	Maddolangan Dg Tompo	Bulukunyi	Polombangkeng Selatan	Takalar	South Sulawesi
123	T	BTP0053	H. M. Dg Sija H Nai	Popo	Galesong Selatan	Takalar	South Sulawesi
124	T	BTP0057	Syamsuddin Dj	Tindang	Bontonompo Selatan	Gowa	South Sulawesi
125	T	KUP0001	Basri	Tamarlang	Ballasaraja	Bulukumba	South Sulawesi
126	T	MDP0017	Bles Fahruddin	Sangiasseri	Sinjai Selatan	Sinjai	South Sulawesi
127	T	MDP0021	Bles Baharuddin	Sangiasseri	Sinjai Selatan	Sinjai	South Sulawesi

128	T	NIP0132	Dak Salama	Wecudai	Pammana	Wajo	South Sulawesi
129	T	YAP0094	Demplot Disnak Sakka	Bukit Harapan	Gantarang	Bulukumba	South Sulawesi
130	T	YAP0108	Syafrudin	Panyula	Tanete Riattang Timur	Bone	South Sulawesi
131	T	YAP0111	Dak Hasim	Hulo	Kahu	Bone	South Sulawesi

Addition Households Interview

No.	List of randomly selected households.						
No.	MoI[1]	Plant Code	Householder Name	Location			
				Village	Sub-district	District	Province
1	T	MJP0074	Jumsah	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
2	T	MJP0080	Zainudin	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
3	T	PRP0198	Pnpm Haji Muslim	Jelantik	Jonggat	Lombok Tengah	Nusa Tenggara Barat
4	T	MJP0073	Alimudin	Barejulat	Jonggat	Lombok Tengah	Nusa Tenggara Barat
5	T	SDP0070	Hukum	Bonjeruk	Jonggat	Lombok Tengah	Nusa Tenggara Barat
6	T	SDP0072	Senin	Bonjeruk	Jonggat	Lombok Tengah	Nusa Tenggara Barat
7	T	ALP0019	Jonatan Behar	Wangga	Kambera	Sumba Timur	Nusa Tenggara Barat
8	T	LUP0002	Ble Joko Sambudi	Jetak	Getasan	Semarang	Central Java
9	T	QTP0003	Rukimin	Samirono	Getasan	Semarang	Central Java
10	T	QTP0022	Waji (Alm)	Samirono	Getasan	Semarang	Central Java
11	T	QTP0236	Sugeng Eko Prarojo	Batur	Getasan	Semarang	Central Java
12	T	NGP0852	Suyiteno	Banjarejo	Ngantang	Malang	East Java
13	T	NGP0929	Wagimin	Banjarejo	Ngantang	Malang	East Java
14	T	NGP1294	Nike/Supomo	Pagersari	Ngantang	Malang	East Java

15	T	NGP1408	Sukarman	Pagersari	Ngantang	Malang	East Java
16	T	SKP0050	Jaelani	Gendro	Tutur	Pasuruan	East Java
17	T	SKP0055	Sukarwan	Gendro	Tutur	Pasuruan	East Java
18	T	SKP0780	Riono	Gendro	Tutur	Pasuruan	East Java
19	T	SMP0054	Misdi	Medowo	Kandangan	Kediri	East Java
20	T	SMP0103	Naryo	Medowo	Kandangan	Kediri	East Java
21	T	SPP0005	Eko Yuliawan	Pandesari	Pujon	Malang	East Java
22	T	SPP0008	Eko Wiyono	Pandesari	Pujon	Malang	East Java
23	T	SPP0125	Sutrisno	Pandesari	Pujon	Malang	East Java
24	T	SPP0126	Jumani	Pandesari	Pujon	Malang	East Java
25	T	SPP0592	Surahman	Pujon Kidul	Pujon	Malang	East Java
26	T	SPP0654	Paijan	Pujon Kidul	Pujon	Malang	East Java
27	T	EPP0107	Rahmat	Sukajaya	Lembang	Bandung Barat	West Java
28	T	EPP0112	Nano Rusmana	Sukajaya	Lembang	Bandung Barat	West Java
29	T	KBP0192	Jajang	Sukajaya	Lembang	Bandung Barat	West Java

C.3. Sampling approach

The verification team has applied the sampling plan based on 90/10 confidence level to ensure the households interviewed are representative to meet GS requirements. The number of installed units as at 31/12/2020 is 20,252 units. At the start of CPII, there are 20,253 units.

Using the link http://www.raosoft.com/samplesize.html to calculate the sample size of 96 households will be sufficient to obtain a confidence level of 90 with 10% margin error.

The households are randomly selected using a sampling generator at the link https://www.graphpad.com/quickcalcs/randomselect1/ for conservativeness.

For conservativeness, the verification team has randomly sample of 180 for households from the clusters in the different villages, different districts & different provinces for telephone interviews with an oversampling of 20% to obtain information of the project implementation and monitoring of the SDG indicators. Out of the 180 selected, 131 households were interviewed by telephone and 30 households were visited and interviewed. Refer table details in table above.

Therefore, the sample size selected by the verification team is to ensure results are representative.

From the results of the 161 interviewed households, following could be conclude:

1. Family size and members
2. Type and number of animals
3. Any usage of firewood and LPG
4. Any usage of Bio-slurry
5. Bio-slurry usage for what purposes
6. Do you sell bio-slurry
7. Do you compost the bio-slurry
8. Do you have time saved from collecting firewood with the digester
9. Do you used the saved time for other activities
10. Any training provided by CPO and mason
11. What is the main problem with the digester
12. Is the CPO, mason and YRE personnel can be contacted

A summary of interview questions and feedback received are presented in the below table:

Questions for households during telephone interviews	Summary of feedback
How many family members	The average family members of the interviewed households are 4.
Type of animals	Out of the 161 households, 148 households have cows and 13 households have pigs.
Bio-slurry usage and any composting	Interview households informed bio-slurry apply to vegetable garden or rice fields or fruit trees around the house compound. The households are happy that using the bio-slurry has increased crop yield and brings significant financial savings due to the reduction in use of chemical fertilizers. Some of the households apply the bio-slurry directly to the fields and some kept in the bio-slurry huts / pits before apply in the fields. Households expressed that the bio-slurry does not produce unpleasant odour as compared to fresh dung since it has been processed in the biodigesters Some of them sell to neighbours who does not have a digester.
Are you using firewood or LPG	The interviewed households inform sufficient biogas for their daily cooking of 2 meals. Firewood will be used to boil water for milking or festive and for large family gatherings. LPG is use as standby and supplement fuel.
How much time saved for collecting firewood	The interviewed households informed that with the digester they spend less time to collect firewood.
What other activities you do with the saved time	The interviewed households informed that they have time for other activities such as plant flowers, sell vegetables with the save time.
Are training provided by the masons or CPO?	Training provide by mason during commissioning in feeding dung to the digester, wash the mixing unit and remove bio-slurry for the discharge compartment. Cleaning of gas stove and removal of water in the gas pipe.
Any complaint and feedback	Interviewed householders informed no complaints. They know how to contact the masons, CPO and VPA implementer.

Interview of Masons

Questions during telephone interview	Summary of feedback
Do you received training in constructing digester	VPA implementer supervisors and CPO provide guidance in constructing digester, usage of bio-slurry and stove modification.
Is constructing digester you main income	Besides constructing digester, we are farmers, factory work and house repairs
How much do you earn in constructing digester	We could earn 1million IDR to 3million IDR per unit and could construct 3 to 4 units per month
Any complaint and feedback received.	Householders usually call to obtain information on cleaning stove, gas stove broke down and water in gas pipeline.

Interview of CPOs

Questions during telephone interview	Summary of feedback
How many masons working for you.	Interviewed CPOs have number of masons range from 2 to 30 depends on the location.
Any training provided to masons and householders	Masons are trained under VPA implementer program Householders were trained normally 2 months after construction completed.
How much do you earn in constructing digester	We could earn 1million IDR to 3million IDR per unit and could construct 3 to 4 units per month
Any complaint and feedback received.	Complaints or feedback normally received by call or WhatsApp. The supervisor will be informed to handle the feedback or complaint.

C.4. Clarification requests, corrective action requests and forward action requests **raised**

Verification Topics	No. of CAR	No. of CL	No. of FAR
A: Description of project activity A.1. General description of project A.2. Location of project A.3. Reference of applied methodology A.4. Crediting period of project	1	0	0
B: Project Implementation B.1: Description of implemented project B.1.1. Forward Action Requests B.2: Post-registration changes B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline B.2.2. Corrections B.2.3. Changes to start date of crediting period B.2.4. Permanent changes from the Design Certified monitoring plan, applied	1	1	0

Verification Topics	No. of CAR	No. of CL	No. of FAR
methodology or applied standardized baseline B.2.5. Changes to project design of approved project			
C: Description of monitoring system applied by the project Article 1: Organisational Setup of the carbon and SDG monitoring Article II. Description of human resources Article III. Survey design Article IV. Biogas user survey (US + CMS) Article V. Survey implementation Article VI. Baseline Fuel Test (BFT) and the Project Performance Field Test (PFT) Article VII. KPT survey design Article VIII. KPT implementation	1	1	0
D: Data and parameters D.1. Data and parameters fixed ex ante or at renewal of crediting period D.2. Data and parameters monitored D.3. Comparison of monitored parameters with last monitoring period D.4. Implementation of sampling plan	5	3	0
E: Calculation of SDG outcomes E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact E.2. Calculation of project value or estimation of project situation of each SDG impact E.3. Calculation of leakage E.4. Calculation of net benefits or direct calculation for each SDG Impact E.5. Comparison of actual SDG Impacts with estimates in approved PDD E.5.1.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD	7	0	0

Verification Topics	No. of CAR	No. of CL	No. of FAR
F: Safeguards Reporting	1	0	0
G. Stakeholder Inputs and Legal Disputes G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses / mitigations G.2. Report on any stakeholder mitigations that were agreed to be monitored G.3. Provide details of any legal contest that has arisen with the project during the monitoring period	1	0	0
SUM	**17**	**5**	**0**

SECTION D. Verification findings

D.1. General

D.1.1. Remaining forward action requests from validation and/or previous verifications

During the validation the validating VVB might have raised issues that could not be closed or resolved during the validation stage. For this purpose, FARs might have been raised. Likewise, FARs might have been raised in the course of previous verifications.

In the course of this verification, the GS4GG transition annex latest version of the PoA and VPA is review. GS review confirmation is consulted. For the current monitoring period the following applies:

(i) Open issues from validation:

☒	There were no open issues which have been addressed in the latest version of the GS review report.
☐	All open issues from the validation have been appropriately addressed in the context of previous verifications.
☐	All issues related to the validation have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
☐	The following issues related to the validation have **not** yet been appropriately addressed (for details please refer to appendix 4):
	N/A

(ii) Open issues from previous verifications:

☐	N/A – as this is the first monitoring period for this GS VPA.
☒	There were no open issues which have been addressed in the previous verification report
☐	All issues related to the previous verification have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
☐	The following issues related to the previous verification have **not** yet been appropriately addressed (for details please refer to appendix 4):
	N/A

D.2. Programme of activities

D.2.1. Compliance of the programme implementation with the registered programme design document

Means of verification	By means of an in-depth review of the approved GS4GG Transition Annex provided by CME / VPA Implementer carried out during desk review whether the project has been implemented and operated in line with GS approved Transition Annex and the approved VPA-DD, and whether all physical features of the project are in place. The implemented technology, project design as well as monitoring was reviewed. Further checked if relevant technical equipment of the project activity during the monitoring period and consistent notations of key equipment (biodigester type) in Transition Annex for PoA & VPA, MR and ER calculation spreadsheet are applied. Interviews households, VPA implementer personnel have been carried out, data records, survey records, biodigester specifications were checked in this context. The following sources of information have been used in this context: • /TA/ • /MR/ • /VPADD/ • /PoADD/ • /GSM/ • /ER/ • /IPCC/ • /IM/	
Findings	☒	The project has been implemented as described in the latest version of the Transition Annex as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	☐	The following deviations from the registered project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section C.3.2 and C.3.6):
	☐	In this context the following CARs, CLs have been raised: -
Conclusion	☒	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☐	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	During this verification, onsite and remote assessment is carried out. The reviewed project documentation to confirm w.r.t. the realized technology, the project design, as well as the monitoring and data collection. The VPA has been implemented and operated as described in the GS4GG approved Transition Annex and VPA-DD. Based on the documents review of operation logs and telephone interviews it is confirmed that there were no significant any special events or situations which can impact the applicability of methodology.	

D.2.2. Implementation and operation of the management system

Means of verification	The verification team conducted a review of the Transition Annex and checked related information against observations during onsite and telephone interviews of sampled households. The following sources of information have been used in this context: • /TA/ • /LHHs/

Findings	☒	The project management system has been implemented as described in the latest version of the PoA-DD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	☐	The following deviations from the registered project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): N/A
	☐	In this context the following CARs, CLs have been raised:
		-
Conclusion	☒	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☐	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	During this verification an onsite and telephone assessment was carried out. On the basis of reviewed the project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring procedures, the PoA has been implemented and operated as described in the approved Transition Annex The HIVOS is the Coordinating Management Entity of the PoA. The VPA is implemented and managed by Yayasan Rumah Energi YRE). Based on document review and interviews VVB found that the system is in place, appropriate and effective.	

D.2.3. Post-registration changes

D.2.3.1. Temporary deviations from Certified Key Project Information, Project Design Document, Monitoring & Reporting Plan, applied methodology of applied standardise baseline.

It has been checked whether Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been applied during this monitoring period. The result is summarized in the table below.

☒	No Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM).have been submitted to the UNFCCC prior to the current monitoring period.		
☐	The following TDfrMP or TDfMM have been approved or are under approval by GS		
	1	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref.No.	
☒	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following TDfrMP or TDfMM is to be requested from GS for the current MP.		
	1	Issue:	
	2	Issue:	

☐	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

D.2.3.2. Corrections

It has been checked whether any corrections to PoA-DD information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	During the verification of the current MP no need for corrections has been identified.		
☐	The following corrections have been applied:		
	1.	Issue:	
	2.	Issue:	
	3.	Issue:	
	PoA-DD has been revised accordingly: (New) version No.: NA Revision date: NA		
	It is confirmed that the updated / corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.		
	☐ A related post registration change has been submitted to GS prior to the issuance request. ☐ A related post registration change is submitted along with this issuance request.		

D.2.3.3. Permanent changes from registered monitoring plan, applied methodology, or applied standardized baseline.

It has been checked whether any permanent changes from the registered monitoring plan (PCfrMP) or applied methodologies (PCfMM) including standardized baselines (PCfSB) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	No PCfrMP, PCfMM or PCfSB have been submitted to GS prior to the current monitoring period		
☐	The following PCfrMP, PCfMM or PCfSB have been approved or are under approval by GS		
	1	Title	
		Status	☐ under approval; ☐ approved
		Appr.date	
		Ref. No.	
☒	During the verification of the current MP no need for a PCfrMP, PCfMM or PCfSB has been identified. The monitoring plan is in accordance with the approved methodology applied by the PoA		
☐	An approval of the following PCfrMP, PCfMM or PCfSB is to be requested from GS for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following PCfrMP, PCfMM or PCfSB for which appendix 1 of the PS is applicable have been applied:		

	1	Issue:	
	2	Issue:	

D.2.3.4. Changes to the project design of approved project

It has been checked whether any changes to the PoA-DD design (CoPD) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	No CoPD has been submitted to GS prior to the current monitoring period		
☐	The following CoPD have been approved or are under approval by GS.		
	1	Title	
		Status	☐ under approval; ☐ approved
		Appr. date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved
		Appr. date	
		Ref. No.	
☒	During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PoA		
☐	An approval of the following CoPD.is to be requested from GS for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following CoPD for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

D.3. Voluntary project activities

D.3.1. Description of project activity

Means of verification	By means of an in-depth review of the approved Transition Annex and VPA-DD provided by the VPA Implementer, the checks carried out during documents review the description of the project is describe in Section A 1 of the MR. The implementation of biodigester on 24/10/2009 under the Indonesia Domestic Biogas Programme (IDBP) is a development programme. This monitoring period is the 3rd Monitoring Period from 01/01/2020 - 31/12/2020 of the second crediting period running from 31/05/2018 – 30/05/2025 The project is located in Indonesia provinces listed in table 1. The location and GPS of the provinces are crosscheck with the map of Indonesia. The applied methodology as describe in Section A.3 is Technologies and Practices to Displace Decentralized Thermal Energy Consumption, Version 3.1. The VPA is in the 2nd crediting period from 31/05/2018 and 30/05/2025. The following sources of information have been used in this context: • /TA/ • /VPADD/

	• /PoADD/ • /MR/ • /GS/ • /VR/	
Findings	☒	The project has been implemented as described in the latest version of the VPA-DD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	☐	The following deviations from the registered project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): N/A
	☒	In this context the following CARs, CLs have been raised: CL A.1-1, CAR A.1-2
Conclusion	☐	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☒	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	The review of project documentation it can be confirmed that w.r.t. the realized project location, monitoring period and crediting period, the VPA is describe in accordance to the Transition Annex after the minor correction.	

D.3.2. Project Implementation

D.3.2.1. Description of implemented project

Means of verification	By means of an in-depth review of the approved Transition Annex and VPA-DD provided by the VPA Implementer the checks carried out during documents review the assessment carried out whether the project has been implemented and operated in line with GS approved VPA-DD and whether all physical features of the project are in place. The implemented technology, project design as well as monitoring was reviewed. Further is has been checked if relevant technical equipment of the VPA has been exchanged or modified during the monitoring period in VPA-DD, MR and calculation spreadsheet are applied. Interviews with VPA implementer and carbon consultant have been carried out for database records, biogas digester specifications, usage survey and training records were checked in this context. In addition, the contracts between the households and VPA implementer were reviewed that state all GHG emissions are transferred to CME and VPA implementer. The following sources of information have been used in this context: • /TA/ • /VPADD/ • /MR/ • /GSM/ • /ER/ • /BUS/ • /KPT/ • /REC/ • /T/ • /IPCC/ • /IM/

Findings	☒	The project has been implemented as described in the latest version of the VPA-DD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.
	☐	The following deviations from the registered project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): N/A
	☒	In this context the following CARs, CLs have been raised:
		CAR B.1-1
Conclusion	☐	No CARs / CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	☒	The raised CARs / CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	The verification is carried out both onsite and telephone interviews supported from carbon consultant and VPA implementer personnel. The review of project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring and survey, the project has been implemented and operated as described in the registered VPA-DD version after relevant corrections.	

D.3.3. Post-registration changes

D.3.3.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline.

It has been checked whether Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been applied during this monitoring period. The result is summarized in the table below.

☒	No Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM).have been submitted to the GS prior to the current monitoring period.		
☐	The following TDfrMP or TDfMM have been approved or are under approval by GS.		
	1	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved (approval No.:)
		Appr.date	
		Ref.No.	
☒	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the VPA		
☐	An approval of the following TDfrMP or TDfMM is to be requested from GS for the current MP as appendix 1 of the project standard does not apply. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		
	1	Issue:	
	2	Issue:	
☐	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	

	2	Issue:	

D.3.3.2. Corrections

It has been checked whether any corrections to VPA information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	During the verification of the current MP no need for corrections has been identified.		
☐	The following corrections have been applied:		
	1.	Issue:	
	2.	Issue:	
	3.	Issue:	
	4.	Issue:	
	5.	Issue:	
	The VPA-DD has been revised accordingly: (New) version No.:		
	It is confirmed that the updated / corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.		
	☐ A related post registration change has been submitted prior to the issuance request. No related approval numbers and dates are mentioned on the corresponding subpages of the PoA submitted to GS. The related documentation is accessible via: ☐ A related post registration change is submitted along with this issuance request. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		

D.3.3.3. Changes to start date of crediting period

☐	N/A - as this is not the first verification within the crediting period
☒	The PPs do not intend to change the start date of the crediting period.
☐	The approval to change the start date of the crediting period on DD/MM/YYY

D.3.3.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

It has been checked whether any permanent changes from the registered monitoring plan (PCfrMP) or applied methodologies (PCfMM) including standardized baselines (PCfSB) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	No PCfrMP, PCfMM or PCfSB have been submitted to GS prior to the current monitoring period		
☐	The following PCfrMP, PCfMM or PCfSB have been approved or are under approval by GS		
	1	Title	
		Status	☐ under approval; ☐ approved
		Appr.date	
		Ref. No.	

☒	During the verification of the current MP no need for a PCfrMP, PCfMM or PCfSB has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following PCfrMP, PCfMM or PCfSB is to be requested from GS for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following PCfrMP, PCfMM or PCfSB for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

D.3.3.5. Changes to project design of approved project

It has been checked whether any changes to the VPA design (CoPD) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

☒	No CoPD has been submitted to the GS to the current monitoring period		
☐	The following CoPD have been approved or are under approval by GS		
	1	Title	
		Status	☐ under approval; ☐ approved
		Appr. Date	
		Ref. No.	
	2	Title	
		Status	☐ under approval; ☐ approved
		Appr. Date	
		Ref. No.	
☒	During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
☐	An approval of the following CoPD.is to be requested from the GS for the current MP as appendix 1 of the project standard does not apply.		
	1	Issue:	
	2	Issue:	
☐	The following CoPD for which appendix 1 of the PS is applicable have been applied:		
	1	Issue:	
	2	Issue:	

D.3.4. Description of monitoring system applied by the project

Means of verification	By means of comparison of the MR with applied methodology, Transition Annex and VPA-DD (i) applied GS methodology (ii) GS4GG Transition Annex (iii) VPA-DD Section C of the MR present the organisation structure, manpower, survey design, user survey, survey implementation, respective fuel tests, KPT survey and implementation.

	The verification team has checked the monitoring system as describe is compliance with the related requirements of the applied methodology and VPA-DD. The user survey on annual basis and was conducted in November - December 2020. KPT was conducted in December 2019 with the results are valid for 2 years according to the methodology requirements. Therefore, no KPT survey conducted for this monitoring period. For this user survey conducted for this monitoring 269 households were randomly selected with 191 households interviewed. 78 households have been reported as drop-offs. The verification team has checked on the sampling plan and considered appropriate since an addition of 10% has been included to ensure the level of assurance and the number of households are representative Interviews conducted remotely with the VPA implementer and survey consultant on the outcome of the survey results. The following sources of information have been used in this context: • /MR/ • /TA/ • /VPADD/ • /GSM/ • /BUS/ • /IPCC/	
Findings	☐	The MP is completely in accordance with the approved methodology applied by the GS project (registered version of the VPA-DD)
	☒	In this context the following CARs, CLs, FARs have been raised:
		CL C.1-1; CAR C.1-2
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After correction, the monitoring system complies with the project plan and the methodology.	

D.3.5. Data and parameters

D.3.5.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification

The verification team has checked the ex-ante parameters and data stated in Section E.1 of MR and compared with section B.6.2 of the Transition VPA-DD whether all parameters fixed ex-ante for the crediting period have been applied correctly.

The following parameters have been fixed at validation or at renewal of crediting period:

No.	SDG Indicator	Parameter	Value	Unit
1	13	$f_{NRB,y}$	58.36	%
2	13	NRB	50,421,516	m^3
3	13	DRB	35,974,483	m^3
4	13	$BB_{b1,bio}$	1.435	t/y
5	13	$BB_{b1,fuel}$	0.088 (LPG)	t/y
6	13	$EF_{b1, bio}$	112	tCO_2/TJ

	7	13	$EF_{p1, bio}$	112	tCO_2/TJ
	8	13	NCV_{bio}	0.015	TJ/t
	9	13	$EF_{b1, fuel}$	71.9 (Kerosene) 63.1 (LPG)	tCO_2/TJ
	10	13	$EF_{p1, fuel}$	71.9 (Kerosene) 63.1 (LPG)	tCO_2/TJ
	11	13	NCV_{fuel}	0.0438 (Kerosene) 0.0473 (LPG)	TJ/t
	12	13	$\eta_{biogas\ stove}$	50	%
	13	13	$EF_{awms,T}$	Dairy cows = 31 Other cattle = 1 Buffalo = 2 Market swine = 7 Goats = 0.22 Sheep = 0.20 Poultry = 0.02	kg CH_4

The following sources of information have been used in this context:

- /MR/
- /TA/
- /VPADD/
- /IPCC/
- /IM01/

Findings	☒	The parameters fixed ex-ante for the crediting period are correct. No deviations have been observed.
	☐	The following deviations from the parameters fixed ex-ante or at renewal of crediting period have been identified in the course of this verification:
	☐	In this context the following CARs, CLs, FARs have been raised:
Conclusion	☒	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	The data and parameters listed in the section D.1 of MR was crosscheck with the applied methodology, Transition Annex and registered VPA-DD are consistent.	

D.3.5.2. Data and parameters monitored

Means of verification	During the verification all relevant monitoring parameters listed in Section C.1 of the approved Transition Annex and Section B.5.1 of approved revised VPA-DD have been verified with regard to the (i) appropriateness of the applied measurement / determination method, (ii) the correctness and accuracy of the values applied for ER calculation, (iii) applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist (Appendix 5). The following sources of information have been used in this context:

	• /MR/ • /TA/ • /ER/ • /BUS/ • /KPT/ • /L/ • /IM01/	
Findings	CL D.2-1; CL D.2-2, CL D.2-3; CAR D.2-4; CAR D.2-5; CAR D,.2-5; CAR D.2-6; CAR D.2-7;	
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After appropriate corrections carried out by the VPA Implementer it could confirm that all monitoring parameters determined without material misstatements and according to the VPA-DD, Transition Annex and applied standard.	

D.3.5.3. Comparison of monitored parameters with last monitoring period

Means of verification

Section D.3 of monitoring report describe the comparison of monitored parameters with the last monitoring period are according to the GS4GG and Transition Annex. The SDG parameters are crosschecked with Transition Annex.

Data / Parameter	Value obtained in this monitoring period	Value obtained last monitoring period
SDG 13 Climate action	51,872tCO_2e	50,418 tCO_2e
GS-03 Soil condition	6,356 households	10,126 households
GS-06 Quality of employment	1,382 trainings	1,382 trainings
GS-07 Livelihood of the poor	'Worsened': 103 (equivalent to 0.5% of total units in operation) 'The same': 4,043 (equivalent to 20% of total units in operation) 'Improved': 16,106 (equivalent to 79.5% of total units in operation)	'Worsened': 121 (equivalent to 1% of total units in operation) 'The same': 4,978 (equivalent to 24% of total units in operation) 'Improved': 15,154 (equivalent to 75% of total units in operation)
GS-08 Access to affordable and clean energy services	17,0745 units in operation	18,752 units in operation
GS-09 Human and institutional capacity	4,050 women	4,050 women
GS-10 Quantitative employment and income generation	1,500 number of direct jobs created 191 households sell the bio-slurry (0.9% of total)	1,501 number of direct jobs created 607 households sell the bio-slurry (3% of total)
GS-12 Technology transfer and technological self-reliance	14,529 units	14,530 units
GS-13 Establishment of sustainable food production area	135.76 ha	98.76 ha

	GS-14 Time saved	81.6% (equivalent to 16,533 women)	63% (equivalent to 12,658 women)
	GS-15 Productive use of time	22.1% (equivalent to 4,477 women)	24% (equivalent to 4,791 women)

The following sources of information have been used in this context:

- /MR/
- /ER/
- /BUS/
- /DB/
- /TA/
- /VPADD/

Findings	☐	No errors, omissions, misstatements or incomplete information has been identified.
	☒	There are identified mistakes.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR D.2-8
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	Appropriate actions have been taken it could conclude the information are filled correctly and conservative.	

D.3.5.4. Implementation of sampling plan

Means of verification	Section D.4 of MR describe the sampling plan implemented by VPA implementer and CME. The sampling plan of this VPA adopted the Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities' EB 69, Annex 4. Multi-stage sampling applied, where clusters consisted of geographical areas and subunits. It is considered more cost-effective to treat several respondents within a local area as a cluster. The verification team has been checked the sampling approach to determine the monitored values is according to the requirements set forth in the methodology, the sample size selected following at least a 90% confidence interval and a 10% margin of error (90/10), where applicable. Further it has been checked whether the VPA Implementer has correctly applied the implemented sampling plan including (i) description of the implemented sampling design (ii) collected data (iii) analysis of collected data (iv) demonstration on whether the required confidence/precision has been met. The sampling plan is according to the Transition Annex and VPA-DD. The following sources of information have been used in this context: • /MR/ • /BUS/ • /TA/ • /ER/ • /VPADD/

	• /DB/ • /IM01/ • /IM02/	
Findings	☐	The VPA Implementer has not applied sampling approaches for the survey
	☒	The VPA Implementer has applied sampling approaches for the survey.
	☐	In this context the following CARs, CLs, FARs have been raised:
Conclusion	☒	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☐	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	The VPA Implementer has applied appropriate sampling method.	

D.3.6. Calculation of SDG outcomes

D.3.6.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Means of verification

During the verification, the determination of the baseline situation has been determined according to the GS4GG.

The SDG requirements as describe in the Transition Annex.

SDG Indicator	GS Indicator	Baseline situation
SDG13: Climate action The cumulative ex-ante emission reductions	Climate change	55,056 tCO_2e in accordance to the registered VPA-DD
SDG 7: Affordable and Clean Energy	GS-08 Access to affordable and clean energy services	No biodigester installed LPG, kerosene and biomass are used
	GS-12 Technology transfer and technological self-reliance	No training and transfer of technology
SDG 5: Gender Equality	GS-09 Human and institutional capacity	No development for women.
	GS-14 Time saved	No time savings for women.
	GS-15 Productive use of time	No productive use of time for women
SDG 2: No Hunger	GS-03 Soil condition	No slurry used for farming and agricultural activities.
	GS-13 Establishment of sustainable food production area	No slurry used for agricultural land (in terms of area).
SDG 1: No Poverty	GS-06 Quality of employment	No training and employment opportunities
	GS-07 Livelihood of the poor	Livelihood remains unchanged
	GS-10 Quantitative employment and income generation	No training and employment opportunities

The following sources of information have been used in this context:

	• /MR/ • /ER/ • /BUS/ • /KPT/ • /DB/ • /TA/ • /VPADD/ • /GSM/	
Findings	☐	The baseline situation found compliant with the Transition Annex and VPA-DD No errors, omissions, misstatements or incomplete information has been identified.
	☒	The verification team has identified mistakes in the baseline emissions calculation or the underlying calculation approaches.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR E.1-1
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	With appropriate corrections, it could conclude the baselines are determined in accordance to SDG requirements as correct and the emissions are conservatively determined.	

D.3.6.2. Calculation of project value or estimation of project situation of each SDG impact

Means of verification

Section E.2 of the MR is review for the project value and estimation of project situation for each SDG outcome.

SDG Indicator	GS Indicator	Project situation
SDG13: Climate action The cumulative ex-post emission reductions	Climate Change	51,872 tCO_2e.
SDG 7: Affordable and Clean Energy	GS-08 Access to affordable and clean energy services	20,252 biodigesters installed
	GS-12 Technology transfer and technological self-reliance	14,529 users attended training.
SDG 5: Gender Equality	GS-09 Human and institutional capacity	4,050 women attend Operation and Maintenance training.
	GS-14 Time saved	16,532 women reported to have saved time.
	GS-15 Productive use of time	4,477 women reported to have more time for productive use.
SDG 2: No Hunger	GS-03 Soil condition	6,356 households use bio-slurry on land
	GS-13 Establishment of sustainable food production area	135.76 hectares applying bio-slurry

SDG 1: No Poverty	GS-06 Quality of employment	1,500 number of direct jobs created 191 households sell the bio-slurry
	GS-07 Livelihood of the poor	'Worsened': 103 (equivalent to 0.5% of total units in operation) 'The same': 4,043 (equivalent to 20% of total units in operation) 'Improved': 16,106 (equivalent to 79.5% of total units in operation)
	GS-10 Quantitative employment and income generation	1,382 vocational trainings conducted

SDG 13: The emissions reductions achieved for this monitoring period is calculated as:

The emission reduction for one household is calculated for this monitoring period as follows:

1. Emission reductions from fuel switch.

$ER_{CO2,y} = BE_{b1,CO2,y} - PE_{p1,CO2,y} - LE_{p1,CO2,y}$

$= 1.670 - 0.869 - 0.017$

$= \mathbf{0.784\ tCO_2e/y/hh}$

2. Emission reductions from waste management including bio-slurry.

$ER_{CH4,y} = BE_{b1,CH4,y} - PE_{p1,CH4,y} - PE_{p1\ bio\text{-}slurry} - LE_{p1,CH4,y}$

$= 5.086 - 2.797 - 0.04 - 0$

$= \mathbf{2.249\ tCO_2e/y/hh}$

Thus ER for each household for this monitoring period:

$ER_{Total} = ER_{CO2,y} + ER_{CH4,y}$

$= 0.784 + 2.249$

$= \mathbf{3.033\ tCO_2e/y/hh}$. (Rounded down to next integral)

Therefore, the cumulative emission reductions for CPII MR3 for this monitoring period are determined as below:

$\mathbf{ER_{Total} = (ER_{CO2,y} + ER_{CH4,y}) * N_{p1,y} * U_{p1,y}}$

$= \mathbf{51,872\ tCO_2e}$

The project emissions are contributed from:

1. Continued use of baseline scenario fossil fuel and firewood in the project scenario;

   The equation applied:

   $PE_{p1,CO2,y} = \Sigma\ (BB_{p1,fuel} * NCV_{fuel} * EF_{p1,fuel}) + (BB_{p1,bio} * NCV_{bio} * EF_{p1,fuel} * f_{NRB})$

   The inputs for the fuel usage data are derived from the KPT survey.

   Project emission for this situation is **0.869 $tCO_2e/y/hh$**.

2. Physical leakage of biogas from the biodigester and incomplete combustion of biogas;

   The equation applied:

   $PE_{p1,CH4,y} = GWP_{CH4} * \sum (N_{T,h,y} * EF_{awms,T}) * PL_y + \sum (N_{T,h,y} * EF_{awms,T}) * (1- \eta_{new\ stove})\ (1- PL_y) + PE_{awms,NT}$

<table>
<tr><td></td><td colspan="2">The input for the type of animals and number of animals are from the usage survey.

The default value of 10% applied for physical leakage of biodigester.

The animal waste not treated in the bio-digester in the project scenario is consider as zero since the non-treated animals in the project scenario will have the same situation as they would have had in the baseline.

Project emission for this situation is 2.797 $tCO_2e/y/hh$.

3. Emissions from bio-slurry:

In the ER spreadsheet, the CME has demonstrated the steps for the calculating the emissions for bio-slurry. The data applied in the calculation are derived from:

2006 IPCC default value for animal excretion amount, MCF and methane potential;

The average head count of animals type are based on the usage survey results;

The digester efficiency is based on the study report and IPCC data;

The calculated emission for bio-slurry is 0.04 $tCO_2e/y/hh$.
For this monitoring period, the number digester installed is 20,252 units. The average thermal energy per unit is 1.913 kW_{th}. The total thermal capacity is 38.74 kW_{th} and below the thermal capacity threshold of 45MW_{th}.
The emissions for type III activities for this monitoring period is 45,545 tCO_2e which is lower than 60,000 tCO_2e/year.
In this aspect, the VPA remains within the small-scale threshold for Type I and Type III activities.
The following sources of information have been used in this context:
• /MR/
• /TA/
• /BUS/
• /VPADD/
• /ER/
• /GSM/</td></tr>
<tr><td rowspan="4">Findings</td><td>☐</td><td>The baseline situation found compliant with the Transition Annex and VPA-DD
No errors, omissions, misstatements or incomplete information has been identified.</td></tr>
<tr><td>☒</td><td>The verification team has identified mistakes in the project situation.</td></tr>
<tr><td rowspan="2">☒</td><td>In this context the following CARs, CLs, FARs have been raised:</td></tr>
<tr><td>CL D.2-1; CL D.2-2, CL D.2-3; CAR D.2-4; CAR D.2-5; CAR D,.2-5; CAR D.2-6; CAR D.2-7; CAR E.2-1</td></tr>
<tr><td rowspan="3">Conclusion</td><td>☐</td><td>No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.</td></tr>
<tr><td>☒</td><td>The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.</td></tr>
<tr><td colspan="2">After corrections, the calculations of project GHG emissions and SDG outcome are in accordance with the approved Transition Annex, applied methodology and registered VPA-DD.</td></tr>
</table>

D.3.6.3. Calculation of leakage

Means of verification	Section E.3 of the MR is review for the leakage emissions of project situation.

	The leakage is the usage of non-renewable biomass and fossil fuel. The VPA Implementer has applied the results of the leakage survey conducted in 2019 for this monitoring period. The calculated value is **0.017 $tCO_2e/y/hh$** The following sources of information have been used in this context: • /MR/ • /ER/ • /L/ • /VPADD/ • /GSM/	
Findings	☐	No leakage emissions were to be considered (LE = 0).
	☒	Mistakes are identified
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR E.3-1
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After appropriate corrections, the leakage is considered correct.	

D.3.6.4. Calculation of net benefits or direct calculation for each SDG Impact

Means of verification

During the verification, Section E.4 of the MR is review for the respective SDGs listed are according to the Transition Annex for the outcome for this monitoring period.

SDG	Indicator	Baseline	Project	Net difference
SDG13: Climate action	Climate change	55,056 tCO_2e	51,872 tCO_2e	51,872 tCO_2e
SDG 7: Affordable and Clean Energy	GS-08 Access to affordable and clean energy services	No access to biodigester	20,252 biodigester installed.	20,252 biodigester installed.
	GS-12 Technology transfer and technological self-reliance	No training opportunities and transfer of technology	14,529 users trained.	14,529 users trained
SDG 5: Gender Equality	GS-09 Human and institutional capacity	No development for women.	4,050 women received training	4,050 women received training
	GS-14 Time saved	No timesaving for women	16,532 women reported to have saved time.	16,532 women reported to have saved time.
	GS-15 Productive use of time	No productive use of time for women	4,477 women reported to have more time for productive use.	4,477 women reported to have more time for productive use.
SDG 2: No Hunger	GS-03 Soil condition	No slurry used for farming and	6,356 households apply bio-slurry	6,356 households apply bio-slurry

		agricultural activities.		
	GS-13 Establishment of sustainable food production area	No slurry used for agricultural land (in terms of area).	135.76 hectares applying bio-slurry	135.76 hectares applying bio-slurry
SDG 1: No Poverty	GS-06 Quality of employment	No training and employment opportunities	1,500 number of direct jobs created 191 households sell the bio-slurry	1,500 number of direct jobs created 191 households sell the bio-slurry
	GS-07 Livelihood of the poor	Livelihood remains unchanged	'Worsened': 103 (equivalent to 0.5% of total units in operation) 'The same': 4,043 (equivalent to 20% of total units in operation) 'Improved': 16,106 (equivalent to 79.5% of total units in operation)	'Worsened': 103 (equivalent to 0.5% of total units in operation) 'The same': 4,043 (equivalent to 20% of total units in operation) 'Improved': 16,106 (equivalent to 79.5% of total units in operation)
	GS-10 Quantitative employment and income generation	No training and employment opportunities	1,382 vocational trainings conducted	1,382 vocational trainings conducted

SDG 13: The emissions reductions achieved for this monitoring period is calculated as:

= **51,872 tCO_2e**

The emission reduction for one household is calculated for this monitoring period as follows:

3. Emission reductions from fuel switch.

$$ER_{CO2,y} = BE_{b1,CO2,y} - PE_{p1,CO2,y} - LE_{p1,CO2,y}$$
$$= 1.670 - 0.869 - 0.017$$
$$= \mathbf{0.784\ tCO_2e/y/hh}$$

4. Emission reductions from waste management including bio-slurry.

$$ER_{CH4,y} = BE_{b1,CH4,y} - PE_{p1,CH4,y} - PE_{p1\ bio\text{-}slurry} - LE_{p1,CH4,y}$$
$$= 45.086 - 2.797 - 0.04 - 0$$
$$= \mathbf{2.249\ tCO_2e/y/hh}$$

Thus the ER for each household for this monitoring period:

$$ER_{Total} = ER_{CO2,y} + ER_{CH4,y}$$
$$= 0.784 + 2.249$$
$$= \mathbf{3.033\ tCO_2e/y/hh}. \text{ (Rounded down to next integral)}$$

Therefore, the cumulative emission reductions for CPII MR2 for this monitoring period are determined as below:

	ER_{Total} = $(ER_{CO2,y} + ER_{CH4,y}) * N_{p1,y} * U_{p1,y}$ = **51,872 tCO_2e** For this monitoring period, the number digester installed is 20,252 units. The average thermal energy per unit is 1.913 kW_{th}. The total thermal capacity is 38.74 kW_{th} and below the thermal capacity threshold of 45MW_{th}. The emissions for type III activities for this monitoring period is 45,545 tCO_2e which is lower than 60,000 tCO_2e/year In this aspect, the VPA remains within the small-scale threshold for Type I and Type III activities. The following sources of information have been used in this context: • /MR/ • /ER/	
Findings	☒	The determination of the SDG outcomes are compliant with the Transition Annex. The calculations of emissions reductions have been carried out in accordance with the formulae and methods described in the registered monitoring plan and the applied methodology. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	☒	During the verification, issues with impact on the ER calculation have been identified.
	☒	The following are identified in the course of this verification:
		CL D.2-1; CL D.2-2, CL D.2-3; CAR D.2-4; CAR D.2-5; CAR D,.2-5; CAR D.2-6; CAR D.2-7;
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs haves been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After appropriate corrections, the SDG benefits and emissions reductions are considered correct.	

D.3.6.5. Comparison of actual SDG Impacts with estimates in approved PDD

Means of verification

The verification team has checked the MR Section E.5 includes a comparison of actual values of the monitoring period with the estimations in the registered GSPDD and Transition Annex for the respective SDG indicators.

The table demonstrate the actual value of each SDG result derived from records provided by project implementer and ER calculations.

SDG	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
SDG 13: Climate action	55,056 tCO_2e	51,872 tCO_2e
SDG 7: Affordable and Clean Energy	No access to biodigester. (GS-08)	20,252 biodigester installed.
	No training opportunities and transfer of technology (GS-08)	14,529 users attending training.
SDG 5: Gender Equality	No development for women to undertake activities (GS-09)	4,050 women attend the Operation and Maintenance training.

		No time savings as time spend having to collect biomass (GS-09)	16,532 women reporting to have saved time.
		No productive use of time to pursue income generating activities (GS-09)	4,477 women reporting to have more time for productive use.
	SDG 2: No Hunger	No slurry is used as fertiliser on agricultural land (in terms of number of farmers) (GS-03)	6,356 households use bio-slurry on land
		No slurry is used as fertiliser on agricultural land (in terms of area) (GS-03)	135.76 hectares applying bio-slurry, per month
	SDG 1: No Poverty	No training and employment opportunities (GS-06)	1,500 number of direct jobs created by the VPA 191 households sell the bio-slurry on the market (3% of total)
		Livelihood of the poor is unchanged (GS-07)	'Worsened': 103 (equivalent to 0.5% of total units in operation) 'The same': 4,043 (equivalent to 20% of total units in operation) 'Improved': 16,106 (equivalent to 79.5% of total units in operation)
		No training and employment opportunities (GS-10)	1,382 vocational trainings conducted

The ex-post ERs for this monitoring period is lower than ex-ante

The following sources of information have been used in this context:

- /MR/
- /ER/
- /VPADD/
- /TA/
- /GS4GG/

Findings	☒	*Case 1:* The ex-ante estimated value was found to be proportionally higher than the ex-post determined value. No further action is deemed required.
	☐	*Case 2:* The ex-ante estimated value fits very good to the actually monitored value. No further justification is deemed required.
	☐	*Case 3:* The ex-ante estimated value was found to be proportionally lower than the ex-post determined value.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CL D.2-1; CL D.2-2, CL D.2-3; CAR D.2-4; CAR D.2-5; CAR D,.2-5; CAR D.2-6; CAR D.2-7; CAR E.6-1
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.

	After correction, the section is filled appropriately. The ex-ante value is proportionally higher than the ex-post determined value.

D.3.6.6. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

Means of verification

Section E.5.1 describe the estimated ex-ante calculation in accordance with the registered VPA-DD and Transition Annex.

The verification team has compared the calculated ex-ante values for BE, PE and L against the registered VPA-DD and Transition Annex.

The table below demonstrate the ex-ante value ER per household per year.

Scenario	BE (tCO_2e)	PE (tCO_2e)	LE (tCO_2e)	ER (tCO_2e)
Biomass and fossil fuel substitution	2.433	0.776	0.083	**1.574**
Methane avoidance	3.557	1.971	0.000	**1.586**
Bio-slurry	0.000	0.000	0.000	**0.000**
Total	5.990	2.747	0.083	**3.160**

The VPA implementer has demonstrate the ex-ante and ex-post threshold to ensure the VPA remains as small-scale.

Type	01/01/2020 to 31/12/2020
Ex-ante	
Type I (45 MW_{th})	38.74 MW_{th}
Type III (60,000 tCO_2e)	32,129 tCO_2e
Ex-post	
Type I (45 MW_{th})	38.74 MW_{th}
Type III (60,000 tCO_2e)	45,5451 tCO_2e

The following sources of information have been used in this context:

- /MR/
- /ER/
- /VPADD/

Findings	☐	The ex-ante estimated value in accordance to registered VPA-DD
	☒	In this context the following CARs, CLs, FARs have been raised: CAR E.5-2
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After corrections, the section is filled appropriately. The ex-ante threshold value in accordance to registered VPA-DD. The ex-post values are below type I and type III threshold requirements.	

D.3.6.7. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

Means of verification	Section E.5 of MR has a table of comparison of actual values of the monitoring period with the estimations in the registered VPA-DD and Transition Annex.

SDG	Current MP	PDD estimate	Explanation
SDG 13	Total emission reduction: 51,872 tCO_2e	Total emission reduction: 55,056 tCO_2e	The ex-post is lower by 5.7% due to a higher drop off rate for this monitoring period
SDG 7: Affordable and Clean Energy	20,252 biodigester installed.	20,253 biodigester installed.	One unit was taken out as it related to a household that switched to using tofu as input for feed, rather than dung.
	14,529 users training.	N/A	As the PDDs were developed prior to the GS for Global Goals, no other ex-ante SDG impacts are reported in the approved PDDs.
SDG 5: Gender Equality	4,050 women attended O&M training.	N/A	Same as above
	16,532 women reported to have saved time.	N/A	Same as above
	4,477 women reported to have more time for productive use.	N/A	Same as above
SDG 2: No Hunger	6,356 households use bio-slurry	-	Same as above
	135.76 hectares applying bio-slurry	-	Same as above
SDG 1: No Poverty	1,500 number of direct jobs created 191 households sell the bio-slurry (3% of total)	-	Same as above
	'Worsened': 103 (equivalent to 0.5% of total units in operation) 'The same': 4,043 (equivalent to 20% of total units in operation) 'Improved': 16,106 (equivalent to 79.5% of total units in operation)	-	Same as above
	1,382 vocational trainings conducted	-	Same as above

Findings	☒	No further justification or explanation is deemed required as actual emissions of this MP do not exceed the ex-ante calculated emission reductions
	☐	A related justification in the MR for the higher ex-post as compared to ex-ante.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR E.6-1
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After appropriate corrections, it could conclude the ex-post ERs are lower than ex-ante estimation. There are no ex-ante SDG indicators as compared to ex-post for this monitoring in lieu of the addition requirements for GS4GG in the Transition Annex.	

D.3.7. Safeguards Reporting

Means of validation	☒	Section F of MR, safeguards reporting. There are no additional safeguarding principles required to be monitored. The PoA-DD, transition annex and VPA-DD were reviewed. The following sources of information have been used in this context: • /MR/ • /BUS/ • /DB/ • /TA/ • /PoA-DD/ • /VPADD/ • /IM01/ • /IM02/
Findings	☐	Information are sufficient and appropriate.
	☒	In this context the following CARs, CLs, FARs have been raised:
		CAR F.1.1
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After appropriate correction, the verification team could conclude the section is filled appropriately.	

D.3.8. Stakeholder Inputs and Legal Disputes

Means of validation	☒	The verification team has checked Sections G.1 to G.3 of the monitoring report for the current and previous monitoring report on any complaints and issues raised. Section G.1: There are 123 cases reported this monitoring period with 100 resolved outstanding of 23 cases. These cases are mainly broken mixer, broken stove and leakage on pipe. During the onsite and telephone interviews with households, they informed the main issues gas leakage, block gas pipe by water and broken stove. The interviewed households informed they are satisfied with the Constructors Partner Organisation (CPO), mason and VPA implementer's supervisors respond and time to resolve the issues

		Section G.2: There are no grievance received during the last monitoring period. Therefore, no cases brought forward to this monitoring period. Section G.3: There are no legal contest or dispute that has arisen with the project during the monitoring period. The following sources of information have been used in this context: • /MR/ • /BUS/ • /DB/ • /TA/ • /VPADD/ • /UF/ • /IM01/ • /IM02/ • /LHH/
Findings	☐	Information are sufficient and appropriate.
	☒	In this context the following CARs, CLs, FARs have been raised: CAR G.1-1
Conclusion	☐	No CARs / CLs / FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	☒	The raised CARs / CLs / FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details, please refer to Appendix 4.
	After appropriate correction by VPA Implementer the verification team could conclude the section is filled with appropriate information.	

SECTION E. Internal quality control

Before the submission of the final verification report a technical review of the whole verification procedure was carried out. The technical reviewers are competent GHG auditors being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the verification team and thus not involved in the decision-making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may have been confirmed or revised. Furthermore, reporting improvements might have been achieved.

After the successful technical review, an overall (esp. procedural) assessment of the complete verification has been carried out by a senior assessor located in the accredited premises of TÜV NORD CERT GmbH.

After this step the submission for requesting for issuance is conducted.

SECTION F. Verification opinion

Yayasan Rumah Energi has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 3rd periodic verification of the CPII of the VPA **"Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172), VPA-1 (ID 1174)"**, with regard to stimulate the use of biogas systems to replace traditional thermal energy generation methods by making biogas systems affordable and available to households. This verification covers the period from 01/01/2020 to 31/12/2020 (including both days).

As a result of this verification, the verifier confirms that:

- all operations of the VPA are implemented and installed as planned and described in the validated VPA-DD.
- the monitoring plan is in accordance with the applied approved GS methodology, i.e., Technologies and Practices to Displace Decentralized Thermal Energy Consumption (version 3.1).

- the monitoring system is in place, functional and have generated GHG emission reductions.

As the result of this periodic verification, the verifier confirms that the GHG emission reductions have been calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above-mentioned reporting period as follows:

Emission reductions: **51,872 tCO_2e**

SECTION G. Certification statement

As a duly accredited VVB, TÜV NORD CERT confirms that the PoA

"Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172), VPA-1 (ID 1174)"

registered under

GS ID.: 1174

has achieved emission reductions in accordance with all applicable requirements for registered GS project activities during the current monitoring period

MP-No.:	MRIII of CPII
from:	01/01/2020
to:	31/12/2020

(including both days) as follows:

Emission reductions: **51,872 tCO_2e**

Puchong, 16/08/2021

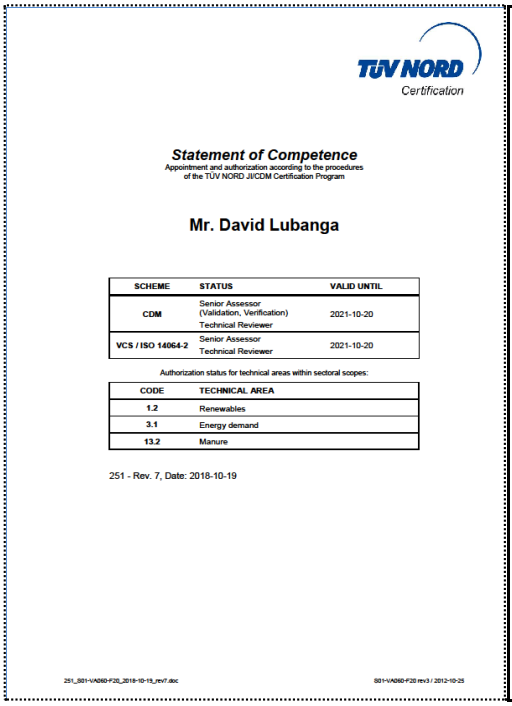


Cheong, Chun Yuen (Robert)
TÜV NORD JI/CDM CP
Verification Team Leader

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CL	Clarification
VPA	Voluntary Project Activity
VPA-DD	Voluntary Project Activity Design Document
CME	Coordinating Managing Entity
CO_2eq	Carbon dioxide equivalent
CPO	Constructors Partner Organisation
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GS	Gold Standard
IM	Interview
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
NTB	Nusa Tenggara Barat
NTT	Nusa Tenggara Timur
PoA	Programme of Activities
PoA-DD	Programme of Activities Design Document
PRC	Post Registration Changes
PS	CDM project standard for project activities
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
YRE	Yayasan Rumah Energi

Appendix 2. Competence of team members and technical reviewers



TÜV NORD Certification

Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. David Lubanga

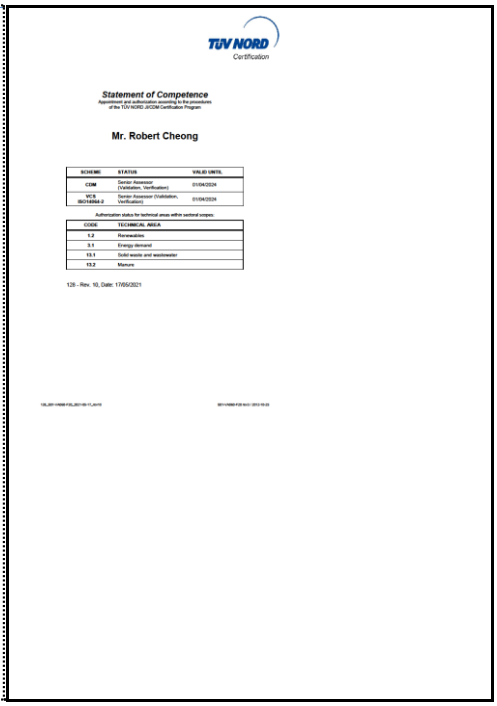
SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2021-10-20
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2021-10-20

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand
13.2	Manure

251 - Rev. 7, Date: 2018-10-19

251_S01-VA060-F20_2018-10-19_rev7.doc S01-VA060-F20 rev3 / 2012-10-25



TÜV NORD Certification

Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Robert Cheong

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification)	01/04/2024
VCS ISO14064-2	Senior Assessor (Validation, Verification)	01/04/2024

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand
13.1	Solid waste and wastewater
13.2	Manure

128 - Rev. 10, Date: 17/05/2021

Appendix 3. Documents reviewed or referenced

No.	Author	Reference	Title	References to the document	Provider
1.	GS	/GSM/	Technologies and Practices to Displace Decentralized Thermal Energy Consumption (version 3.1)		Other
2	GS	/GS4GG/	Gold Standard for Global Goals Principles & requirements version 1.2		Other
3	UNFCCC	/GT/	Glossary "CDM terms" (version 10.0)	https://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf	Other
4	UNFCCC	/KP/	Kyoto Protocol (1997)	http://unfccc.int/kyoto_protocol/items/2830.php	Other
5	UNFCCC	/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)	http://cdm.unfccc.int/Reference/COPMOP/index.html	Other
6	UNFCCC	/SS/	Standard for Sampling and Surveys for CDM Project Activities and Programme Of Activities EB 67, Annex 4	https://cdm.unfccc.int/Reference/Guidclarif/index.html	Other
7	IPCC	/IPCC/	Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories: 1. Non-CO2 Stationery Combustion 2. Emissions from Livestock and Manure Management (Chapter 10) 5. 3. IPCC Second Assessment Report – Climate Change 1995: A Report of the Intergovernmental Panel on Climate Change	www.ipcc-nggip.iges.or.jp	Other
8	VVB	/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)		VVB
9	YRE	/PoADD/	GS Programme of Activities Design Document for GS PoA project: "Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172)" version 5.0, dated 13/12/2013 GS Programme of Activities Design Document for GS PoA project: "Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172)" version 7.0, dated 28/05/2018		YRE

10	YRE	/VPADD/	Voluntary Project Activity Design Document for GS VPA-DD: Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172), VPA-1 (ID 1174), version 10.1, dated 02/07/2018		YRE
11	YRE	/TA/	Transition Annex version 2.2 dated 22/01/2019 GS approval dated 23/01/2019		YRE
12	YRE	/VR/	Validation Report for GS project Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172)" version 1.0 dated 02/02/2021 Validation Report Indonesia Domestic Biogas Programme of Activities (IDBP) (ID 1172)" version 2.0 dated 25/05/2021		YRE
13	YRE	/MR/	Monitoring Report version 1.0 dated 09/03/2021 Monitoring Report version 1.1 dated 01/06/2021 Monitoring Report version 1.2 dated, 29/06/2021 Monitoring Report version 1.3 dated 12/07/2021		YRE
14	YRE	/ER/	ER calculation spreadsheet version 01 dated 28/01/2021 ER calculation spreadsheet version 02 dated 01/06/2021 ER calculation spreadsheet version 03 dated 12/07/2021		YRE
15	JRI	/BUS/	Biogas Usage Survey 2020 dated March 2021 Biogas Usage Survey Tabulation v1.0, 2.0 & 3.0		Others
16	YRE	/DB/	Database for Households version 1.0 and 2.0		YRE
17	JRI / YRE	/KPT/	KPT Survey report 2019 KPT December 2019 and December 2017		YRE
18	YRE	/L/	Leakage assessment 2019		YRE
19	YRE	/BBS/	Biogas Baseline Survey Report Dec 2017		YRE
20	YRE	/UF/	User feedback		YRE
21	YRE	/TD/	Technical Design of digesters undated		YRE
22	UPTD	/C/	Calibration Report of weighing scale by UPTD Pengujian dan Sertifikasi Mutu Barang dated 01/08/2019		Others

23	YRE	/QA/	Operation and Maintenance Manual		YRE
24	YRE	/O1/	Biogas as renewable energy theory and development Nepal 2005-07		YRE
25	YRE	/O2/	Indonesian National Standard on LGP Stoves		YRE
26	YRE	/O3/	Kerosene to LP Gas Conversion Programme in Indonesia		YRE
27	YRE	/O4/	Behaviour Analysis of Using the Household Fuel in Bogor 2010		YRE
28	IPCC	/O5/	IPCC Chapter 10 on Livestock emissions		Others
29	YRE	/O6/	Memo Perbaikan Reaktor		YRE
30	GS	/O7/	Gold Standard email communication threshold small-scale biogas VPA		Others
31	GS	/O8/	Monitoring Method for Monitoring Survey; Usage Survey and Leakage assessment with GS undated		Others
32	HIVOS	/REC/	Declaration of No Renewable Energy Certificates dated 01/05/2020		Others
Websites					
33		/gs/	http://www.goldstandard.org/		Others
34		/unfccc/	http://cdm.unfccc.int		Others
35		/ipcc/	www.ipcc-nggip.iges.or.jp		Others
36		/rs/	http://www.raosoft.com/samplesize.html		Others
37		/gp/	https://www.graphpad.com/quickcalcs/randomselect1/		

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

Table 2. Remaining FARs from validation and/or previous verification

FAR ID		Section No.		Date:	
Description of FAR					
NA					
Project participant response				**Date:**	
Documentation provided by project participant					
☐	Changes in the MR	Section(s): C		New version No.:	
☐	Changes in XLS	Worksheet(s):		New version No.:	
☐	Other:				
VVB assessment				**Date:**	

Table 3. CLs from this verification

CL ID	A-1	Section no.	A.2	Date:	05/04/2021
Description of CL					
MR version 1.0, Section A.2, table 1: Clarification request on provinces Banten and Sumatera Selatan are not listed.					
Project participant response				**Date:**	31/05/2021
These provinces are counted as part of the West Java province. A footnote under table 1 has been added to clarify this point.					
Documentation provided by project participant					
☒	Changes in the MR	Section(s):		New version No.: 1.1	
☐	Changes in XLS	Worksheet(s):		New version No.:	
☐	Other:				
DOE assessment				**Date:**	01/06/2021
MR version 1.1, Section B.1, table 3: The VPA implementer has clarified both Banten and Sumatera Selatan provinces are included in West Java province. A footnote is added below table 1 describing both provinces added to West Java province The database and ER spreadsheet are crosscheck the 2 provinces are included in West Java province.					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CL ID	C/1-1	Section no.	C	Date:	05/04/2021
Description of CL					
MR version 1.0, Section C: 1. BUS Survey and Usage Survey design: Clarification request for the number of households of 264 is reached being derived. 2. Clarification for FAR#1 raised during the Issuance Review process following MP3 has thereby been addressed in the survey design.					
Project participant response				**Date:**	31/05/2021
1. The stated number of households (264) in the clarification request is not present in the monitoring report. The number of households sampled is 286, the number of households approached is 269 and the number of households completed is 191. 2. The referred clarification relates to a FAR raised in an issuance review in 2019 and concerned the use of an updated GS4GG MR template, which is not applicable in this MP.					
Documentation provided by project participant					
☒	Changes in the MR	Section(s): C		New version No.: 1.1	

☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		

DOE assessment	**Date:**	01/06/2021

MR version 1.1, Section C:

1. BUS Survey and Usage Survey design: The PP clarify the number of households are 269 reached and not 264 derived. The number of households reached is based on the sample of 286 households randomly selected for the survey.
2. Explain by CME, the FAR is not for this monitoring. Therefore, deleted to avoid confusion.

Conclusion *Tick the appropriate checkbox*	
	☐ Additional action should be taken (finding remains open)
	☒ The finding is closed

CL ID	D.2-1	**Section no.**	D.2	**Date:**	05/04/2021

Description of CL

MR version 1.0, Section D.2: Parameter $N_{T,h}$: According to the BUS 2021 survey, there are 2% pigs. Clarification request why pigs are no considered in the calculation?

Project participant response	**Date:**	31/05/2021

Please see response also provided in last verification, GS Review comment 8.3 which was approved by the GS. The proposed exclusion is a conservative approach. According to the BUS 2021, for 96% (see p.44 of the BUS report) of household dairy cows were the primary animals; for this reason emission reductions from pig manure are not accounted for in the ER calculation. As per the BUS report, Table 3.2.6a, only 2% of households keep pigs. The VPA implementer therefore assumes a 100% fraction for the primary animal, which is the cow. As the MCF of cow dung is higher than of pig dung, assuming a 100% cow scenario generates higher project emissions, which Is conservative.

Documentation provided by project participant

☒	Changes in the MR	Section(s):	New version No.: 1.1
☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		

DOE assessment	**Date:**	01/06/2021

MR version 1.1, Section D.2: Parameter $N_{T,h}$: VPA implementer explanation as above although there are 2% pigs according to BUS report, however the primary animal is cow, the dung has higher MCF as compared to pig dung. This was clarified during the previous GS review comment 8.3 and accepted by GS that cow is the primary animal. Therefore, ia appropriate and higher project emissions will be generated and thus conservative.

Conclusion *Tick the appropriate checkbox*	
	☐ Additional action should be taken (finding remains open)
	☒ The finding is closed

CL ID	D.2-2	**Section no.**	ER spreadsheet	**Date:**	05/04/2021

Description of CL

ER spreadsheet version 1.0:

1. GS VER 2020 sheet: Clarification on the data applied in cell E85 (365-((161*15)/E84) for the number 15.
2. GS VER 2020 sheet: Clarification for the value 161 derives from Database sheet “PLANTMAINT” cell J41093 on how is determine for plant functioning.
3. Cumulative sheet: Clarification on cells ED10 to EO10 has not value.
4. Cumulative sheet: Clarification on the description in cell A5.

Project participant response	**Date:**	31/05/2021

1. As each year, this formula is a constant and has not been changing and calculates the average technology days during which a digester is operational. We take 365 days in a year (now 366) and subtract 161 reports of malfunction, as per "20210202_IDBP_Database_ VPA1" sheet "PLANTMAINT" cell J41091 (value=161). These observations are then multiplied by '15' days, which is a conservative measure for the two weeks (14 days) that the IDBP programme requires CPOs to fix any reported issues (14 days + 1 day for conservativeness). Finally, we divide this by cell E84, which lists the total number of units installed.
2. The correct value should read 159. It is the result of filtering the database to consider entries with dates: 2009 until 31/12/2016. The number of resulting entries is 159. The approach for doing this analysis is the same as in previous MPs:

   From the database, tab "PLANTMAINT", we applied the following filters:

   i) Field "PLANT_CONST_DATE" (Column F) -> Selecting 2009, 2010, 2011, 2012, 2013, 2014, 2015, and 2016.

   ii) Field "PLANT MAINTENANCE DATE" (Column H) -> Selecting 2020
   After applying these filters we get 159 rows. Note that despite the change, the total ERs do not change as a result.
3. The cells ED10 to EO10 are supposed to be empty as this is a redundancy left from an older version of the file. The name in cell A10 has now been deleted to avoid any confusion, now this row is just empty and not part of the ER calculations.
4. See explanation above. This is the annual drop off rate, as taken from the BUS reporting / usage survey and summarise in cells P23 to P29.

Documentation provided by project participant		
☐ Changes in the MR	Section(s):	New version No.:
☒ Changes in XLS	Worksheet(s): Cumulative VER of the ER calculation PLANTMAINT of the database file	New version No.: v.02 of the ER calculation V2 of the database file.
☐ Other:		

DOE assessment	**Date:**	01/06/2021

ER spreadsheet version 02:

1. GS VER 2020 sheet: VPA Implementer explanation on how the number 15 is derived that generally add 1 day to the 14 days for any digester when out or operation to calculate the total number of digesters in operation that is conservative.
2. GS VER 2020 sheet: The value for cell J41093 is corrected to 159 by filtering the entry from 2009 to 31/12/2016 in Database sheet "PLANTMAINT".
3. Cumulative sheet: Explain by VPA implementer, Cells ED10 to EO10 are redundant due to from previous version. Description in Cell A10 deleted to avoid confusion, left empty and not relevant to ER calculations. The cells are updated accordingly.
4. Cumulative sheet: VPA Implementer explain the annual drop off rate is summarized in cells P23 to P29 derived from the BUS report. The BUS report is review for the drop off rate for the monitoring period.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CL ID	D.2-3	**Section no.**	BUS Tabulation	**Date:**	05/04/2021

Description of CL

BUS Tabulation JRI spreadsheet, BUS 2021 sheet: Clarification for source of data in cells C2716 and E2716

Project participant response	**Date:**	31/05/2021

- Cell E2716: sum of cells J2716:P2716 (Years 5 to 11, corresponding to VPA1)
- Cell C2716: sum of cells D2716 and E2716, corresponding to the total VPA1 and VPA2

The cells have now been linked in the Tabulation file.

Documentation provided by project participant			
☐	Changes in the MR	Section(s):	New version No.:
☒	Changes in XLS	Worksheet(s): BUS 2021	New version No.: v2
☐	Other:		

DOE assessment	Date:	01/06/2021
BUS Tabulation JRI spreadsheet, BUS 2021 sheet: The source for data in cells C2716 and E2716 is link in revised file as clarify above.		
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed	

Table 4. CARs from this verification

CAR ID	A.1-2	Section no.	Cover page	Date:	05/04/2021
Description of CAR					
MR version 1.0, Cover page: 1. Duration of this monitoring period is incorrect 2. Project Representative shall be described in full					
Project participant response				Date:	31/05/2021
1. This has been corrected now. 2. Corrected to Yayasan Rumah Energi (YRE)					
Documentation provided by project participant					
☒	Changes in MR	Section(s): Cover	New version No.: 1.1		
☐	Changes in XLS	Worksheet(s):	New version No.:		
☐	Other:				
DOE assessment				Date:	03/05/2021
MR version 1.1, Cover page: 1. Duration of this monitoring period is correct as 366 days 2. Project Representative name corrected to read as Yayasan Rumah Energi (YRE)					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				
Description of CAR				Date	28/06/2021
MR version 1.1 Cover page: According to the MoU dated 26/02/2021 signed between HIVOS and Yayasan Rumah Energi, the Project Representative is HIVOS. However, YRE was describe.					
Project participant response				Date:	29/06/2021
The cover page of the MR has been updated to change YRE into Hivos.					
Documentation provided by project participant					
☒	Changes in MR	Section(s): cover	New version No.: 1.2		
☐	Changes in XLS	Worksheet(s):	New version No.:		
☐	Other:				
DOE assessment				Date:	30/06/2021
MR version 1.2, Cover page: The project representative is corrected to HIVOS					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	B.1-1	Section no.	B.1	Date:	05/04/2021
Description of CAR					
MR version 1.0, Section B.1: 1. During the onsite visit, found 1 households ID number MJP0096 no longer has livestock and use tofu waste. Therefore, shall be remove from database. 2. The no. of digester in MR shall be corrected throughout in lieu of above 1. 3. Table 4 total capacity shall be corrected accordingly with correction of above.					
Project participant response				Date:	01/05/2021

1. Observation noted and database updated
2. Number of digesters updated in MR document. The new number is 20,252; one biodigester was subtracted from year 2016, province Nusa Tenggara Barat
3. Total capacity does not change significantly (decreases from 38,740 to 38,738). Table 4 in the MR v1.1 has been updated to the new figure.

Documentation provided by project participant			
☒	Changes in MR	Section(s): throughout	New version No.: 1.1
☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		

DOE assessment	**Date:**	01/06/2021

MR version 1.1, Section B.1:

1. During the onsite visit, found 1 household ID number MJP0096 no longer has livestock and use tofu waste. Therefore, shall be remove from database.
2. The no. of digester in MR shall be corrected throughout in lieu of above 1.
3. Table 4 is updated with the total capacity has changed from 38,740 to 38,738 kW_{th} with the removal of household ID number MJP0096. t.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Description of CAR	**Date**	28/06/2021

MR version 1.1, Section B.1: The roles of HIVOS and Yayasan Rumah Energi should be describe.

Project participant response	**Date:**	29/06/2021

Section B.1 has been updated to clarify that Hivos is the project representative and YRE the VPA implementer.

Documentation provided by project participant			
☒	Changes in MR	Section(s): throughout the MR	New version No.: 1.2
☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		

DOE assessment	**Date:**	30/06/2021

MR version 1.2 Section B.1: Updated to clarify the roles of HIOVS as project representative and YRE as VPA implementer.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	C.1-2	**Section no.**	C	**Date:**	05/04/2021

Description of CAR

MR version 1.0, Section C: The BUS reference should be 2020 instead of 2021 throughout the MR.

Project participant response	**Date:**	31/05/2021

Please note that the BUS is always called the year of its publication. So if we now change to one year earlier, last years reporting will be confusing as there we apply 'BUS 2020'. All documents/references are called BUS 2021, and Section C, Article IV of the MR we clarify to avoid doubt that "The survey was executed in November - December 2020 (referred to in this document as "BUS 2021")"

Documentation provided by project participant			
☐	Changes in MR	Section(s):	New version No.:
☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		

DOE assessment	**Date:**	01/06/2021

MR version 1.0, Section C: As confirmed by the VPA implementer, the BUS reference is always the year of publication although the survey is conducted in year 2020. For this monitoring period BUS was published in 2021. Therefore, is referred as BUS 2021.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	D.2-4	**Section no.**	D.2	**Date:**	05/04/2021

Description of CAR		
MR version 1.0, Section D.2: 1. Parameter $U_{p1,y}$: The value to be corrected with 1 unit ID MJP0096 is removed. 2. Parameter $N_{p1,y}$: The number of days for the MP is 366. The number days applied is incorrect. 3. Parameter $No_{p1,y}$: The number of units to be corrected 4. Parameter $O_{p1,y}$: The number of days shall be corrected to 366. 5. Parameter $MS_{T,S,k}$: The data in the reference cell W2290 should be made consistent with value in MR 6. Parameter GS-03 Soil condition: The number of households to be corrected. 7. Parameter GS-07 Livelihood of the poor: The number of households to be corrected 8. Parameter GS-10 Quantitative employment and income generation: The number of households to be corrected. 9. GS-13 Establishment of sustainable food production area: The value to be corrected with the correction for number of households.		
Project participant response	**Date:**	31/05/2021
1. The 1 unit has been deleted from the database and from the drop off calculation. See cell G21 from the Tabulation document, sheet "Drop off". However, there is no change as a result in the $U_{p1,y}$ parameter (see cell I27 of same sheet) 2. $N_{p1,y}$ updated in cell E85 of the ER sheet (v02) and in the MR (v.1.1). As a result, also the ERs have been updated slightly upwards. 3. Parameter updated (from 20,253 to 20,252) 4. Corrected to 366 as requested. 5. The value is consistent – cell V2290 has been updated in the Tabulation document to clarify this. Value in cell W2290 of sheet "BUS 2021" is 78.1%, same as stated in the MR. 6. The exclusion of the one household does not significantly affect this number. The figure stays at 6,356 7. Number of households in which the value of the monitored parameter improved updated from 16,107 to 16,106 8. Number of households selling the bio-slurry on the market (182) was not altered after removing household MJP0096 (it decreased to 181,98). 9. Value corrected to 135.76 from 135.77.		
Documentation provided by project participant		
☒ Changes in MR	Section(s): throughout	New version No.: 1.1
☒ Changes in XLS	Worksheet(s): BUS 2021	New version No.: v3
☐ Other:		
DOE assessment	**Date:**	01/06/2021

MR version 1.1, Section D.2:

1. Parameter $U_{p1,y}$: The value has not changed with the removal of unit ID MJP0096.
2. Parameter $N_{p1,y}$: The number of days for the MP is 366. The number days applied is corrected in cell E85 of ER spreadsheet version 02.
3. Parameter $No_{p1,y}$: The number of units corrected
4. Parameter $O_{p1,y}$: The number of days corrected to 366.
5. Parameter $MS_{T,S,k}$: The data in the reference cell W2290 should be made consistent with value in MR
6. Parameter GS-03 Soil condition: The number of households need not to be corrected since exclusion of one household has no significant impact.
7. Parameter GS-07 Livelihood of the poor: The number of households corrected to 16,106
8. Parameter GS-10 Quantitative employment and income generation: The number of households need not to be corrected with the removal of household MJP0096 since it has no significant impact. The recalculated number of households is 181.98.
9. GS-13 Establishment of sustainable food production area: The value corrected to 135.76

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	D.2-5	**Section no.**	ER spreadsheet	**Date:**	05/04/2021

Description of CAR

ER spreadsheet version 1.0:

1. GS VER 2020 sheet: The number of digesters shall be corrected throughout the spreadsheet.
2. GS VER 2020 sheet: The number of days in cell E85 shall be corrected.
3. Cumulative sheet: Date in Cell M26 to be corrected.

Project participant response **Date:** 31/05/2021

1. Value corrected throughout the spreadsheet (new value is 20,252, old value was 20,253)
2. Value has been updated to 366, as requested.
3. Corrected to 20,252 as well.

Documentation provided by project participant

☐	Changes in MR	Section(s):	New version No.:
☒	Changes in XLS	Worksheet(s): throughout	New version No.: 02
☐	Other:		

DOE assessment **Date:** 01/06/2021

ER spreadsheet version 02:

1. GS VER 2020 sheet: The number of digesters corrected to 20,252 throughout the spreadsheet.
2. GS VER 2020 sheet: The number of days in cell E85 corrected to 366.
3. Cumulative sheet: Date in Cell M26 corrected as 20,252

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	D.2-6	**Section no.**	BUS Tabulation JRI	**Date:**	05/04/2021

Description of CAR

BUS Tabulation JRI spreadsheet: BUS 2021 sheet: The comment in cell S2990 is not included in the table

Project participant response **Date:** 31/05/2021

The comment in cell S2990 on "Missing to include: Used as fish feed and the one in Indonesian" has been deleted in v2 (20210525 BUS 2021 Tabulation JRI v2.xls) as the comment is no longer relevant. The calculation in cell T2981 has been updated to include also reference to cells C2988 and C2989, which were the two missing inputs originally not included in the calculation presented here. Now, cell T2987 adds up to 100%.

Documentation provided by project participant			
☐	Changes in MR	Section(s):	New version No.:
☒	Changes in XLS	Worksheet(s): BUS 2021	New version No.: v2
☐	Other:		

DOE assessment	**Date:**	01/03/2021

BUS Tabulation JRI spreadsheet version 2.0, BUS 2021 sheet: The comment in cell S2990 is deleted as it is no longer relevant.

Cell T2981 is updated to include missing inputs from cells C2986 and C2989 and appropriately.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	D.2-7	**Section no.**	Database	**Date:**	05/04/2021

Description of CAR

Database spreadsheet, Master VPA-1 sheet:

1. The table at Overview of digesters per provinces: cells O20438 does not include Banten and Sumatera Selatan.
2. Cell R20449 to be corrected with ID MUP0096 to be removed.

Project participant response	**Date:**	31/05/2021

1. The provinces Banten and Sumatera Selatan are included into the West Java province. Please see the footnote under Table 1 in the MR (see also note in cell O20449 in the database spreadsheet, "Master VPA-1" sheet.
2. The figure was updated, the new value is 20,252

Documentation provided by project participant			
☐	Changes in MR	Section(s):	New version No.:
☒	Changes in XLS	Worksheet(s): Master VPA1	New version No.: v2
☐	Other:		

DOE assessment	**Date:**	01/06/2021

Database spreadsheet version 02, Master VPA-1 sheet:

1. The table at Overview of digesters per provinces: Cells O20449 describe Banten and Sumatera Selatan included in West Java province.
2. Cell R20449 corrected as 20,252 with ID MUP0096 removed.

Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	D.2-8	**Section no.**	D.3	**Date:**	05/04/2021

Description of CAR

MR version 1.0, Section D.3:

1. The section is not filled according to the guidance for filling up the template
2. Several parameters values to be corrected with the relevant corrections in the above findings.

Project participant response	**Date:**	31/05/2021

1. The parameters in the equation ER y = BE y - PE y – LE y have been added at the start of this table.
2. Parameters have been corrected now.

Documentation provided by project participant			
☒	Changes in MR	Section(s): D.3	New version No.: 1.1
☐	Changes in XLS	Worksheet(s):	New version No.:
☐	Other:		

DOE assessment	Date: 01/06/2021
MR version 1.0, Section D.3: 1. The section is updated and filled according to the guidance for filling up the template 2. Several parameters values have been corrected with the corrections of above findings.	
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed

CAR ID	E.1-1	Section no.	E.1	Date:	05/04/2021
Description of CAR					
MR version 1.0, Section E.1 is not filled according to the guidance for filling up the template					
Project participant response				Date:	31/05/2021
The table has been updated to include further detail on the calculation of the SDG 13 on Climate, as per the applied methodology.					
Documentation provided by project participant					
☒ Changes in MR		Section(s): E.1		New version No.: 1.1	
☐ Changes in XLS		Worksheet(s):		New version No.:	
☐ Other:					
DOE assessment				Date:	01/06/2021
MR version 1.1, Section E.1 is corrected and filled according to the guidance for filling up the template					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	E.2-1	Section no.	E.2	Date:	05/04/2021
Description of CAR					
MR version 1.0, Section E.2 is not filled according to the guidance for filling up the template					
Project participant response				Date:	31/05/2021
The table has been updated to include further detail on the calculation of the SDG 13 on Climate, as per the applied methodology.					
Documentation provided by project participant					
☒ Changes in MR		Section(s): E.2		New version No.: 1.1	
☐ Changes in XLS		Worksheet(s):		New version No.:	
☐ Other:					
DOE assessment				Date:	01/06/2021
MR version 1.1, Section E.2 is corrected and filled according to the guidance for filling up the template					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	E.3-1	Section no.	E.3	Date:	05/04/2021
Description of CAR					
MR version 1.0, Section E.3 is not filled according to the guidance for filling up the template and Section H is not found.					
Project participant response				Date:	31/05/2021
The table has been updated to include further detail on the calculation of the SDG 13 on Climate, as per the applied methodology.					
Documentation provided by project participant					
☒ Changes in MR		Section(s): E.3		New version No.: 1.1	
☐ Changes in XLS		Worksheet(s):		New version No.:	
☐ Other:					
DOE assessment				Date:	01/06/2021
MR version 1.1, Section E.3 is corrected and filled according to the guidance for filling up the template. Section H is deleted to avoid confusion.					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	E.4-1	Section no.	E.4	Date:	05/04/2021
Description of CAR					
MR version 1.0, Section E.4: The following to be corrected with the correction of the above findings. SDG 13: Climate Action; GS-03 Soil condition; GS-08 Access to affordable and clean energy services; GS-12 Technology transfer and technological self-reliance					
Project participant response				Date:	31/05/2021
1. SDG 13 - Climate Action: The removal of household MJP0096 in combination with the change of the 365 days to 366 days changes the total ERs to 51,872 tCO2e 2. GS-03 Soil condition: The decrease in one household does not significantly affect this number. The figure stays in 6,356 3. GS-08: Updated to 20,252 4. GS-12: Figure updated from 14,530 to 14,529					
Documentation provided by project participant					
☒	Changes in MR	Section(s): E.4	New version No.: 1.1		
☐	Changes in XLS	Worksheet(s):	New version No.:		
☐	Other:				
DOE assessment				Date:	01/06/2021
MR version 1.1, Section E.4: The following are corrected with the correction of the above findings. SDG 13: Climate Action; GS-03 Soil condition; GS-08 Access to affordable and clean energy services; GS-12 Technology transfer and technological self-reliance. The values are verified as correct.					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	E.5-1	Section no.	E.5	Date:	05/04/2021
Description of CAR					
MR version 1.0, Section E.5: The following to be corrected with the correction of the above findings. SDG 13: Climate Action; GS-03 Soil condition; GS-08 Access to affordable and clean energy services; GS-12 Technology transfer and technological self-reliance					
Project participant response				Date:	31/05/2021
1. SDG 13 - Climate Action: The removal of household MJP0096 in combination with the change of the 365 days to 366 days changes the total ERs to 51,872 tCO2e 2. GS-03 Soil condition: The decrease in one household does not significantly affect this number. The figure stays in 6,356 3. GS-08: Updated to 20,252 4. GS-12: Figure updated from 14,530 to 14,529					
☒					
☒	Changes in MR	Section(s): E.5	New version No.: 1.1		
☐	Changes in XLS	Worksheet(s):	New version No.:		
☐	Other:				
DOE assessment				Date:	01/06/2021
MR version 1.1, Section E.5: The following are corrected with the correction of the above findings. SDG 13: Climate Action; GS-03 Soil condition; GS-08 Access to affordable and clean energy services; GS-12 Technology transfer and technological self-reliance. The values are verified as correct					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	E.5-2	Section no.	E.5.1	Date:	05/04/2021
Description of CAR					

MR version 1.0, Section E.5.1 is not filled according to the guidance for filling up the template.			
Project participant response		**Date:**	31/05/2021
The table has been updated to include further detail on the calculation of the SDG 13 on Climate, as per the applied methodology.			
Documentation provided by project participant			
☒ Changes in MR	Section(s): E.5	New version No.: 1.1	
☐ Changes in XLS	Worksheet(s):	New version No.:	
☐ Other:			
DOE assessment		**Date:**	01/06/2021
MR version 1.1, Section E.5.1 is updated and filled according to the guidance for filling up the template to include the calculation for SDG13 for climate change.			
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

CAR ID	E.6-1	**Section no.**	E.6	**Date:**	05/04/2021
Description of CAR					
MR version 1.0, Section E.6 is not filled according to the guidance for filling up the template.					
Project participant response				**Date:**	31/05/2021
A new table has been added to include further detail on the calculation of the SDG 13 on Climate, as per the applied methodology.					
Documentation provided by project participant					
☒ Changes in MR		Section(s): E.6		New version No.: 1.1	
☐ Changes in XLS		Worksheet(s):		New version No.:	
☐ Other:					
DOE assessment				**Date:**	01/06/2021
MR version 1.1, Section E.6 is updated and filled according to the guidance for filling up the template to include the calculation for SDG13 for climate change. No other ex-ante data for other SDGs parameters for comparison.					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	F.1-1	**Section no.**	F	**Date:**	05/04/2021
Description of CAR					
MR version 1.0, Section F is not filled according to the guidance for filling up the template.					
Project participant response				**Date:**	31/05/2021
Clarifying sentence added.					
Documentation provided by project participant					
☒ Changes in MR		Section(s): F		New version No.: 1.1	
☐ Changes in XLS		Worksheet(s):		New version No.:	
☐ Other:					
DOE assessment				**Date:**	01/06/2021
MR version 1.1, VPA implementer has added a sentence “No additional safeguarding principles that were added to the monitoring plan”. Therefore, according to the guidance for filling the template.					
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed				

CAR ID	G.1-1	**Section no.**	G.1, G.2, G.3	**Date:**	05/04/2021
Description of CAR					
MR version 1.0, Sections G.1, G,2 and G.3 are not filled according to the guidance for filling up the template.					
Project participant response				**Date:**	31/05/2021
Updated sections G.					
Documentation provided by project participant					
☒ Changes in MR		Section(s): G		New version No.: 1.1	

☐ Changes in XLS	Worksheet(s):	New version No.:
☐ Other:		
DOE assessment	**Date:**	01/06/2021
MR version 1.1, Sections G.1, G,2 and G.3 are filled according to the guidance for filling up the template.		
Conclusion *Tick the appropriate checkbox*	☐ Additional action should be taken (finding remains open) ☒ The finding is closed	

Table 5. FARs from this verification

FAR ID		**Section No.**		**Date:**	
Description of FAR					
NA					
Project participant response				**Date:**	
Documentation provided by project participant					
☐ Changes in MR		Section(s):		New version No.:	
☐ Changes in XLS		Worksheet(s):		New version No.	
☐ Other:					
VVB assessment				**Date:**	

Appendix 5. Monitored Parameters

Table A-5: Periodic Verification Checklist – Monitored Parameters

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
1. SG 13 - $U_{p1,y}$		**Description: Cumulative usage rate for technologies in project scenario p1 in year y, based on cumulative adoption rate and drop off rate (fraction)**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /ER/ /BUS/ /VPADD/ /TA/ /GSM/	*Description:* The cumulative usage rate of bio-digesters for the monitoring period is 84.24%. The data is consolidated from the biogas usage survey results, conducted by an independent consultant. The data is applied to calculate the emission reductions per unit per month. *Verifier´s action:* The data applied in the ER spreadsheet is crosschecked against the survey records for consistency. From the onsite inspection records, 1 unit is no longer in operation. *Conclusion:* The parameter is monitored in accordance with the approved Transition Annex and applied methodology. ☒ In this context the following findings have been raised: ☒ CAR D.2-4 ☐	~~CAR D.2-4~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
2. SG 13 - $N_{p1,y}$		**Description: Cumulative project operational rate included in the project database for project scenario p1 against baseline scenario b1 in year y**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /BUS/ /ER/ /TA/ /VPADD/ /GSM/ /IM01-IM02//	*Description:* The number of bio-digesters in operation during the monitoring period. It is calculated using monitoring parameters $N_{op1,y}$ and $O_{p1,y}$: $N_{p1,y} = N_{op1,y} * (O_{p1,y}/366) = 84.24 *$ no. of digester $* (O_{p1,y} /366) =$ no. of digesters in operation. *Verifier´s action:* The database is reviewed to crosscheck on the number of units in operation during the monitoring period. The number of days for non-operation per year $O_{p1,y}$ was checked which is 15 days per year stipulated in the operation memo dated 01/05/2014. The calculated number of days bio-digesters ($O_{p1,y}$) in operation for the monitoring period was reviewed and could be confirmed as correct. Step 1: Calculate the number of days of the total installed digesters in operation. Step 2: Calculate the number of digesters in operation The number of digesters in operation for this monitoring period are 17,055 units. The VPA implementer personnel were interviewed on the number of days each digester will not be in operation per year. *Conclusion:* The parameter is monitored in according to the registered VPA-DD and applied methodology. ☒ In this context the following findings have been raised:	~~CAR D.2-4~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)		Draft Concl.	Final Concl.
		☒	CAR D.2-4		
		☐			
3. SDG 13 - $No_{p1,y}$		**Description: Cumulative number of project technologies included in the project database for project scenario p in year y**			
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /BUS/ /ER/ /TA/ /VPADD/ /GSM/ /IM02/	*Description:* The number of units installed as at 31/12/2020 for VPA-1 is 20,252 The data is derived from the database archived at VPA implementer office in Jakarta.		~~CAR D.2-4~~	OK
		Verifier´s action: The project database was reviewed and VPA implementer personnel were interviewed on the database The data applied in ER spreadsheet was crosschecked with the database. From the onsite inspection, 1 unit is no longer in operation.			
		Conclusion: The parameter is monitored in according to the approved Transition Annex and applied methodology.			
		☒	In this context the following findings have been raised:		
			☒ CAR D.2-4		
			☐		
4. SDG 13 - $O_{p1,y}$		**Description: The average technology-days during which the biodigesters are operational for project scenario p1 against baseline scenario b1 in year y**			
0) ***Measurement / Determination method***	/MR/	*Description:*			OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/DB/ /ER/ /TA/ /VPADD/ /GSM/ /IM01/	The data is calculated using the number of days with the expected number of household digesters not in operation. Based on the operation memo dated 01/05/2014, when a report from the householder is received, the provincial technician must visit the household with 15 days to inspect the cause of non-operation. Should there is a delay in the reporting for more than 15 days, the digester will be considered as out of operation. For this monitoring period, the calculated number of days for the total number of installed digesters in operation is 365.88 days *Verifier´s action:* The memo was reviewed that states the 15 days grace period and after which the digester is considered as non-operation. The survey report was reviewed to crosscheck on the number of households digesters non-operation were replicated and considered correct. The ER spreadsheet was reviewed to crosscheck on the operation days applied. *Conclusion:* The parameter is monitored according to the registered VPA-DD and applied methodology. ☒ In this context the following findings have been raised: ☒ CAR D.2-4 ☐	~~CAR D.2-4~~	
5. SDG 13 - $LE_{p1,y}$		**Description: Leakage in project scenario p during year y**		
1) ***Measurement / Determination method (VVS, §§ 363-367)***	/MR/ /BUS/	*Description:* According to the approved Transition Annex and registered VPA-DDs, the parameter will be monitored once every two years using	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/ER/ /TA/ /L/ /VPADD/ /GCM/ /IM01/ /GSM/	survey methods to meet the requirements of the applied methodology. A survey was conducted from in December 2019 by the 3rd party consultant to obtain the leakage for usage of biomass generally firewood and LPG and Kerosene. The leakage is for the use of firewood, LPG and Kerosene in the project scenario as fuel substitution in the monitoring period. For this monitoring period, the leakage is 0.017 tCO_2e, *Verifier´s action:* The survey report indicates a leakage of 18%. The reported value in the MR and ER spreadsheet was crosschecked for consistency in the leakage calculation *Conclusion:* The parameter is monitored according to the registered VPA-DDs and applied methodology. ☐ In this context the following findings have been raised: ☐ ☐		
6. SDG 13 - $N_{T,h}$		**Description: Number of animals of livestock category T in premise h**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been*	/MR/ /ER/ /BUS/ /TA/ /VPADD/ /GSM/	*Description:* The data for the number of animals for each category is derived from the biogas usage survey report. For this monitoring period, the average number of animals per household as below: Dairy cows: 6.56 Market Swine: 0. *Verifier´s action:*	~~CL D.2-1~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
used. Furthermore, verify the frequency of measurements as per the requirements. *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*		The data applied in the ER spreadsheet was cross-checked with the data from the biogas survey report and BUS spreadsheet. From onsite and telephone interviews, 90% of households have cows only. *Conclusion:* The parameter is monitored in accordance with the approved Transition Annex and applied methodology. ☒ In this context the following findings have been raised: ☒ CL D.2-1 ☐		
7. SDG 13 - PL		**Description: Physical leakage of the biodigester**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /ER/ /TA/ /IPCC/ /VPADD/ /GSM/ /IM01/	*Description:* A default value of the 10% is applied for this parameter The value is derived from IPCC, approved Transition Annex and registered VPA-DD section B.6.1. *Verifier´s action:* Review MR against the approved Transition Annex, registered VPA-DD and data applied in ER spreadsheet. *Conclusion:* The parameter is monitored in accordance with the approved Transition Annex, registered VPA-DD and applied methodology. ☐ In this context the following findings have been raised: ☐ ☐	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
8. SDG 13 – $BB_{p1,bio}$		**Description: Quantity of biomass consumed in project scenario p during year y, in tonnes**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /ER/ /KPT/ /TA/ /VPADD/ /GSM/ /LHH/ /IM02/	*Description:* The amount of woody biomass used by the households in the project scenario is based on the KPT conducted once in every 2 years. The latest KPT test was conducted between 07/12/2019 to 02/01/2020 and applicable for this monitoring period. The woody biomass is firewood continue to use in the project scenario with the amount of 0.621t/hh/y. *Verifier´s action:* The data in the ER was crosschecked with the results from the KPT primary data and analysis for consistency. From site and telephone interviews, it could be confirmed households use firewood to boil water for business and cooking during festive period or celebration. *Conclusion:* The parameter is monitored in accordance with the approved Transition Annex, registered VPA-DD and applied methodology ☐ In this context the following findings have been raised: ☐ ☐	OK	OK
9. SG 13 – $BB_{p1,fuel}$		**Description: Quantity of biomass consumed in project scenario p during year y, in tonnes**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level*	/MR/ /ER/ /TA/	*Description:* The amount of fossil fuel used by the households in the project scenario is based on the KPT conducted once in every 2 years. The fossil fuel used is LPG.	OK	OK

<table>
<tr><th>Checklist Item
(incl. guidance for the verification team)</th><th>Refe-rence</th><th>Verification Team Comments
(Means and results of assessment)</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td>(ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).
Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.
Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</td><td>/KPT/
/VPADD/
/IM02/
/LHH/</td><td>The latest KPT test was conducted between 07/12/2019 to 02/01/2020 and applicable for this monitoring period.
The amount of LPG used in this monitoring period is 0.087t/hh/y
Verifier´s action:
The data in the ER was crosschecked with the results from the KPT primary data and analysis for consistency.
From onsite and telephone interviews conducted, LPG is consumed during this monitoring period
Conclusion:
The parameter is monitored in accordance with the approved Transition Annex, registered VPA-DD and applied methodology
☐ In this context the following findings have been raised:
☐
☐</td><td></td><td></td></tr>
<tr><td>10. SDG 13 – $MS_{P,S,k}$</td><td></td><td>Description: Fraction of livestock category T’s manure not treated in bio-digester, in climate region k</td><td></td><td></td></tr>
<tr><td>Measurement / Determination method (VVS, §§ 363-367)
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).
Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</td><td>/MR/
/BUS/
/ER/
/TA/
/VPADD/
/GSM/
/IM02/
/LHH/</td><td>Description:
The fraction of manure not treated in the biodigesters for respective animal category as follows:
<table><tr><td>Category T</td><td>%</td></tr><tr><td>Dairy cow</td><td>21.9</td></tr><tr><td>Market Swine</td><td>0</td></tr></table>The data was derived from the usage survey conducted by an independent consultant.
Verifier´s action:</td><td></td><td>OK</td></tr>
</table>

<table>
<tr><th>Checklist Item
(incl. guidance for the verification team)</th><th>Refe-rence</th><th>Verification Team Comments
(Means and results of assessment)</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</td><td></td><td>The data applied in ER calculations is crosschecked with the usage survey report and tabulation spreadsheet for correctness.
From onsite and telephone interview with householders could confirmed not all cow manure fed to the digester.
Conclusion:
The parameter is monitored according to the approved Transition Annex, registered VPA-DD and applied methodology.
☐ In this context the following findings have been raised:
☐
☐</td><td></td><td></td></tr>
<tr><td>11. SDG 13 - $MS_{T,S,K}$</td><td></td><td>Description: Fraction of livestock category T's manure fed into the bio-digester, S in climate region k</td><td></td><td></td></tr>
<tr><td>Measurement / Determination method (VVS, §§ 363-367)
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).
Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.
Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</td><td>/MR/
/BUS/
/ER/
/VPADD/
/GSM/
/TA/
/IM01/
/LHH/</td><td>Description:
The fraction of manure fed in the biodigesters for respective animal category as follows:
<table><tr><td>Category T</td><td>%</td></tr><tr><td>Dairy cow</td><td>78.1</td></tr><tr><td>Market Swine</td><td>0</td></tr></table>The data was derived from the usage survey conducted by an independent consultant.
Verifier´s action:
The data applied in ER spreadsheet is crosscheck with the usage survey report and tabulation for consistency.
Conclusion:
The parameter is monitored according to the approved Transition Annex, registered VPA-DD and applied methodology.</td><td>~~CAR D.2-4~~</td><td>OK</td></tr>
</table>

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)		Draft Concl.	Final Concl.
		☒	In this context the following findings have been raised:		
		☒	CAR D.2-4		
		☐			
12. SDG 13 - GWP_{CH4}		**Description: Global Warming Potential of methane**			
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /ER /TA/ /GSM/ /VPADD/ /IPCC/	*Description:* The GWP is the methane content applicable during the monitoring period is 25 for emissions generated as from 01/01/2013.		OK	OK
		Verifier´s action: The GWP data applied in the MR and ER spread-sheet were verified with 2006 IPCC for consistency			
		Conclusion: The parameter is monitored in accordance to the approved Transition Annex, registered VPA-DD and applied methodology.			
		☐	In this context the following findings have been raised:		
		☐			
		☐			
13. SDG 13 - Bio		**Description: Use of bio-slurry**			
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment*	/MR/ /BUS/ /ER/ /TA/ /VPADD/	*Description:* The bio-slurry used by households for farming vegetables, grass and rice fields. Based on the usage survey conducted 31.4% of households from apply bio-slurry for the farming. The VPA Implementer had calculated the emission from the use of bio-slurry is per household per year for is 0.040 $tCO_2e/y/hh$,		OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/GSM/ /IM02/ /LHH/	For conservativeness, the emissions will be deducted from the emissions reduction. *Verifier´s action:* The survey result was reviewed to crosscheck on the percentage of households apply bio-slurry for farming activities. From onsite and telephone interviews, the percentage of households apply bio-slurry for farming is approx. 60%. The data applied in the ER spreadsheet was verified and the project emissions calculation for bio-slurry was reviewed and could conclude the emissions from bio-slurry is included in the ER calculations. *Conclusion:* The parameter is monitored according to the approved Transition Annex, registered VPA-DD and applied methodology ☐ In this context the following findings have been raised: ☐ ☐		
14. Indicator 2.4.1 - GS-03: Soil condition		**Description: Soil condition refers to changes compared to the baseline in organic matter content**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been*	/MR/ /BUS/ /VPADD/ /TA/ /LHH/	*Description:* The number of households used bio-slurry for farming activities reported was 31.4% for this monitoring period. The data is derived from the Biogas Usage Survey. *Verifier´s action:* The usage survey report was reviewed and cross-check for the reported percentage of households.	~~CAR D.2-4~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
used. Furthermore, verify the frequency of measurements as per the requirements. *Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.*		From onsite and telephone interviews of householders, approx. 60% apply bio-slurry for farming activities *Conclusion:* The monitoring of the indicator is consistent with the approved Transition Annex. ☒ In this context the following findings have been raised: ☒ CAR D.2-4 ☐		
15. Indicator 1.2.2 – GS-06: Quality of employment		**Description: Quality of employment refers to changes compared to the baseline in the qualitative value of employment, such as whether the jobs resulting from the project activity are highly or poorly qualified, temporary or permanent. The proportion of employees attending vocational training programs as well as Health and Safety courses, as proven through issuance of a certificate to all constructors, will be monitored**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.*	/MR/ /DB/ /TA/ /VPADD/ /M/ /CPO/ /IM02/	*Description:* The number of vocational training conducted during the monitoring period was 1,382. There is no change since the VPA has stopped installing digesters as from 31/12/2016. The number of training conducted for mason and CPO are archived in the project database. *Verifier´s action:* The records in the project database were verified and telephone interviews with the mason and CPO. The VPA implementer personnel were interview on the data in the database.	OK	OK

<table>
<tr><th>Checklist Item
(incl. guidance for the verification team)</th><th>Refe-rence</th><th>Verification Team Comments
(Means and results of assessment)</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td></td><td></td><td>Conclusion:
The monitoring of the indicator is consistent with the approved Transition Annex.
☐ In this context the following findings have been raised:
☐
☐</td><td></td><td></td></tr>
<tr><td>16. Indicator 1.2.2 - GS-07 Livelihood of the poor</td><td></td><td>Description: Livelihood of the poor refers to changes compared to the baseline in living conditions, access to healthcare services including affordability and poverty alleviation</td><td></td><td></td></tr>
<tr><td>Measurement / Determination method (VVS, §§ 363-367)
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).
Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.
Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.</td><td>/MR/
/BUS/
/TA/
/VPADD/
/LHH/</td><td>Description:
The improvement to the living conditions of the households with the installation of the bio-digesters based on the usage survey conducted by an independent 3rd party.
During this monitoring period, the reported data as below:
<table><tr><th>Improved</th><th>Same</th><th>Worsened</th></tr><tr><td>16,106 (79.5%)</td><td>4,043 (20%)</td><td>103 (0.5%)</td></tr></table>Verifier´s action:
The usage survey report and records were verified.
From the onsite and telephone interviews households informed there is improvement in living conditions with the installation of digester.
Conclusion:
The monitoring of the indicator is consistent with the approved Transition Annex.
☒ In this context the following findings have been raised:</td><td>~~CAR D.2-4~~</td><td>OK</td></tr>
</table>

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)		Draft Concl.	Final Concl.
		☒	CAR D.2-4		
		☐			
17. Indicator 7.1.2 - GS-08 Access to affordable and clean energy services		**Description: Access to energy services refer to changes in unsustainable energy use**			
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.*	/MR/ /BUS/ /TA/ /VPADD/ /IM02/	*Description:* The number of bio-digesters in operation as at 31/12/2020 are 20,252 units since no new digesters installed.		OK	OK
		Verifier´s action: The project database was reviewed and the data handling process personnel was interviewed to confirm the data. 1 unit is removed as found during onsite inspection.			
		Conclusion: The monitoring of the indicator is consistent with the GS Passport.			
		☐	In this context the following findings have been raised:		
		☐			
		☐			
18. Indicator 5.4.1 - GS-09 Human and institutional capacity		**Description: Changes compared to the baseline in education and skills, gender equality and empowerment. Women spend much of their time collecting firewood and cooking, and have little spare time to undertake activities that stimulate personal and entrepreneurial development. The number of women attending the Operation and Maintenance training as well as the bio-slurry utilization training will be monitored**			
Measurement / Determination method (VVS, §§ 363-367)	/MR/ /DB/	*Description:* The number of operational and maintenance trainings conducted as at 31/12/2016 were 4,050.		OK	OK

<table>
<tr><th>Checklist Item
(incl. guidance for the verification team)</th><th>Refe-rence</th><th>Verification Team Comments
(Means and results of assessment)</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).
Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.
Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.</td><td>/VPADD/
/TA/
/IM03/</td><td>There is no change since the VPA has stopped installing digesters as from 31/12/2016.
The number of training conducted are archived in the project database.

Verifier´s action:
The records in the project database were verified and the VPA implementer personnel were interview on the data in the database.

Conclusion:
The monitoring of the indicator is consistent with the approved Transition Annex.

☐ In this context the following findings have been raised:
☐
☐</td><td></td><td></td></tr>
<tr><td>19. Indicator 1.2.2 - GS-10 Quantitative employment and income generation</td><td></td><td>Description: The number of jobs generated by within the IDBP as well as the number of constructors employed will be monitored. To evidence income generation, the amount of users selling biodigester slurry on the market will be monitored</td><td></td><td></td></tr>
<tr><td>Measurement / Determination method (VVS, §§ 363-367)
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).
Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</td><td>/MR/
/DB/
/TD/
/EER/
/GSP/
/VPADD/
/IM03/</td><td>Description:
The number of employment created for this monitoring period as follows:
<table><tr><th>Direct jobs</th><th>No. Households sell bio-slurry</th></tr><tr><td>1,500</td><td>191</td></tr></table>The number of jobs created is derived by the project database records archived in the central office.
The number of households who sells the bio-slurry is derived from the usage survey report.</td><td>~~CAR D.2-4~~</td><td>OK</td></tr>
</table>

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.		*Verifier´s action:* The employment records were reviewed and VPA implementer personnel were interviewed on the database. The usage survey report was reviewed to crosscheck on the number of households sells bio-slurry. From onsite and telephone interviews, the households informed they do not sell bio-slurry. They use for their own farms and vegetable gardens. *Conclusion:* The monitoring of the indicator is consistent with the GS Passport. ☒ In this context the following findings have been raised: ☒ CAR D.2-4 ☐		
20. Indicator 7.1.2 - GS-12 Technology transfer and technological self-reliance		**Description: Refers to changes compared to the baseline in activities that build usable and sustainable know-how in a region/country for a technology, where know-how was previously lacking. The number of constructors trained and users attending the operation and maintenance training will be monitored. Also, the entities outside of the programme in general and technical training about the functioning of the biodigester technology to promote knowledge dissemination and strengthen the domestic biogas market will be monitored.**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment*	/MR/ /DB/ /TA/ /VPADD /IM02/	*Description:* The number of operational and maintenance trainings conducted were 14,529 There is no change since the VPA has stopped installing digesters as from 31/12/2016. The number of training conducted are archived in the project database.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. *Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.*		*Verifier´s action:* The records in the project database were verified and the VPA implementer personnel were interview on the data in the database. From the onsite and telephone interviews, households informed they have received training during the initial operation of the digester *Conclusion:* The monitoring of the indicator is consistent with the approved Transition Annex. ☐ In this context the following findings have been raised: ☐ ☐		
21. Indicator 2.4.1 - GS-13 Establishment of sustainable food production area		**Description: Area with application of bio-slurry or compost.**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.*	/MR/ /BUS/ /TA/ /VPADD/ /TD/ /IM02/ /LHH/	*Description:* The parameter monitors the area where the bio-slurry or compost applied by the households. The data is derived from the usage survey conducted by an independent 3rd party. During this monitoring period, the reported data 135.76 ha of land where the bio-slurry or compost is applied. *Verifier´s action:* The usage survey report and records were verified. The onsite and telephone interviewed households informed the area for the bio-slurry or compost applied. *Conclusion:* The monitoring of the indicator is consistent with the approved Transition Annex.	~~CAR D.2-4~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)		Draft Concl.	Final Concl.
		☒	In this context the following findings have been raised:		
			☒ CAR D.2-4		
			☐		
22. Indicator 5.4.1 - GS-14 Time saved		**Description: The share of women indicating to save time by not having to collect biomass for cooking purposes after the installation of the biodigester**			
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.*	/MR/ /BUS/ /TA/ /VPADD /IM02/ /LHH/	*Description:* The parameter monitors the time saved by the women for not collecting biomass with the biodigester installed. The data is derived from the usage survey conducted by an independent 3rd party. During this monitoring period, the reported data is 81.5% of the women have time saved.		OK	OK
		Verifier´s action: The usage survey report and records were verified. From the onsite and telephone interviews, more than 72% of the households informed they have more time with the digester installed and no need to collect firewood for cooking.			
		Conclusion: The monitoring of the indicator is consistent with the approved Transition Annex.			
		☐	In this context the following findings have been raised:		
			☐		
			☐		

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
23. Indicator 5.4.1 - GS-15 Productive use of time		**Description: Share of women indicating to use the additional saved time that has been freed up by not having to collect biomass for cooking purposes for income generating activities.**		
Measurement / Determination method (VVS, §§ 363-367) *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the VPADD and the applied methodology.*	/MR/ //BUS/ /TA/ /VPADD /IM02/ /LHH/	*Description:* The parameter monitors the saved time by the women for not collecting biomass for other income generating purpose. The data is derived from the usage survey conducted by an independent 3rd party. During this monitoring period, the reported data is 22.1% of the women utilise the saved time for other income generating activities. *Verifier´s action:* The usage survey report and records were verified. From the onsite and telephone interviews households informed they are able to do other activities with the time spend. More than 60% inform have more time to carry out other income generating activities. *Conclusion:* The monitoring of the indicator is consistent with the approved Transition Annex. ☐ In this context the following findings have been raised: ☐ ☐	OK	OK

Appendix 6. Calibration dates and validity of measuring equipment

Table A-6: Periodic Verification Checklist – Calibration details

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Previous calibration date	Current Calibration date(s)	Validity of calibration	Delay in calibration: yes/no	Period of delayed calibration
Weighing Scale	KPT / PFT	1 & 2	NA	500g & 1,000g	NA	30/07/2019	NA	☒ No ☐ Yes	NA

Not applicable for this monitoring period.