Validation report form for Gold Standard project activities	
BASIC INFORMATION	
Title of the project activity	Gianyar Waste Recovery Project
GS Reference Number	GS7561
Scale of the project activity	Micro Scale
Version number of the validation report	1
Completion date of the validation report	27/08/2020
Version number of the PDD to which this report applies	03
Project participants	Yayasan Pemilahan Sampah Temesi MyClimate – The Climate Protection Partnership
Host Party	Indonesia
Certification Pathway	Impact Statement & Products (GS VER)
Activity Requirements applied	GS4GG
Product Requirement	GS VER
Applied methodologies	AMS-III.F.: Avoidance of methane emissions through composting, Version 12.0
Sectoral scopes	Sectoral Scope 13: Waste handling and disposal
Regular/Retroactive	Retroactive
Estimated amount of SDG Impact Certified	SDG 13 -: 9,092 tCO_2e emission reduction per Annum SDG 1 – 65 new jobs creation SDG3 – 100% people confirm the improvement in their health condition in the monitoring sample survey SDG6 – 100% people confirm the improvement in the clean water availability and sanitation facilities in the monitoring sample survey SDG11: 16,905 tonne of additional waste processed in the plant per annum
Name of the VVB	4K Earth Science Private Limited
Name, position and signature of the approver of the validation report	S. Jagajothi  Director

SECTION A. Executive summary

>>

4K Earth Science Pvt. Ltd. has been contracted by 'Yayasan Pemilahan Sampah Temesi' to perform a validation of the GS project "Gianyar Waste Recovery Project" (GS Ref No: GS7561) in Indonesia

The validation was performed in accordance with the applicable Gold Standard guidance and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

A desk review and follow up interviews have been conducted to verify the data submitted in the GS4GG PDD. 4KES Certification confirms the following have been reviewed:

- The GS4GG PDD;
- The applied monitoring methodology;
- Relevant decisions, clarifications and guidance from the CMP and the CDM EB;
- GS4GG guidelines & Requirements.
- All information and references relevant to the project activity's resulting in estimated emission reductions.

The scope of the validation is defined as an independent and objective review of the project design document, against the Kyoto Protocol requirements, UNFCCC rules, applicable CDM requirements and requirement of Gold Standard. The validation report is finalized based on the assessment of the Gold Standard GS4GG PDD and applying standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.

During the validation, 8 Corrective Action Requests (CARs), 4 Clarification Requests (CLs/CRs) and 0 Forward Action Requests (FARs) were raised. The PP has responded these findings by modifying the Gold Standard PDD and providing adequate additional explanations and evidences. 4KES confirms that all the findings have been "closed" before submitting the request for registration to GS board.

As a summary of the validation, the review of the Gold Standard GS4GG PDD and the subsequent follow-up interviews have provided 4KES with sufficient evidence for the determination of the project's fulfillment with all stated criteria. The proposed GS project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change. In our opinion, the project meets all relevant Gold Standards, CDM criteria and all relevant host country criteria.

The project correctly applies GS methodology: "AMS-III.F.: Avoidance of methane emissions through composting, Version 12.0". It is demonstrated that the project is not a likely baseline scenario. The emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.
The estimated SDG impacts from the project are as follows:

- SDG 13 – 9,092 tCO_2e emission reduction per annum
- SDG 1 – 65 new jobs creation
- SDG 3 – 100% people confirm improvement health condition in the monitoring sample survey
- SDG 6 – 100% people confirm improvement in clean water availability and sanitation facilities in the monitoring sample survey
- SDG 11 – 16,905 tonne of additional waste processed in the plant per annum

The SDG estimation has been checked and it is deemed likely that the stated amount is achievable given the underlying assumptions do not change.

The project will be recommended by 4KES for request for registration with the Gold Standard.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader and Technical Expert (TA 13)	IR	R	Narendra Kumar	Central office	X	-	X	X
2.	Local Expert	ER	Ramachandran	Ramaiyer	Central office	X	-	-	X

B.2. Technical reviewer and approver of the validation 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 & TR Expert	IR	C	Indumathi	Central office
2	Approver	IR	S	Jagajothi	Central Office

SECTION C. Means of validation

C.1. Desk/document review

The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., on site visit, electronic (telephone or e-mail) interviews) and also the review of the applicable approved methodological and relevant CDM and Gold Standard tools & guidance.

All the documents used for arriving validation conclusion are listed in Appendix 03 and referenced accordingly in validation report.

C.2. On-site inspection

No site visit was conducted by the VVB for this GS validation due to high threat of COVID-19 globally and local and international travel restrictions.

Hence, in line with the COVID 19: INTERIM MEASURES/17/ published by GS on 06/04/2020 (updated on 23/07/2020)[1], VVB has taken alternative measures to reach reasonable level of assurance. Due to the validation contract commitment, the site visit cannot be postponed to a later date. Thus, as per para 4.1.1 (b) of GS4GG rule update "COVID-19_Interim-measures", assessment team have conducted remote audit and used validation techniques & advanced communication technology solutions to verify information and compliance with applicable requirements to the extent possible, to ensure the completeness and credibility of the audit.

The following means of validation have been implemented by assessment team:

[1] https://globalgoals.goldstandard.org/standards/RU_2020-COVID-19_Interim-measures.pdf

- Cross checks between information provided in the GS4GG PDD and supporting documents.
- The DOE's sectoral &local expertise.
- Telephone & Skype call Interviews with PP representative, O&M team and local stakeholders & consultant.
- Cross checks between the information provided by interviewed personnels & information provided in registered documents as well as previous verification documents;

Details of interviewees, topics covered and additional information presented in the below section "C.3 Interviews"

~~**Duration of on-site inspection:** DD/MM/YYYY to DD/MM/YYYY~~				
~~**No.**~~	~~**Activity performed on-site**~~	~~**Site location**~~	~~**Date**~~	~~**Team member**~~
~~1.~~				
~~…~~				

C.3. Interviews

No.	Interviewee			Date	Subject
	Last name	First name	Affiliation		
1.	Nino	Sean	Eco-Mantra	04/08/2020	- Project Design & implementation - Technical details - Ownership of the VERs - Roles and responsibilities - Baseline scenario - Monitoring requirement - Stakeholder consultation process - Ongoing financial additionality - SDG assessment - Safeguard assessment - Grievance mechanism
2	Cakra	Wayan	Yayasan Pemilahan Sampah Temesi		
3	Nadi	Kader Sri			
4	Astiti	Nyoman Ari	Staff (local Stakeholders)	04/08/2020	- Employment opportunities - Opinion about the project - Stakeholder consultation - Grievance mechanism
5	Satra	Kadek	Staff (local Stakeholders)		

C.4. Sampling approach

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No sampling approach followed in the validation.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with GS4GG PDD form	-	-	-
Eligibility of the project under Gold Standard	3	2	-
Description of project activity	-	-	-
Application and selection of methodologies and standardized baselines	-	1	-
- Application of methodologies and standardized baselines	-	-	-
- Deviation from methodology and/or methodological tool	-	-	-
- Project boundary, sources and GHGs	-	-	-
- Baseline scenario	-	-	-

- Demonstration of additionality	-	1	-
- Sustainable Development Goals Outcome	-	-	-
- Ex-ante estimation of SDG outcomes	1	1	-
- Monitoring plan	-	2	-
Start date, crediting period type and duration	-	-	-
Safeguarding Principles assessment	-	-	-
Stakeholder consultation	-	1	-
Others (please specify)	-	-	-
Total	3	9	-

SECTION D. Validation findings

D.1. Compliance with GS4GG PDD form

Means of validation	Validation team checked the GS4GG Project Design Document with latest version of 'Gold Standard for the Global Goals Key Project Information & Project Design Document (PDD)' in the GS website (ie, version 1.1).
Findings	No Finding
Conclusion	Validation team confirms that final PDD is completed using the valid version of the applicable GS4GG PDD form at the time of submission.

D.2. Eligibility of the project under Gold Standard

Means of validation	(a) Type of project Since the project is installation and operation of municipal solid waste MSW processing unit it falls under project type "(c) Waste management and handling" which is approved under GS4GG Community Service Activity requirements' v1.2 /16/. Also Section 3 of 'GS4GG Community Service Activity requirements' v1.2 mentions that "all waste management activities that deliver energy OR a usable product with sustainable development benefits such as composting, biogas etc" are eligible under GS4GG. Since the project delivers usable product with sustainable development benefit (i,e compost), the project is automatically eligible for Gold Standard certification. Since the project avoids GHG gas (ie, Methane), the project is in line with the GS vision of "Climate security and sustainable development for all" and GS mission, "To catalyse more ambitious climate action to achieve the Global Goals through robust standards and verified impacts". (b) Location of Project The project is located in Temesi, Gianyar Region, Bali Province, Indonesia. Since as per the GS4GG requirements, the Projects shall be located in any part of the world, the location of the project is found to be okay. (c) Project Area, Project Boundary and Scale: The project area and the project boundary are defined in the PDD. The scale of the project is micro scale. Since the annual average emission reduction from the project is less than micro scale limit of 10,000 tCO_2e, the scale of the project is correct. PP also confirmed, if any year the emission reduction cross 10,000 tCO_2e, then the emission reduction claim will be capped at 10,000 tCO_2e. The project is a CDM registered project. The validation team checked the UNFCCC project page[2] and found that the crediting period of the CDM project is 04/11/2008 – 03/11/2018. The PP proposed the GS crediting period start date (04/11/2018) after end of CDM crediting period, there won't be any double counting of carbon credits between CDM and GS. Moreover, the validation team also checked other voluntary market registry (such as VERRA) and found that the project is not registered under any other mechanism and hence there won't be any double

[2] https://cdm.unfccc.int/Projects/DB/SGS-UKL1214472977.27/view

	counting issue in this project. Also this is the only waste management project overlaps with the project location. Hence, there is no chance of double counting of the carbon credits. (d) Host Country Requirements: The project is installation and operation of municipal solid waste MSW processing units and it is in compliance with all applicable Host Country's legal, environmental, ecological and social regulations. The assessment team also checked the latest 'Licence to operate' received from the government authority. Hence, the project is in compliance with all host country legal requirements. (e) Contact Details The PP has provided the following details in the PDD (i) name of all participates, (ii) contact details, (iii) the legal registration details and (iv) documentation by the governing jurisdiction. (f) Legal Ownership: Validation team checked the 'Licence to operate'/24/ and found that the 'Yayasan Pemilahan Sampah Temesi' is the legal owner of the project. Hence, the emission reduction rights are with 'Yayasan Pemilahan Sampah Temesi'. (g) Other Rights: As confirmed by PP, the all other rights are with project are with 'Yayasan Pemilahan Sampah Temesi' only as it is the legal project owner. (h) Official Development Assistance (ODA) Declaration PP has provided declaration/7/ confirming that the there is no ODA funding involved in this project activity.
Findings	CL-01, CL-02, CL-04, CAR-01 and CAR-02 are raised and closed satisfactorily
Conclusion	PP has justified the eligibility of the project as per the Gold Standard General eligibility requirements. Based on the document review and interview with PP, the validation team confirms that the project is in compliance with the Section 3 requirements of GS4GG Principles Requirements, v1.2.

D.3. Description of project activity

Means of validation	The project involves implementation municipal solid waste processing units in Temesi town, Gianyar Region, Bali Province, Indonesia. The waste is processed through composting method and it is implemented in the two phases: 1st Phase: A 2,340 m^2 covered processing area with a capacity of maximum 30 tons waste per day- Commissioned on May 2008. 2nd Phase: A 2,400 m^2 extension to 4,740 m^2 for a final capacity of up to 50 tons waste per day-Commissioned January 2010. As a first activity of composting, the waste separation was done with hand tools. The coarse material is shredded for the fast decomposition. The composting is equipped with air supply with the help of centrifugal blowers to assure the aerobic condition. The waste is turned every two weeks to loosen the material and free air supply. After the initial de-composition, the raw compost is sieved to separate fine compost and coarse materials. The fine compost is further aerated to get the finished compost while the coarse material is sent back to the incoming organic waste for further decomposition. The project activity maintains the oxygen level of 12% in the waste which is more than required of 6% to assure aerobic composting. In the baseline condition, the municipal solid waste is dumped into the nearby landfill that does not have methane capture and destruction facility and hence the methane is emitted into atmosphere. In the project scenario, the waste is composted using anaerobic means, the methane avoidance is avoided. The project is already registered under CDM and the details of the CDM registration

	is given below: <table><tr><td>CDM Project Title</td><td>Gianyar Waste Recovery Project</td></tr><tr><td>UNFCCC Reference no</td><td>1885</td></tr><tr><td>CDM Registration date</td><td>04/11/2008</td></tr><tr><td>Crediting period</td><td>04/11/2008 – 03/11/2018</td></tr><tr><td>CER issued until</td><td>03/11/2018</td></tr><tr><td>UNFCCC Link</td><td>https://cdm.unfccc.int/Projects/DB/SGS-UKL1214472977.27/view</td></tr></table> The project is now applying for Gold Standard registration with the proposed crediting period start date of 04/11/2018 which is after the end of CDM crediting period. The validation team determined the conformity of the actual project activity and its operation with the project design document. Validation team has, by means of a desk review and interview, assessed that all physical features of the project activity and found that the actual project design is as per the description provided in the PDD/1/, and that the project participants have operated the project activity as per the PDD. The validation team has checked the information in the monitoring report and compared against the PDD/1/. During the interview with PP and though verification of CDM registered documents, the validation team has checked the project locations, implementation, technology applied, project equipment, and monitoring system against the information in the approved PDD/1/.
Findings	No finding
Conclusion	Thus the validation team concludes that the project activity was implemented and being operated as per the description in the PDD. The validation team, based on the document review and interview with PP, was able to conclude project description provided in the PDD is as per the actual site condition. The validation team confirms that: (a) The project description as mentioned in PDD is validated through interview with PP and supporting documents provided by PP. (b) Based on discussion above the assessment team confirms that project description provided in PDD is complete and accurate, hence complies with CDM VVS version 02.0

D.4. Contribution to Sustainable Development Goals (SDGs)

Means of validation	In PDD, PP claimed the project contributes to the following sustainable development goals viz: SDG 13, SDG 1, SDG 3, SDG 6 & SDG 11. Validation team assessed the PPs claim on the contributions to the SDGs as below: <u>SDG 13: Climate Action:</u> The project avoids GHG emissions (CH_4) by composting municipal solid waste, which otherwise would have been left for anaerobic decay in a solid waste disposal site without methane capture and flaring or power production. Hence, the project contributes to Climate Action. <u>SDG 1 : No Poverty</u> As per interview with PP, the project generates about 65 new jobs which will help in alleviating the poverty in this region. The validation team also checked with the employees during remote audit and they confirmed the new employment opportunities created due the project. Hence, validation confirms the project's contribution to SDG 1. <u>SDG 3: Good Health and Well Being</u> In the baseline condition the MSW will be disposed in landfills without treating is generally hazardous as it contains toxic materials and a variety of pathogenic

	microorganisms. But in the composting, most of the pathogens are eliminated as the composting temperature exceeds 70° C. Hence, the health hazards among the local people in and around the landfills are reduced due to the project activity. Also validation team checked the project's Quality System operating /26/ that assure worker's safety (Procedure no. 24) and health (no. 25). It also provides a system for reporting inadequate conditions (no. 27) and for quality alerts (no. 28 that includes health and safety). Hence, the project improves the health of local people compared to baseline condition. Hence, validation confirms the project's contribution to SDG 3. SDG 6: Clean Water and Sanitation In baseline the more amount of MSW is dumped in the adjacent landfill which will results in more leachate generation that will contaminate the ground and surface water. Due the project, most of the organic wastes are avoided going to landfill which reduces the leachate generation and thereby improving the ground water and surface water quality compared to baseline. Hence, validation confirms the project's contribution to SDG 6. SDG 11 :Sustainable Cities and Communities The composting is a sustainable solution for waste management compared to the baseline waste management practice (ie, dumping in landfill without methane capture & flaring). This project also reduces load of current landfill and increase the life of it. Hence, the project contributes to Sustainable Cities and Communities.
Findings	No finding
Conclusion	The validation team confirms the proposed project will results in contributions to the SDG 13, SDG 1, SDG 3, SDG 6 and SDG 11. Since the project contributes to more than three SDGs the validation team is in the opinion that the project is eligible under Gold standard as per GS4GG

D.5. Application and selection of methodologies and standardized baselines

D.5.1. Application of methodologies and standardized baselines

Means of validation	The project applies the CDM methodology 'AMS-III.F.: Avoidance of methane emissions through composting, Version 12.0/11/. The applicability conditions are justified in the PDD. The applicability conditions of the methodology are assed for this project as below: Scope: - The project avoids the emissions of methane to the atmosphere from municipal solid waste that would have otherwise been left to decay anaerobically in a solid waste disposal site (SWDS). In the project activity, controlled aerobic treatment by composting of biomass is introduced - The project does NOT involves any of the below: • Recover or combust landfill gas from disposal site • Undertake controlled combustion of the waste that is not treated biologically in a first step • Recover biogas from wastewater treatment • Co-digestion of organic matters - As verified from the ER calculation sheet/2/, the annual average emission reduction from the project is 9,092 tCO_2e/year (ie, 9.092 k tCO_2e/year) which is less than 60 kt CO_2e equivalent annually. **Applicability** - The project activity involves installation of composting facility which process organic fraction of municipal solid waste into compost. Hence, the methodology is applicable for this project. - The project involves capacity addition from 4 tonnes to 50 tonnes per day. Hence, the methodology is applicable for this project.

	- The baseline waste disposal site is located next to the composting plant operated by Government. Hence, the location and characteristics of the disposal site is known. - PP confirmed that only the quantity of municipal solid waste that was diverted from the land fill is considered for emission reduction calculation. No emission reduction will be claimed for the blending materials. The same is confirmed from verification of ER calculation sheet/2/. - PP confirmed that the existing landfill is adequate to accommodate another 8-10 years from the start of this crediting period. Assessment team checked the research report 'Risk assessment and rehabilitation potential of municipal solid waste landfills in Bali province, Indonesia"/32/ which confirms that the Life of the Temesi Landfill site for future use is 7.2 years as on year 2019. Hence, the landfill is expected to accommodate the waste to be used for the project activity for the duration of the crediting period. - The above mentioned report/32/ also confirms that the about 61% of waste generated in Bali Province has been dumped in 10 landfills. Assessment team also checked the giz 2018_Indonesia Country Profile/33/ and found that 66.4% of municipal solid waste (MSW) in Indonesia is dumped in Landfill and about 19.6% of MSW is unmanaged dumping. Only about 7% of MSW is treated through composting. Hence, the validation team confirms that the dumping waste in landfill is the common practice in the project region. - The PP has clearly defined the geographical boundary of the region referred in paragraph 11(b) of methodology, and document it in the GS-PDD/8/. The project boundary details provided in the PDD is verified during the interview with PP and found to be appropriate.
Findings	CAR-03 is raised and closed satisfactorily
Conclusion	Thus, the project fulfills all relevant criteria of the applied methodology 'AMS-III.F.: Avoidance of methane emissions through composting, Version 12.0/11/. Hence, use of the selected methodology is appropriate for this project activity.

D.5.2. Deviation from methodology and/or methodological tool

Means of validation	All the applicability condition of the methodology are fulfilled. No deviation from the methodology applied.
Findings	No finding
Conclusion	No deviation from the methodology applied in the project.

D.5.3. Project boundary, sources and GHGs

Means of validation	As per PDD, the project boundary of the project activity is the physical and geographical location of the following: a) The landfill site, where the solid waste would have been disposed and the methane emission occurs in absence of the proposed project activity; b) The composting facility, where the treatment of biomass through composting takes place; c) Consumer places where the compost is handled, disposed, submitted to soil application. d) And the itineraries between b and c where the transportation of compost occurs. It should be noted that the waste transportation itineraries between a & b are not considered as the project site is located next to the landfill site. Validation team checked the same and found to be is in line with para 51 of the applied methodology/11/. The sources and sinks of greenhouse gas identified in the PDD are deemed to be appropriate as explained below.

Source	GHG	Included	Justification/Explanation

			s	**?**	
Baseline		Landfill site	CO_2	No	Not significant.
			CH_4	Yes	Main source of emission
			N_2O	No	Not significant.
Project scenario		Composting site	CO_2	Yes	Emission from diesel consumption and electricity consumption at site
			CH_4	Yes	Significant emission from composting
			N_2O	Yes	Significant emission from composting

It was confirmed from document review and interview with the PDD that all specified information on this boundary has matched with the simplified methodology. This is also in line with the registered CDM PDD/8/.

Findings	No finding
Conclusion	By checking the information in PDD and registered CDM PDD and by the interview with PP, validation team could confirm that all the emission sources and gases have been included in the project boundary and the description in the PDD is accurate and complete, and also that the selected sources and gases are justified for the proposed project activity.

D.5.4. Baseline scenario

Means of validation	As per para 22 of applied methodology, the baseline scenario is the situation where, in the absence of the project activity, biomass and other organic matter (including manure where applicable) are left to decay within the project boundary and methane is emitted to the atmosphere. As per PDD, in the absence of the project activity, organic matter in the municipal solid waste will be dumped and left to decay at the landfill site located within the project boundary and methane is emitted to the atmosphere. Hence the baseline scenario is the continued dumping of the waste on the existing landfill site in the absence of the project activity The baseline condition and pre-project scenario is same in this project. The project is located within the premises of existing land fill where the organic matter of MSW was dumped in the pre-project scenario. It is confirmed from the document review, interview with PP and registered CDM PDD.
Findings	No finding
Conclusion	The baseline of the project is identified as per the methodology 'AMS-III.F.: Avoidance of methane emissions through composting, Version 12.0.

D.5.5. Demonstration of additionality

Means of validation	The project is a CDM registered project. The additionality is justified in the CDM PDD itself. But due to the fact that the CDM crediting period is already over and the project rely on the additional benefit from carbon revenue for operation of the project activity, PP applied the project under Gold Standard and justified the additionality as per Tool21: 'Demonstration of additionality of small-scale project activities" version 13/21/. As per para 10 of Tool, PP has done the barrier analysis and justified (A) Financial barriers and (B) Market barriers. **A. Financial barriers/Ongoing Financial Need (ONF)** Financial barrier is justified as main barrier for this project. Based on the past year profit and loss, PP justified the financial need of the project for continued operation of the project without any loss. PP has provided detailed profit and loss statement of year 2019 in the excel format/25/. The validation team checked the profit and loss statement of year 2019 and found that all the income of year 2019 (ie, revenue from sale of compost, revenue from waste collection and carbon revenue) and expenses (operational expenses and administrative costs) are included in the balance sheet. As verified from the profit & loss statement, the project occurring loss of 68.51% during year 2019 without consideration of carbon revenue. With carbon revenue the profit was 1.03% during the year 2019. Since, this profit and

<table>
<tr><td></td><td>loss balance sheet was based on actual figures of year 2019 it is found to be appropriate.

Also it was reviewed by the local assessor also and the assessment confirmed that in the present scenario there are very few/no organizations wanting to invest in the composting projects as this is not a profitable business and the maintenance of such kind of projects is high which requires continuous investment. The scenario was also cross checked through interviews with the project participants.

Hence it is clear that the project faces financial barrier and it requires carbon revenue for the continuous operation.

(B) Market barriers.
The market barrier was also checked through interview with PP and found that compost is not well accepted by the people as it is generated form municipal waste. This is not well accepted by the market. This was checked from the Research paper “Determinants of sustainability in solid waste management – The Gianyar Waste Recovery Project in Indonesia”/28/ which says the sale of compost poses a challenge and the sale of all the compost still presents a major challenge. The market needs to be developed for selling of the compost at competitive prices and this will require investment. From the profit and loss of year 2019/25/ clearly shows that the compost from MSW are sold at very less price which resulted in loss in the project. This was checked from the interview with PP and local assessor also confirmed that there is no market for compost at present. This was accepted and the project was found additional on the basis of financial barrier supported by market barrier.

Continuous real action to secure carbon benefit:
The project is a CDM registered project. As mentioned in the financial barrier, the project incurs losses without carbon benefit. The project has been receiving revenue from sale of CER till year 2018 that made the project operation financially viable. Since, the CDM crediting period got over by November 2018, PP has taken steps to register the project under Gold Standard with the intention of getting additional revenue from sale of GS VER.

<table>
<tr><th>Real action to secure GS VER benefit</th><th>Date</th><th>Assessment</th></tr>
<tr><td>End date of CDM crediting period</td><td>03/11/2018</td><td>Verified from UNFCCC project page</td></tr>
<tr><td>GS Stakeholder consultation</td><td>28/02/2019</td><td>Verified the stakeholder consultation report/3/ and found to be correct.</td></tr>
<tr><td>Appointment of Consultant for GS registration</td><td>22/03/2019</td><td>Verified the consultant agreement/23/</td></tr>
<tr><td>Appointment of DOE for validation</td><td>14/11/2019</td><td>The DOE appointment contract is verified.</td></tr>
</table>

Hence, it is clear that the project has taken continuous real action (from the end of CDM crediting period) to secure the GS registration status.</td></tr>
<tr><td>Findings</td><td>CAR-04 is raised and closed satisfactorily</td></tr>
<tr><td>Conclusion</td><td>PP has justified the additionality as per Tool21: ‘Demonstration of additionality of small-scale project activities” version 13.

PP has done the barriers analysis and presented it in the PDD. Validation team though verification of supporting documents, interviews with PP and local expertise, found that the barriers provided for the project is valid. The project faces the above mentioned barriers that prevent implementation of project activity without carbon benefit and hence the project is additional.</td></tr>
</table>

D.5.6. Sustainable Development Goals (SDG) outcomes

Means of validation	**SDG 13:** For estimation SDG 13 outcomes, the emission reduction calculation will be estimated as per the applied methodology "AMS III.F Avoidance of methane emissions through composting" Version. 12./11/ As per para 24 of the applied methodology, baseline emissions shall exclude emissions of methane that would have to be captured, fuelled or flared to comply with national or local safety requirement or legal regulations. $BE_y = BE_{4,SWDS,y} + BE_{ww,y} + BE_{4,manure,y} - MD_{y,reg} \times GWP_4$ Where: BE_y = Baseline emissions in the year y (tCO_2e) $BE_{4,SWDS,y}$ = Yearly methane generation potential of the solid waste composted by the project activity during the years x from the beginning of the project activity (x=1) up to the year y estimated as per the latest version of the methodological tool "Emissions from solid waste disposal sites" (tCO_2e). The tool may be used with the factor "f=0.1" taking into account the methane oxidation effect by the upper layer of the landfill. With the definition of year x as 'the year since the project activity started diverting wastes from landfill disposal, x runs from the first year of crediting period (x=1) to the year for which emissions are calculated (x=y)' $MD_{y,reg}$ = Amount of methane that would have to be captured and combusted in the year y to comply with the prevailing regulations (tonne) $BE_{4,manure,y}$ = Where applicable, baseline emissions from manure composted by the project activities, as per the procedures in AMS-III.D (tCO_2e) $BE_{ww,y}$ = Where applicable, baseline emissions from the wastewater co-composted, calculated as per the procedures in AMS-III.H (tCO_2e) GWP_4 = Global Warming Potential for CH_4 applicable to the crediting period (t CO_2e/t CH_4) The project does not involve co-composting along with waste water. Hence, $BE_{ww,y} = 0$ The project does not involve composting of manure. Hence, $BE_{4,manure,y} = 0$ In Indonesia, there are no waste management regulations that require a certain amount of LFG to be captured and destroyed. Also the existing landfill does not contain methane recovery system. Hence, $MD_{y,reg} = 0$ Hence, the baseline emission calculation is reduced as below: $BE_y = BE_{4,SWDS,y}$ **$BE_{SWDS,y}$: Yearly methane generation potential from solid waste disposal site** $BE_{4,SWDS,y}$ is estimated using the methodological tool 'Emissions from solid waste disposal sites' version 8 /38/ which is a latest version. Since the methane generation from municipal solid waste is treated with composting technology, the tool is applicable for the project under 'Applicability B' of the project activity. As per para 17 of methodological tool 'Emissions from solid waste disposal sites' version 8, the baseline methane emission from solid waste disposal site will be calculated as below:

$$BE_{SWDS,y} = \phi_y \times (1 - f_y) \times GWP_{CH4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y \times \sum_{x=1}^{y} \sum_{j} (W_{j,x} \times DOC_j \times e^{-kj \times (y-x)} \times (1 - e^{kj}))$$

Where

$BE_{4,SWDS,y}$	=	Baseline methane emissions occurring in year y generated from waste disposal at a SWDS during a time period ending in year y (t CO_2e/yr)
X	=	Years in the time period in which waste is disposed at the SWDS, extending from the first year in the time period (x = 1) to year y (x = y)
y	=	Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)
$DOC_{f,y}$	=	Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)
$W_{j,x}$	=	Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)
φ_y	=	Model correction factor to account for model uncertainties for year y
f_y	=	Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y
GWP_{CH4}	=	Global Warming Potential of methane
OX	=	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)
F	=	Fraction of methane in the SWDS gas (volume fraction)
MCF_y	=	Methane correction factor for year y
DOC_j	=	Fraction of degradable organic carbon in the waste type j (weight fraction)
k	=	Decay rate for the waste type j (1 / yr)
j	=	Type of residual waste or types of waste in the MSW

<u>Determination the model correction factor (φ_y)</u>

For this project, default value (option 1) will be used.

<u>Determination of the amounts of waste types j disposed in the SWDS ($W_{j,x}$)</u>

Application A is selected (ie, yearly model) for this project

The amount of the different waste types j is determined through sampling and calculated as mean from the samples, as follows
$W_{j,x} = W_x \times p_{j,x}$

$W_{j,x}$	=	Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)

	W_x = Total amount of solid waste disposed or prevented from disposal in the SWDS in year x (t) $p_{j,x}$ = Average fraction of the waste type j in the waste in year x (weight fraction) j = Types of solid waste x = Years in the time period for which waste is disposed at the SWDS, extending from the first year in the time period (x = 1) to year y (x = y) The fraction of the waste type j in the waste for the year x is calculated as follow: $p_{j,x} = \frac{\sum_{n=1}^{z_x} p_{n,j,x}}{z_x}$ $p_{j,x}$ = Average fraction of the waste type j in the waste in year x (weight fraction) $p_{n,j,x}$ = Fraction of the waste type j in the sample n collected during the year x (weight fraction) z_x = Number of samples collected during the year x n = Samples collected in year x j = Types of solid waste x = Years in the time period for which waste is disposed at the SWDS, extending from the first year in the time period (x = 1) to year y (x = y) <u>Determination the fraction of DOC that decomposes in the SWDS ($DOC_{f,y}$)</u> Default value (application A) is considered for this project. <u>Determination of the methane correction factor (MCFy)</u> Default value (application A) is considered for this project. **<u>Project emission:</u>** Project emissions from composting process (PE_y) will be determined as per the methodological tool "Project and leakage emissions from composting", version 2/40/. As per the tool the project emission from composting is calculated as below $PE_y = PE_{COMP,} = PE_{EC,} + PE_{FC,} + PE_{CH4,} + PE_{N20,} + PE_{RO,y}$ $PE_{COMP,y}$ = Project emissions associated with composting in year y (t CO_2e/yr) $PE_{EC,y}$ = Project emissions from electricity consumption associated with composting in year y (t CO_2/yr) $PE_{FC,y}$ = Project emissions from fossil fuel consumption associated with composting in year y (t CO_2/yr) $PE_{CH4,y}$ = Project emissions of methane from the composting process in year y (t CO_2e/yr) $PE_{N20,y}$ = Project emissions of nitrous oxide from the composting process in year y (t CO_2e/yr) $PE_{RO,y}$ Project emissions of methane from run-off wastewater associated with co-composting in year y (t CO_2e/yr) The project does not involve co-composting. Hence, $PE_{RO,y}$=0 Hence the project emission equation is reduced as below:

$PE_y = PE_{EC,} + PE_{FC,} + PE_{CH4,} + PE_{N20,}$

Determination of project emissions from electricity consumption ($PE_{EC,y}$)

The project emission from electricity consumption is estimated as per the methodological tool 'Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 3 /39/, as per para 16 of the tool the project emission from electricity consumption is calculated as below:

$PE_{EC,y} = \sum_j \mathrm{EC_{PJ,j,y}} \times \mathrm{EF_{EL,j,y}} \times (1 + \mathrm{TDL_{j,y}})$

Where,

$PE_{EC,y}$	=	Project emissions from electricity consumption in year y (t CO_2 / yr)
$\mathrm{EC_{PJ,j,y}}$	=	Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr)
$\mathrm{EF_{EL,j,y}}$	=	Emission factor for electricity generation for source j in year y (t CO_2/MWh)
$\mathrm{TDL_{j,y}}$	=	Average technical transmission and distribution losses for providing electricity to source j in year y

Determination of the emission factor for electricity generation ($EF_{EL,j,y}$):

Since the project consumes electricity only from grid, the Scenario A is applicable for this project.

Option A.1 is selected for estimation of $\mathrm{EF_{EL,j,y}}$. As per Option A, combined margin emission factor of the applicable electricity system, using the procedures in the latest approved version of the "Tool to calculate the emission factor for an electricity system" shall be calculated ($EF_{EL,j/k/l,y} = EF_{grid,CM,y}$). The combined margin emission factor of all the grids in Indonesia is calculated by Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia on 2018/41/. This is the latest values made available by ministry of Energy and Mineral Resources. As per this, the ex-ante emission factor of Jamali (Jawa-Madura-Bali) grid is estimated to as 0.88 tCO_2/MWh

Since the electricity will be consumed only from grid the equation is reduced as below:

$PE_{EC,y} = \mathrm{EC_{PJ,grid,y}} \times \mathrm{EF_{EL,grid,y}} \times (1 + \mathrm{TDL_{grid,y}})$

Determination of project emissions from fossil fuel consumption ($PE_{FC,y}$)

Project emissions from fossil fuel consumption ($PE_{FC,y}$) is estimated using the methodological tool 'Tool to calculate project or leakage CO2 emissions from fossil fuel combustion', version 3 /37/. As per para 6 & 7 of the tool it is calculated as below:

$PE_{FC,j,y} = \sum FC_{i,j,y} \times COEF_{i,y}$

And

$COEF_{i,} = NCV_{i,} \times EF_{CO2,,y}$

Where,

$PE_{FC,j,y}$	=	CO_2 emissions from fossil fuel combustion in process j during the year y (tCO_2/yr)
$FC_{i,j,y}$	=	quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr)
$COEF_{i,y}$	=	CO_2 emission coefficient of fuel type i in year y (tCO_2/mass or volume unit)
$NCV_{i,y}$	=	weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)

	$EF_{CO2,i,y}$ weighted average CO_2 emission factor of fuel type i in year y (tCO_2/GJ) Since the only fuel used in the project activity is diesel, the equation is reduced as below: $PE_{FC,,} = FC_{diesel,y} \times NCV_{diesel,y} \times EF_{CO2,diesel,y}$ Also the diesel consumption will be monitored in liters. The mass of the diesel will be estimated as below: $FC_{diesel,} = FC_{disel,v,y} * D_{diesel}$ Where, $FC_{disel,v,y}$ = Diesel consumption in volumetric basis (liters) D_{diesel} = Density of Diesel (kg/liter) <u>Determination of project emissions of methane ($PE_{CH4,y}$)</u> As per para 22 of the tool, Project emissions of methane from composting are determined as follows: $PE_{CH4,} = Q_y \times EF_{CH4,} \times GWP_{CH4}$ $PE_{CH4,y}$ = Project emissions of methane from the composting process in year y (t CO_2e / yr) Q_y = Quantity of waste composted in year y (t / yr) $EF_{CH4,y}$ = Emission factor of methane per tonne of waste composted valid for year y (t CH_4 / t) GWP_{CH4} = Global Warming Potential of CH4 (t CO_2e / t CH_4) As per option 2, the default value is used for emission factor of methane per tonne of waste, ie, $EF_{CH4,} = EF_{CH4,ult}$. <u>Determination of project emissions of nitrous oxide ($PE_{N2O,y}$)</u> $PE_{N20,} = Q_y \times EF_{N20,} \times GWP_{N20}$ $PE_{N2O,y}$ = Project emissions of N_2O from the composting process in year y (t CO_2e / yr) Q_y = Quantity of waste composted in year y (t / yr) $EF_{N2O,y}$ = Emission factor of N_2O per tonne of waste composted valid for year y (t N_2O / t) GWP_{N2O} = Global Warming Potential of N_2O (t CO2e / t N_2O) As per option 2, the default value is used for emission factor of N2O per tonne of waste, ie, $EF_{N2O,} = EF_{N2O,ult}$. **<u>Leakage Emission</u>** • No composting technology equipment is transferred from or to another activity • The compost is not stored in anaerobic condition and not disposed of in a SWDS Hence, there is no leakage emission from this project activity. LEy = 0 **<u>Emission reduction</u>** Since the project activity is a capacity addition to the existing facility, the emission reduction from the project activity is calculated as below:

$ERy = (BEy - PEy - LEy) \times (1 - r)$

And
$r = WCOM_{BAU}/TWCO_y$

Where,

ERy	=	Emission reduction in the year y (tCO_2e)
BEy	=	Baseline emissions in year y (tCO_2e)
PEy	=	Project emissions in the year y (tCO_2e)
LEy	=	Leakage emissions in year y (tCO_2e)
r	=	Adjustment factor
$WCOM_{BAU}$	=	Total quantity of waste composted in year y (tonnes) at the facility
$TWCO_y$	=	Registered annual amount of waste composted (tonnes) at the facility on a business as usual basis calculated as the highest amount of annual compost production in the last five years prior to the project implementation

For other SDG outcome the following approach is followed:

SDG 1:
PP has selected the Number of new jobs generated due to the project activity as the indicator of SDG1. In the baseline scenario this project would have not present and hence no new jobs would have been generated in the baseline. In the project scenario new jobs are generated which will be monitored based on the employment records. Hence,

Net Outcome	=Project outcome – Baseline Outcome =Number of jobs created in project scenario - 0

SDG 3
PP has selected the improved health condition as the indicator of SDG3. In the baseline scenario the composting plant would have not present and hence the health condition would be bad due to the dumping of all the organic waste into the landfills. In the project scenario the health condition would have been improved due to the waste are processed aerobically in composting which removes most of the pathogens as the temperature of composting exceeds 70 deg C which kills most of the pathogens thereby improving health condition of the local people. PP will monitor the improvement in their health condition of local people though the sample survey.

Net Outcome	=Project outcome – Baseline Outcome = Percentage of people confirm the improvement in their health condition in the monitoring sample survey - 0

SDG 6:
PP has selected the improvement in the water quality as indicator of SDG 6. In the baseline scenario the waste was dumped in to the landfills without any treatment which results in generation of more leachate that pollute water resources. Now most of the organic waste are processed though composting the same is avoided going to landfills which results in less number of leachate generation that results in improvement of water quality in water resources. PP will monitor the improvement of water quality though sample survey among local people.

Net Outcome	=Project outcome – Baseline Outcome = Percentage of people confirm the improvement in clean water

	availability - 0 **SDG 11:** PP selected the amount of waste processed in the composting facility as indicator of SDG6. In the baseline scenario only the pilot project was operational. In the project scenario the capacity of the waste composting was increased. Net Outcome =Project outcome – Baseline Outcome = Amount of waste processed though composting in the project scenario - Amount of waste processed though composting in the baseline scenario
Findings	No finding
Conclusion	The approach for estimation of emission reduction is checked and found to be in line with the para 22 to 32 of the applied methodology AMS.III.F v12. The other SDG outcome approach provided in the PDD is verified and found to be appropriate for the project activity and selected indicator.

D.5.7. Ex-Ante Estimation of SDG Outcomes

Means of validation

SDG 13:
Baseline emission

As mentioned above, the only baseline emissions applicable to the project is baseline emission from solid waste disposal site. It is calculated based on the FOD-Model.

$$BE_{SWDS,y} = \phi_y \times (1 - f_y) \times GWP_{CH4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y \times \sum_{x=1}^{y} \sum_{j} (W \times e^{-kj \times (y-x)} \times (1 - e^{kj}))$$

and

$W_{j,x} = W_x \times p_{j,x}$

Parameter	Value	Assessment
W_x	14,875 t	This is a monitoring parameter. For ex-ante calculation this value is determined using the following assumption: Total waste collected (50 t / day (350) / year) — 17,500 t - thereof waste for recycling (5%) — 875 t -thereof waste shifted to landfill (10%) — 1,750 t -thereof waste processed for composting (organic waste) — 14,875 t This is found to be appropriate and in line with the value considered in the CDM registered PDD/8/.
$p_{j,x}$	Check the table below	This is a monitoring parameter. For ex-ante calculation, PP used the value determined for the year 2018. This is verified form the 2018 CDM monitoring report/9/ and found to be correct. Hence Ok.
$W_{j,x}$	Check the table below	The value is calculated as below using the above mentioned values: $W_{j,x} = W_x \times p_{j,x}$ This is as per methodological requirements, Hence OK.
ϕ_y	0.85	Default value provided by applied tool. Fixed ex-ante. Hence OK.

f_y	0	This is a monitoring parameter. For ex-ante calculation it is assumed as 0. Since no methane will be captured and flared at the existing landfill/1/, the value considered for the ex-ante calculation is appropriate. .
GWP_{CH4}	25	IPCC value for the 2nd commitment period. Fixed ex-ante. Hence Ok.
OX	0.1	Default value as per the applied tool. Fixed ex-ante. Hence OK.
F	0.5	IPCC default value. Fixed ex-ante. Hence, OK
DOC_f	0.5	IPCC default value. Fixed ex-ante. Hence, OK
MCF_y	0.8	IPCC default value. Fixed ex-ante. Hence, OK
DOC_j	Check the below table	IPCC default value. Fixed ex-ante. Hence, OK
kj	Check the below table	IPCC default value. Fixed ex-ante. Hence, OK
j	Check the below table	Considered as per methodology. Waste stream 'Glass, plastic, metal, other inert waste' is not considered as these materials will be removed before going to composting. Only organic compound will be sent to composting. Hence OK

Waste types (j)	**$P_{j,x}$**	**$W_{j,x}= (W_x * P_{j,x})$**	**DOC_j**	**k_j**
A. Wood, wood products	7.558%	859.76	0.43	0.035
B. Pulp, paper and cardboard	6.617%	752.65	0.40	0.070
C. Food, food waste, beverages and tobacco	13.033 %	1482.54	0.15	0.400
D. Textiles	0.083%	9.48	0.24	0.070
E. Garden, yard, and park waste	72.708 %	8270.57	0.20	0.170

PP has provided the detailed baseline estimation calculation (FOD model) is provided in the ER calculation sheet/2/. The baseline estimations are estimated from the year 2008 (the commissioning of the project activity) to November 2023 has been provided. However, the emission reduction is claimed under CDM till 3rd November 2018, the baseline emission estimated from 4th November 2018 to 3rd November 2023 will be considered for this crediting period under Gold Standard. The calculation in the excel sheet is verified to be correct and in line with methodological requirements.

Project Emission

Project emissions from electricity consumption ($PE_{EC,y}$)

The project emission from electricity consumption is estimated as per as below:

$$PE_{EC,y} = \sum_j ECP_{J,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y})$$

Where,

Parameter	**Value**	**Assessment**
$ECP_{J,j,y}$	50.00 MWh	This is a monitoring parameter. For ex-ante calculation PP has considered 50 MWh which is conservative assumption based on the historic consumption/9/. This is also in line with the registered CDM PDD. Hence Ok.

$EF_{EL,j,y}$	0.88 tCO_2/MWh	This parameter is fixed ex-ante. Since the project is connected to Jamali (Jawa-Madura-Bali) grid, the combined margin emission factor of the Jamali grid for the year 2018 as published by Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia/41/ has been taken. The same is verified and found to be correct. Hence Ok.
$TDL_{j,y}$	20%	This is a monitoring parameter. For ex-ante calculation PP has considered the default value provided as provided in the tool 'Baseline and project and/or leakage emissions from electricity consumption and monitoring of electricity generation', version 3 /39/. Hence ok.
$PE_{EC,y}$	52.80 tCO_2e	Estimated using above value. The emission reduction calculation sheet is verified and the calculation is found to be correct.

Project emissions from fossil fuel consumption ($PE_{FC,y}$)

Project emissions from fossil fuel consumption ($PE_{FC,y}$) is calculated as below:
$PE_{FC,,} = FC_{diesel,y} \times NCV_{diesel,y} \times EF_{CO2,diesel,y}$

$FC_{diesel,} = FC_{disel,v,y} * D_{diesel}$

Parameter	Value	Assessment
$FC_{diesel,v,y}$	25,000 liter	This is a monitoring parameter. For ex-ante calculation conservative assumption based on historic consumption is used. As verified from the previous CDM monitoring reports, the diesel consumption in the last five years ranges from 11,000 l to 15,000 l /9/. Hence, the value considered for ex-ante calculation is appropriate.
D_{diesel}	0.832 kg/l	IPCC default value. Fixed ex-ante. Hence OK.
$NCV_{diesel,y}$	43.33 TJ/Gg	This is a monitoring parameter. For the ex-ante calculation the IPCC default value is taken. Hence OK.
$EF_{CO2,diesel,y}$	74.8 tonnes/TJ	This is a monitoring parameter. For the ex-ante calculation the IPCC default value is taken. Hence OK.
$PE_{FC,j,y}$	67.41 tCO_2e	Calculated using above value. The emission reduction calculation sheet is verified and the calculation is found to be correct.

Project emissions of methane ($PE_{CH4,y}$)

Project emissions of methane from composting is determined as follows:

$PE_{CH4,} = Q_y \times EF_{CH4,} \times GWP_{CH4}$

Parameter	Value	Assessment

Q_y	14,875 t	This is a monitoring parameter. For ex-ante calculation this value is determined using the following assumption: Total waste collected (50 t / day (350) / year) — 17,500 t - thereof waste for recycling (5%) — 875 t -thereof waste shifted to landfill (10%) — 1,750 t -thereof waste processed for composting (organic waste) — 14,875 t This is found to be appropriate and in line with the value considered in the CDM registered PDD/8/.
$EF_{CH4,y}$	0.002 t CH_4 / t	This value is fixed ex-ante based on the default value provided in the tool 'Project and leakage emissions from composting', version 2 /40/. Hence OK.
GWP_{CH4}	25 t CO_2e / t CH_4	This value is fixed ex-ante based on the IPCC default value applicable for 2nd commitment period. Hence, OK.
$PE_{CH4,y}$	743.75 tCO_2e	Calculated using above value. The emission reduction calculation sheet is verified and the calculation is found to be correct.

Project emissions of nitrous oxide ($PE_{N2O,y}$)
Project emission of nitrous oxide is estimated as below:

$PE_{N20,} = Q_y \times EF_{N20,} \times GWP_{N20}$

Parameter	Value	Assessment
Q_y	14,875 t	This is a monitoring parameter. For ex-ante calculation this value is determined using the following assumption: Total waste collected (50 t / day (350) / year) — 17,500 t - thereof waste for recycling (5%) — 875 t -thereof waste shifted to landfill (10%) — 1,750 t -thereof waste processed for composting (organic waste) — 14,875 t This is found to be appropriate and in line with the value considered in the CDM registered PDD/8/.
$EF_{N2O,y}$	0.0002 t N_2O / t	This value is fixed ex-ante based on the default value provided in the tool 'Project and leakage emissions from composting', version 2 /40/. Hence Ok.
GWP_{N2O}	298 t CO_2e / t N_2O	This value is fixed ex-ante based on the IPCC default value applicable for 2nd commitment period. Hence, OK.
$PE_{N2O,y}$	886.55 tCO_2e	Calculated using above value. The emission reduction calculation sheet is verified and the calculation is found to be correct.

Hence total project emission estimated as below
$PE_y = PE_{EC,} + PE_{FC,} + PE_{CH4,} + PE_{N20,}$
= 52.80**+** 67.41 + 743.75 + 886.55 **=** 1,750.51 tCO_2e ~ 1,751 tCO_2e

The project emission calculation provided in the ER calculation sheet is verified and found to be correct.

Leakage Emission

No leakage emission from this project activity. $LE_y = 0$

Adjustment factor

The adjustment factor is calculated as below:

$r = WCOM_{BAU}/TWCO_y$

Parameter	Value	Assessment.
$WCOM_{BAU}$	595.0 t	The value is fixed ex-ante. The pilot facility was operational for approximately three years, but not continuously running. Also the complete data is not available with PP currently. Hence, PP has estimated, the highest amount of waste composted by taking the average processing volume under operation, times the maximum processing days per year. This results in 595 t of waste processed in the BAU scenario ($TWCOM_{BAU}$). This value is also in line with the value considered in the CDM registered PDD/8/. Hence Ok.
$TWCO_y$	14,875 t	This is a monitoring parameter. For ex-ante calculation this value is determined using the following assumption: Total waste collected (50 t / day (350) / year): 17,500 t - thereof waste for recycling (5%): 875 t -thereof waste shifted to landfill (10%): 1,750 t -thereof waste processed for composting (organic waste): 14,875 t This is found to be appropriate and in line with the value considered in the CDM registered PDD/8/.
r	0.04	Calculated using above value. The emission reduction calculation sheet is verified and the calculation is found to be correct.

Emission reduction

The emission reduction from the project activity is calculated as below:

$ERy = (BEy - PEy - LEy) \times (1 - r)$

As per above calculation, the estimated emission reduction for the crediting period are estimated as below:

Year	Baseline estimate tCO_2e	Project estimate tCO_2e	Net benefit* (BE-PE)x(1-r) tCO_2e
4th Nov 2018 to 31st Dec 2019	9,769	1,751	7,698
2020	10,618	1,751	8,513
2021	11,332	1,751	9,198
2022	11,937	1,751	9,778

1st Jan 2023 to 3rd Nov 2023	12,453	1,751	10,274
Total	56,109	8,755	45,460
Total number of crediting years			5
Annual average over the crediting period	11,222	1,751	9,092

PP has submitted the emission reduction calculation in a excel sheet/2/. The excel sheet is clear, viewable, non-protected and the calculated values in the sheet are reproducible. Hence the ex-ante emission reduction calculated for this project is correct.

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The ex-ante estimation of other SDGs are as below:

SDG 1

Parameter	Value	Assessment
Baseline estimate	0 new jobs creation	The value is appropriate as the without the project no new jobs would have created.
Project estimate	65 new job creation	This is a monitoring parameter. For ex-ante estimation it is taken based on the actual new jobs created due to the project. The employment records are checked and found to be appropriate
Net benefit	65 new job creation	Calculated using the above value. Hence OK.

SDG 3

Parameter	Value	Assessment
Baseline estimate	0	In baseline condition the health condition was bad due to the dumping of waste in landfill untreated. Hence the value is appropriate
Project estimate	100% people confirm the improvement in their health condition	This is monitoring parameter. For ex-ante calculation it is assumed as 100% as the health condition is improved in the local area due to the project. Hence OK.
Net benefit	100% people confirm the improvement in their health condition	Calculated using the above value. Hence OK.

SDG 6

Parameter	Value	Assessment
Baseline estimate	0	In baseline condition the water quality was bad due to the dumping of waste in landfill untreated which pollutes the water bodies. Hence the value is appropriate
Project estimate	100% people confirm the improvement in clean water availability and sanitation facilities in the local area	This is monitoring parameter. For ex-ante calculation it is assumed as 100% as the water quality is improved in the local area due the project. Hence OK.
Net benefit	100% people confirm the improvement in clean water availability and sanitation facilities in the	Calculated using the above value. Hence OK.

	local area		

SDG 11

Parameter	Value	Assessment
Baseline estimate	595 tonnes of waste processed in pilot plant	This is fixed-ex ante. This based on the pilot project operational capacity. Hence Ok.
Project estimate	17,500 tonne of waste processed in the plant per annum	This is a monitoring parameter. For ex-ante calculation it is calculated based on the capacity of the plant ie, 50 tonnes per day and 350 operating days. Hence Ok.
Net benefit	16,905 tonne of additional waste processed per annum	Calculated using the above value. Hence OK.

The ex-ante estimation of other SDGs are found to be appropriate.

Findings	CL-03, CAR-05 and CAR-06 are raised and closed satisfactorily.
Conclusion	The assessment team confirms that (a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources; (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD; (c) All values used in the PDD are considered reasonable in the context of the proposed project activity; (d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; (e) All estimates of the baseline and project can be replicated using the data and parameter values provided in the PDD.

D.5.8. Monitoring plan

Means of validation

SDG 13

The monitoring plan is in compliance with the applied CDM monitoring methodology: AMS-III.F.: Avoidance of methane emissions through composting, Version 12.0 /11/

All monitoring parameters in the PDD are realistic and feasible to measure and monitor. The monitoring plan is already implemented in site. The project is already registered under CDM and has been undertaking monitoring for last 10 years. CERs are issued under CDM until 3rd November 2018 /9/. It is VVB's opinion that the project participant is able to implement the monitoring plan during the GS crediting period also.

The parameter remains fixed throughout the crediting period are available during the validation stage. The same is explained and assessed below,

Parameters	Value applied	Source
φ	0.85	The 'Model correction factor to account for model uncertainties' is taken based on the IPCC 2006 default value as proposed by the tool 'Emissions from solid waste disposal sites' version 8 /38/. This value is applicable for Application B (ie, avoidance of waste at SWDS) Humid/wet Conditions (applicable for the project area Bali). Hence, the value fixed for this parameter is appropriate.

OX	0.1	The 'Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)' is taken based on the IPCC 2006 default value as proposed by the tool 'Emissions from solid waste disposal sites' version 8 /38/. The same is verified and found to be correct.
F	0.5	The 'Fraction of methane in the SWDS gas (volume fraction)' is taken based on the IPCC 2006 default value as proposed by the tool 'Emissions from solid waste disposal sites' version 8 /38/. The same is verified and found to be correct.
DOC_f	0.5	The 'fraction of degradable organic carbon (DOC) in MSW that decomposes in the SWDS' is taken based on the IPCC 2006 default value as proposed by the tool 'Emissions from solid waste disposal sites' version 8 /38/. The same is verified and found to be correct.
MCF	0.8	The 'Methane correction factor' is taken based on the IPCC 2006 default value as proposed by the tool 'Emissions from solid waste disposal sites' version 8 /38/. Since, the depth of land fill is more than 6 m, PP has conservatively taken the value of 0.8 applicable for >5 m. Hence, the value considered is appropriate.
DOC_j	Refer PDD	The 'Fraction of degradable organic carbon in the waste type j' is taken based on the IPCC 2006 default value as proposed by the tool 'Emissions from solid waste disposal sites' version 8 /38/. The value is verified and found to be correct
k_j	Refer PDD	The 'Decay rate for the waste type j' is taken based on the IPCC 2006 default value as proposed by the tool 'Emissions from solid waste disposal sites' version 8 /38/. Since the project area Bali is located in tropical area with MAP of around 1700 mm per year and an average annual temperature (MAT) of 27°C. Therefore the proposed k values for wet conditions are used are found to be appropriate.
GWP_{CH4}	25 t CO_2e/t CH_4	The 'Global Warming Potential of methane' is based on the IPCC default value applicable for 2nd commitment period. Hence, appropriate.
GWP_{N2O}	298 t $CO_2e/tN2O$	The 'Global Warming Potential of Nitrous Oxide is based on the IPCC default value applicable for 2nd commitment period. Hence, appropriate.
$EF_{EL,j,y}$	0.88 tCO2/MWh	The 'Emission factor for electricity generation' is based on the 2018 - Emission Factor Reference Official Document/41/. PP has used latest combined margin emission factor (based on OM:BM weighs 50:50) applicable for the Jamali grid which is connected to the project. The data is verified and found to be correct for the project.
$D_{diesel,}$	0.832 kg/l	The 'Density of Diesel' is based on the IPCC default value applicable. Hence, appropriate.

EF_{CH4}	0.002 t CH_4 / t	The 'Emission factor of methane per tonne of waste composted' is based on the Tool: Project and leakage emissions from composting, version 2 /40/. The same is verified and found to be correct.
EF_{N2O}	0.0002 t N_2O / t	The 'Emission factor of Nitrous Oxide per tonne of waste composted' is based on the Tool: Project and leakage emissions from composting, version 2 /40/. The same is verified and found to be correct.
$TWCOM_{BAU}$	595 t per year	The 'Maximum amount of organic waste processed for composting per year in the BAU scenario (pilot facility)' is based on the plant records. Since the pilot project was operational only for three years, but not continuously. PP has conservatively determined the $TWCOM_{BAU}$ based on the average processed total volume per day (2 t) times the maximum operating days of the plant (350), times the average organic fraction of the waste (0.85). The same was considered in the CDM registered PDD/8/ as well. Hence, the value fixed ex-ante is found to be appropriate.

The validation team has verified the value used against the sources and conclude that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered and the value of the parameters are real, measureable and conservative

Parameters to be monitored:

According to the applied CDM methodology, the following parameters will be monitored:

Sl. No.	Parameters	Monitoring procedure& Assessment
1	fy - Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y	In the existing land fill there no methane capture mechanism available. Hence the value is zero. However, every year it will be checked based on historic data and written confirmation from landfill site operator. The method of mentoring is found to be appropriate and in line with methodological requirement.
2	$W_x = Q_y = TWCO_y$ - Total amount of organic waste composted in year x/y	This will be monitored on wet-basis continuously using calibrated weighing scales. The calibration frequency of weight scale is annual. The monitoring method is found to be appropriate and feasible. Hence OK.
3	$p_{n,j,x}$ - Weight fraction of the waste type j in the sample n collected during the year x	This will be determined quarterly (4 times in a year) on sample basis with a maximum uncertainty range of 20% at a 95% confidence level (minimum 3 sample each time). This is in line with methodological requirement. The monitoring method is found to be appropriate and feasible. Hence OK.

4	Zx - Number of samples collected during the year x	This is based the sample size determined basis with a maximum uncertainty range of 20% at a 95% confidence level. However, minimum 3 sample for every 3 months will be taken. This is in line with methodological requirement. Hence OK.
5	$EC_{PJ,grid,y}$ - Quantity of electricity consumed from the grid in year y	This will be monitored continuously through energy meters. The energy meters will be calibrated once in 5 years. The monitoring method is found to be appropriate and feasible. Hence OK.
6	$TDL_{j,y}$ - Average technical transmission and distribution losses for providing electricity to source j, in year y	This will be determined based on the Data provided by grid operator/ government annually or default value provided in the tool 'Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 3 (ie, 20%) will be taken for calculation. This is found to be appropriate and in line methodological requirement.
7	$FC_{diesel,y}$ - Quantity of diesel combusted during the year y	It will be taken from purchase records and invoices are used to estimate diesel consumption in year y. If possible accuracy will be cross-checked with direct measurements. The monitoring method is found to be appropriate and feasible. Hence OK
8	$NCV_{diesel,y}$ - Net calorific value of diesel	This is based on the Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories /22/. Upper value uncertainty at 95% will be considered since the supplier data is not available. This is found to be conservative. If IPCC value is updated, the same will be considered for this parameter.
9	$EF_{diesel,y}$ - Emission factor of diese	This is based on the Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories /22/. Upper value uncertainty at 95% will be considered since the supplier data is not available. This is found to be conservative. If IPCC value is updated, the same will be considered for this parameter.

Other SDGs:

SDG	Parameters	Monitoring procedure& Assessment
SDG 1	Number of new jobs created due to project implementation Money spent as salary	These will be determined every year based on the salary vouchers and other financial statements. The monitoring method proposed is found to be appropriate.

	SDG 3	Improvement in the health conditions of the communities in and around the plant.	The health conditions improvement will be will be monitored though sample survey annually. Also Doctors from nearby hospitals will be consulted to verify the same. The monitoring method proposed is found to be appropriate.
	SDG 6	Improvement in the clean water availability and sanitation facilities.	The improvement in clean water availability and sanitation facility will be monitored though sample survey. Also PP will test the water samples half yearly once in tested in government certified lab and results are compared with the previous readings.
	SDG 11	Amount of waste processed though composting	This will be monitored on wet-basis continuously using calibrated weighing scales. The calibration frequency of weight scale is annual. The monitoring method is found to be appropriate and feasible. Hence OK.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design are described below:-

(a) Interview with PP – The monitoring procedures described in the PDD were cross-checked by though interview. Representatives of PP and consultant were interviewed in-order to understand the monitoring plan.

(b) Review of QA/QC procedures – The QA/QC procedures are revised and found to be appropriate

(c) Review of CDM monitoring reports – Since the project is registered under CDM, the old monitoring reports of CDM has been checked to understand the monitoring procedures already followed at site.

The validation team considers that the description of the monitoring plan contains all necessary parameters, that they are described and that the means of monitoring described in the plan complies with the requirements of the methodology including applicable tool(s)

PDD clearly describes the detailed monitoring procedures, monitoring structure, monitoring items and training which in conformity with applied methodology. The validation team confirms that the specific uncertainty levels, methods, and associated accuracy level of measurement instruments and calibration procedures used for various parameters and variables are identified in the PDD, along with detailed quality assurance and quality control procedures.

Based on review of the PDD and interview with relevant stakeholders during remote audit, the validation team confirms that the monitoring plan presented in PDD is feasible to implement and will result in credible emission reduction calculations.

Findings	CAR-07 is raised and closed satisfactorily
Conclusion	The validation team confirms that: (a) All the values used from official sources and the authenticity of sources has been verified and the validation team confirms that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered and the value of the ex-ante fixed parameter used for emission reduction calculation determined conservatively. The validation team considers that the monitoring plan has complied with the requirements in the approved methodology thereby satisfying requirement of VVS version 2.0 (b) The SDG 13 monitoring plan based on the methodology, AMS-III.F.: Avoidance of methane emissions through composting, Version 12.0 is included in the PDD and is correctly applied to the GS project activity. The

	monitoring plan has been found to be in compliance with the requirements of the applied methodology. The monitoring plan will give opportunity for real measurements of achieved emission reductions (c) Monitoring plan of SDG 1, SDG 3, SDG 6 and SDG 11 are found to be appropriate for the selected parameter. (d) The validation team considers that monitoring arrangements described in the monitoring plan and feasible within the project design and the PP will be capable to implement the monitoring plan.

D.6. Start date, Start date of crediting period and duration

Means of validation	PP has included the details of project start date, crediting period start date and duration in section C of the PDD. Start date - 18/08/2007: This is the date of implementation of the first project. This is verified against the details in the registered PDD and found to be correct. The same is confirmed with the PP during the remote audit. Start date of crediting period - 04/11/2018: The crediting period of CDM ends on 03/11/2018. Next date is considered as start date of crediting period of GS. Hence, the start date of GS crediting period is appropriate as there is no overlap of crediting period. Length of crediting period- 5 years: This as per GS4GG requirements. Hence OK.
Findings	No finding
Conclusion	The start date, crediting period and length of crediting period mentioned in the PDD is found to be appropriate.

D.7. Safeguarding Principles Assessment

Means of validation	Project Proponent has done the safeguarding principles assessment analysis and presented assessment in the Gold standard PDD/1/. The assessment has been performed in accordance to requirements prescribed in the GS4GG Principles & Requirements/12/ and Safeguarding Principles & Requirements /14/ Validation team has carried out the interview with PP to cross check the safeguarding principle assessment conducted by the PP. VVB has also reviewed the initial GS local stakeholder consultation report /3/ and GS4GG PDD and found that the PP has assessed all the required critical safeguarding principle of United Nations in project activity. It has been found that the project activity fulfill all the principles like Human Rights, Labour standards, environment protection, and anti-corruption. The detailed assessment of safeguarding principle is provided below **Safeguarding principles** / **Assessment** Human Rights: PP confirms that that, the Project Developer and the Project shall respect internationally proclaimed human rights. Also the project does not discriminate people participation Hence, validation team concludes the project will not harm the human rights. Gender equality and Women's Rights: PP confirmed that project does not put the women at any risk to access or control of entitlement and benefits of the project activity. There is no way that the project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men) rather it would impact their life in positive way by providing jobs to the local people especially for women. PP confirmed that both the women and men will be equally considered in the participation of the project. PP also taken into

		account the gender roles and therefore had invited both men and women to actively participate in the stakeholder consultation meeting. The stakeholder consultation documents also verified and found that there is no discrimination in the consultation. PP also confirmed that PP will take into account gender roles and the abilities of women or men to benefit from the Project's activities. As confirmed by PP, the project will not contribute to increase women's work load, rather it will reduce women's work load by providing job opportunities at the project that will prevents them from engaging in other harder activities. The project activity provides opportunities to women to participate in the project activities and also the PP will provide training to the women in the new technology. Hence the project will make the women more competent and hence it will help in reducing the discrimination against women. Also the project activity does not limit women's ability to use, develop and protect natural resources. The justifications provided by PP are found to be appropriate for this project activity context. Hence validation team concludes the gender based discrimination in this project activity and also it will not harm any women's right.
	Community Health, Safety and Working Conditions	The project activity will not expose community to increased health risks and shall not adversely affect the health of the community. Compared to dumping of waste in landfills, the project scenario the exposure to health risk are reduced as the composting process kills most of the pathogens. The PP has Quality System has operating procedures/26/ that assure worker's safety (Procedure no. 24) and health (no. 25). It also provides a system for reporting inadequate conditions (no. 27) and for quality alerts (no. 28 that includes health and safety). Hence, validation team conclude that the project will avoid community exposure to increased health risks and will not adversely affect the health of the workers and the community.
	Sites of Cultural and Historical Heritage	As checked, the project activity is not implemented in areas where there are cultural sites or any other historical heritage. The project is implemented in the existing landfill area. There is no cultural heritage site present within 100 km from the project area. Hence the project area does not include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture. Hence, validation team concludes that there is no risk on cultural heritage by the project activity.
	Forced Eviction and Displacement	The project is implemented at the existing landfill site. Hence the validation team confirms the project not require any physical or economic relocation of peoples.
	Land Tenure and Other Rights	The project is implemented at the existing landfill site. Hence the validation team confirms the project not require any change in land tenure arrangements or other rights.
	Indigenous Peoples	The project is implemented at the existing landfill site. Hence validation team confirms there is no impact on the rights of indigenous people.
	Corruption	PP confirms that the project does not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt projects. Also Indonesia has ratified the UN Convention against Corruption /30/.
	Labour Rights	PP confirms that the project does not imply any forced labour. Government of Indonesia also ratified ILO convention 29 and

		105 on elimination of forced and compulsory labour /30/. The 'Indonesian Labour Law' also prohibits forced labour. PP also confirms that the workers of the project joined are through voluntary interest and it will not be through forced or compulsory labour. The project activity provides employment to the local people mainly for waste segregation and operation of the composting plant and the employment model respects the local regulations. PP confirms they will not object labours in any kind in establishing and join labour organisations. PP also confirmed that Working agreements with all individual workers will be documented and implemented. Sample contracts are verified and found to be in line with national legal requirements. PP confirmed the employment model to be executed will be legally appropriate and as per the current practices followed in the local. Sample contracts are verified and found to be in line with national legal requirements. Indonesian Labour Law prohibits employment of children. Indonesia also ratified ILO convention 182 (Worst Forms of Child Labour Convention, 1999)/30/. PP also confirms that the project does not employ any child labour. PP confirmed that the workers will be provided safety equipment's (helmets, boots, gloves etc.) during the work to avoid any accidents and exposure to health risk Also appropriate training have been provided to the workers. Hence, validation team confirms the project does not adversely impact on the labours right in any way.
	Negative Economic Consequences	The project revenue comes from the form the waste collection and selling of composting. Though currently the carbon benefit is mandatory for operating the project, it is expected that the composting price will increase in future that will help to sustain the project beyond the crediting period. The project also provides new jobs that improve economy of the local people. The project is composting of municipal solid waste which does not affect any other social groups. In the opposite, the project created economic rewards for the village and informal sector opportunities for women in form of food stalls and other businesses around the facility. Hence, the project will improve the economy of the local people and there are no potential risks to the local economy. Hence, validation team confirms there are no negative economic consequences due to the implementation and operation of the project activity.
	Emissions	The project reduces CH_4 emission from avoiding MSW dumping into landfills. PP also claims GHG emission reduction under this project. Hence, the project reduces GHG emission over baseline scenario.
	Energy Supply	The in-house electricity consumption is very minimal from the national grid. Hence, it does not affect the electricity supply to other local users.
	Impact on Natural Water Patterns/Flows	The project does not have any kind of impact on the natural water patterns/flows.

	Erosion and/or Water Body Instability	The project is installation of composting facility in existing landfill area. Project does not directly or indirectly cause additional erosion and/or water body instability or disrupts the natural pattern of erosion.
	Landscape Modification and Soil	The project is installation of composting facility in existing landfill area. Now the landscape is improved compared to baseline. Hence the project does adversely affect Landscape and Soil.
	Vulnerability to Natural Disaster	The project is installation of composting facility in existing landfill area which is relatively very small area this do not affect any natural phenomenon. Hence validation team conclude that the project activity does not lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions.
	Genetic Resources	The project activity involved installation of composting plant and therefore, is not linked to any activity related to genetic resources.
	Release of pollutants	The project does not release any pollutants. Instead it reduces release of pollutants from landfill that such as odour, leachate etc.
	Hazardous and Non-hazardous Waste	Project does not involve in hazardous material production, trade or release.
	Pesticides &Fertilisers	The project activity does not involve in application of pesticide and/or fertiliser.
	Harvesting of Forests	The project does not involve in harvesting of forests.
	Food	The project is implementation of composting facility which does not result in change in quantity or nutritional quality of food available.
	Animal husbandry	The project is implementation of composting facility which does not linked to animal husbandry.
	High Conservation Value Areas and Critical Habitats	The project involves implementation composting facility which will not result in any degradation of critical natural habitats.
	Endangered Species	The project is implemented in existing landfill area. No endangered specifies found in the project boundary and also no transboundary effects are foreseen due to the project.
	The validation approach didn't reveal any situation that could lead to the violation of safeguarding principles and VVB has confirmed that the project activity fulfill GG GS Safeguarding Principles Requirements, version 1.2 /14/	
Findings	No findings	
Conclusion	All supporting information & reference sources stated in the GS4GG PDD in order to support the assessment have been verified by the validation team & confirmed the assessment has been carried out based on accurate information. All of the Safeguarding Principles were evaluated and assessed as no risk. Hence no mitigation measure is proposed.	

D.8. Stakeholder consultation

Means of validation	As detailed in the GS SCR report and PDD, the Initial Stakeholder Consultation was conducted on 28/02/2019 at JI Raya Temesi Selatan, YPST Office, Gianyar, Bali -80551, Indonesia. Information about the proposed project has been given to the stakeholders through public invitation and personal invitation letter e-mail communication/4//. The main parameter to assess the adequacy of the stake holder consultation process was the cross section of the society that the invitees represented. The various categories of stakeholders invited include local

	communities, local policy makers, official representatives, local NGOs, and Gold Standard international NGOs. As checked from the attendance sheet, the meeting was attended by 41 people from target villages, members of the Village Panchayat, local officials, policy makers, NGO's, farmers and local entrepreneurs. Secondly, it is checked whether adequate and advance information was provided to the invitees about the likely agenda for the meeting and whether the information about the project was available to them beforehand. Since the project is a Gold standard, the PP has followed the procedure as mentioned in Gold standard to conduct the local stakeholder consultation process. All factors had been taken care and the same was confirmed during the interview and documentary evidences. The Local Stakeholder Consultation Report/3/ was reviewed by the validation team and it includes the non-technical summary which is consistent with project descriptions in the PDD& LSC report/3/. Invitation tracking table has been filled out and copies of the invitations published and sent out were cross-checked. This also includes the original copies of list of participants, stakeholder evaluation forms, meeting minutes and record of due accounts to address all comments received from the stakeholders. The project proponent gave evaluation form with questionnaires. All the stakeholders are free to fill the evaluation form and mention suggestions about the project activity. All the comments were satisfactorily explained by the PP to the stakeholder. No negative comments were received/4/. The project participant has taken due account of all comments received by the stakeholders and its summary is described in the stakeholder consultation report/3/ and PDD adequately/1/. There was no significant negative feedback received during the process and hence no revisit is required for the sustainable development assessment. PP has also conducted stakeholder feedback round was open for 2 months from 29/05/2020 to 29/07/2020. During this period PP has kept the hard copy of the project documents such as PDD and Stakeholder consultation report in the project office and requested local people for comments. It is confirmed though interview with PP. Also PP has sent email/5/ on 29/05/2020 to all stakeholders who were invited for first physical stakeholder meeting by sharing the project documents and requested comments. PP also shared a feedback questionnaire. Only few feedbacks received during the period and all the feedbacks/5/ are positive feedback about the project. No negative feedback received during the period. Details of the SFR have been provided in section F of stakeholder consultation report and section E.1 of GS PDD. The validation team confirms that the stakeholder feedback round has been carried out according to the requirements of 'GS4GG-Stakeholder Consultation Requirements Guidelines, v1.2' and the reporting in the PDD and stakeholder consultation report is complete and valid The stakeholder consultation was conducted as per the requirements of Stakeholder Consultation and Engagement Requirements.
Findings	CAR-08 is raised and closed satisfactorily
Conclusion	The validation team reviewed all relevant information of stakeholder consultation and confirms that the stakeholder consultation meets to the GS4GG requirement. The validation team have verified the related documents and found acceptable and interviewing some of the attendees of the stakeholder meeting which concludes that the project participant conducted the stakeholders' consultation process in transparent and unbiased manner. The validation team was able to conclude that the project activity has not received any adverse comment during stakeholders' consultation process. The SFR process was undertaken as per the procedures defined in the GS4GG-Stakeholder Consultation Requirements Guidelines/13/. The validation team confirms that the Stakeholder consultation process followed in the project is adequate and credible.

SECTION E. Internal quality control

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The validation report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by 4KES are duly followed and the validation report/opinion is reached in an objective manner and complies with the applicable GS4GG requirements.

The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the validation team. The independent technical reviewer(s) may approve or reject the draft validation report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before submit final report to Gold Standard. The final approval decision is taken by the Head of the VVB/Director.

The final decision is authorized by the Director, 4KES, once the report is finalized by the Head of the VVB/VVB Manager

SECTION F. Validation opinion

4K Earth Science Private Limited has been contracted by 'Yayasan Pemilahan Sampah Temesi' to undertake validation of Gold Standard project 'Gianyar Waste Recovery Project' (Ref# GS7561) in Indonesia.

The validation was performed in accordance with the GS4GG guidelines, UNFCCC criteria for the Clean Development Mechanism, latest version of Validation and Verification Standard and related Standards/Guidance and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The Validation report is based on the assessment of the GS PDD undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., on site visit, electronic (telephone or e-mail) interviews) and also the review of the applicable GS requirements.

The review of the project design documentation and the subsequent follow-up interviews have provided 4KES with sufficient evidence to determine the project's fulfilment of all the stated criteria. In our opinion, the project meets all applicable requirements of Gold Standard. The ex-ante estimation of net benefits of SDG are:

- SDG 13 – 9,092 tCO_2e emission reduction per annum
- SDG 1 – 65 new jobs creation
- SDG 3 – 100% people confirm improvement health condition in the monitoring sample survey
- SDG 6 – 100% people confirm improvement in clean water availability and sanitation facilities in the monitoring sample survey
- SDG 11 – 16,905 tonne of additional waste processed in the plant per annum

In detail the conclusions can be summarized as follows:

- The project does not result in negative social, environmental and/or economic impacts.
- The project contribution to Environment, Social Development and Economic and technological development
- The project additionality is sufficiently justified in the Gold Standard PDD
- The project does not result in diversion of ODA.
- Conservative assumptions were applied in the project description.
- The monitoring plan of SD parameters is transparent and adequate.
- The project meets the stakeholder consultation requirements.

In summary, it is validation team's opinion that the project 'Gianyar Waste Recovery Project' (Ref# GS7561) in Indonesia meets all relevant GS4GG requirements for the registration of the project activity. Hence, 4KES requests the registration of the project activity under GS4GG.

Appendix 1. Abbreviations

Abbreviations	Full texts
4KES	4K Earth Science Private Limited
AMS	Approved Methodology for Small-scale
BAU	Business as Usual
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CH4	Methane
CL	Clarification request
CO_2	Carbon dioxide
COP	Conference of Parties
DNA	Designated National Authority
DR	Document Review
EB	Executive Board
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
FOD	First Order Decay
GHG	Greenhouse gas(es)
GS	Gold Standard
GS4GG	Gold Standard for Global Goals
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation
LE	Leakage Emissions
ILO	International Labor Organization
ISO	International Organization for Standardization
MOP	Meeting of Parties
MoV	Means of Verification
MP	Monitoring Plan
MSW	Municipal Solid Waste
N2O	Nitrous Oxide
NCV	Net Calorific Value
NGO	Non Governmental Organization
ODA	Official Development Assistance
PA	Project Activity
PDD	Project Design Document
PE	Project Emissions
PLN	PT Perusahaan Listrik Negara
PP	Project Participant
PS	Project Standard
QA/QC	Quality Assurance/Quality Control
SDG	Sustainable Development Goal
SSC	Small Scale
SWDS	Solid Waste Disposal Site
T&C	Technical & Certification
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emission Reduction
VVB	Validation & Verification Body
VVS	Validation & Verification Standard
YPST	Yayasan Pemilahan Sampah Temesi

Appendix 2. Competence of team members and technical reviewers

Certificate of Competence							
Name	☒ Mr. ☐ Ms.	**Narendra Kumar .R**					
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*					
Appointed to work as:							
		CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed		Yes	Yes	Yes	Yes	Yes	No
Appointed Date		29-07-2019					
Authorized to work as Technical Expert for:							
Authorized Technical Area		**Sectoral Scope**		**TA Code**	**Technical Area within the scope**		
		Energy industries (renewable - / non-renewable sources)		1.1	Thermal energy generation		
		Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
		Energy demand		3.1	Energy demand		
		Waste handling and disposal		13.1	Solid waste and wastewater		
Authorized to work as Local Expert for:							
Country/Countries		India					
Compliance check by: Anand S. R.							

Certificate of Competence							
Name	☒ Mr. ☐ Ms.	**Ramaiyer Ramachandran**					
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*					
Appointed to work as:							
		CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed		No	No	No	No	No	No
Appointed Date		20-07-2020					
Authorized to work as Technical Expert for:							
Authorized Technical Area		**Sectoral Scope**		**TA Code**	**Technical Area within the scope**		
		-					
Authorized to work as Local Expert for:							
Country/Countries		Indonesia					
Compliance check by: Anand S. R.							

Certificate of Competence							
Name	☐ Mr. ☒ Ms.	**Indumathi .C**					
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.*					
Appointed to work as:							
		CDM Validator/Verifier	**Team Leader**	**Team Member**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**
Appointed		Yes	Yes	Yes	Yes	Yes	No
Appointed Date		29-07-2019					
Authorized to work as Technical Expert for:							
Authorized Technical Area		**Sectoral Scope**		**TA Code**	**Technical Area within the scope**		
		Energy industries (renewable - / non-renewable sources)		1.1	Thermal energy generation		
		Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
		Energy demand		3.1	Energy demand		
		Waste handling and disposal		13.1	Solid waste and wastewater		
Authorized to work as Local Expert for:							
Country/Countries		India					
Compliance check by: Anand S. R.							

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	YPST	GS4GG Project Design Document	Version 1.1, dated 20/11/2019	YPST
	YPST	GS4GG Project Design Document	Version 2, dated 07/08/2020	YPST
	YPST	GS4GG Project Design Document	Version 3, dated 18/08/2020	YPST
2	YPST	Emission Reduction Estimation Sheet	Version 1.1	YPST
	YPST	Emission Reduction Estimation Sheet	Version 2	YPST
3	YPST	Gold Standard Stakeholder Consultation Report	Version 1, dated 26/09/2019	YPST
	YPST	Gold Standard Stakeholder Consultation Report	Version 2, dated 07/08/2020	YPST
4	YPST	LSC Documents i) Email invitations ii) Public notices iii) Evaluation forms, iv) Minutes of the Stakeholder Meeting	Meeting dated 28/02/2019	YPST
5	YPST	Stakeholder Feedback round (SFR) documents: • Email invitations • Feedback document	Email dated 29/05/2020	YPST
6	GS	Gold standard preliminary review report	-	YPST
7	YPST	ODA declaration from PP	Dated 20/11/2019	YPST
8	YPST	CDM Registered PDD	Version 4, dated 12/06/2013	Publically available
9	YPST	CDM Monitoring Reports	-	Publically available
10	-	CDM Verification Reports	-	
11	UNFCCC	AMS-III.F.: Avoidance of methane emissions through composting	Version 12.0	Publically available
12	Gold Standard	Gold standard Principles and Requirements,	Version 1.2	Publically available
13	Gold Standard	Stakeholder consultation and Engagement guidelines	Version 1.2	Publically available
14	Gold Standard	Safeguarding Principles & Requirements	Version 1.2	Publically available
15	Gold Standard	Gender Equality Requirements & Guidelines,	Version 1.1	Publically available
16	Gold Standard	Community Service Activity Requirements	Version 1.2	Publically available
17	Gold Standard	COVID 2019 Interim Measures	Dated 24/07/2020	Publically available
18	Gold Standard	Template: GS4GG project design Document (PDD),	Version 1.1	Publically available
19	Gold Standard	Template: Stakeholder Consultation Report	version 1.0	Publically available
20	UNFCCC	CDM validation & verification standard for PA	Version 2.	Publically available
	UNFCCC	CDM Project Standard for PA	Version 2.	Publically available
21	UNFCCC	Tool21: 'Demonstration of additionality of small-scale project activities"	Version 13	Publically available
22	IPCC	2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	2006	Publically available
23	YPST	Consultancy Contract between Yayasan Pemilahan Sampah Temesi and Yayasan Bumi Sasmaya	Dated 22/03/2019	YPST

24	Regent Giyanyar	Government Cooperation Agreement (License to Operate)	Valid for 2020-2025	YPST
25	YPST	Profit & Loss statement of Yayasan Pemilahan Sampah Temesi	Year 2019	YPST
26	YPST	Operating Procedures for quality system		YPST
27	UN Environment	Letter from UN Environment	Dated 28/11/2018	YPST
28	Christian Zurbrügg	Research Report: Determinants of sustainability in solid waste management – The Gianyar Waste Recovery Project in Indonesia	-	YPST
29	Dion Johannes Josephus Visser	Research Report: An analysis of waste management provisions and realities on Bali	-	YPST
30	-	Indonesia ILO Ratification https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102938	-	Publically available
	-	Ratification of UN Conversion on Corruption https://www.unodc.org/unodc/en/corruption/ratification-status.html		Publically available
31	Govt. of Indonesia	Indonesia Labor Law https://www.ilo.org/dyn/travail/docs/760/Indonesian+Labour+Law+-+Act+13+of+2003.pdf	-	Publically available
32	Wahyu Widyarsana	Report: Risk assessment and rehabilitation potential of municipal solid waste landfills in Bali province, Indonesia https://www.geomatejournal.com/sites/default/files/articles/164-171-39057-Wahyu-Nov-2019-63.pdf	-	Publically available
33	giz	2018 Indonesia Country Profile https://www.giz.de/de/downloads/giz2018_Indonesia-Country-Profile_web.pdf	-	Publically available
34	W L Gaby	Report: Health hazards associated with solid waste disposal https://pubmed.ncbi.nlm.nih.gov/7330367/	-	Publically available
35	Donny Iqbal	Article: Degradation of Agricultural Land Threatens National Food Self-Sufficiency https://www.mongabay.co.id/2016/08/21/degradasi-lahan-pertanian-ancam-swasembada-pangan-nasional/	-	Publically available
36	UNDP	UN Sustainable Development Goals http://www.undp.org/content/undp/en/home/sustainable-development-goals.html	-	Publically available
37	UNFCCC	Tool 03: Tool to calculate project or leakage CO2 emissions from fossil fuel combustion	Version 3	Publically available
38	UNFCCC	Tool 04: Emissions from solid waste disposal sites	Version 8	Publically available
39	UNFCCC	Tool 05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	Version 3	Publically available
40	UNFCCC	Tool 13: Project and Leakage emission from Composting	Version 2	Publically available
41	Directorate General of Electricity	Greenhouse Gas Emission Factor (GHG) Electricity Interconnection System https://gatrik.esdm.go.id//frontend/download_index/?kode_category=emisi_pl	Year 2018	Publically available

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

Table 1. FAR from Preliminary Review

FAR ID	01	**Section no.**		**Date:** 04/08/2020
Description of FAR				
In the Preliminary review, Gold Standard has raised the following FAR: *"Under GS4GG, the PP shall present convincing evidence for the ongoing financial needs for the project at the time of project validation/registration.GS/VVB shall validate the same".* In this regard, PP shall demonstrate the ongoing financial needs for this project and present evidence for the same				
Project participant response				**Date:** 07/08/2020
The Ongoing Financial Need is justified in the section B.5. The Profit and loss statement of year 2019 are submitted as a supporting evidence of the ongoing financial need.				
Documentation provided by project participant				
Revised PDD *Profit & Loss statement of 2019*				
VVB assessment				**Date:** 10/08/2020
PP has now justified the ongoing financial need in section B.5 of the PDD and provided supporting documents. From the assessment of the demonstration in the PDD, it is evident that the project is in need of additional financial requirements for the operation of the project. The detailed assessment is given section D.5.5 above. *FAR is closed.*				

Table 2. CLs from this validation

CL ID	01	**Section no.**	D.2	**Date:** 04/08/2020
Description of CL				
As per section 20 of GHG Emissions Reductions- Sequestration product requirements, the CDM registered project shall mirror the CDM Cycle in terms of any Certification Renewals. It is observed that the project is already completed the 10 year fixed crediting period under CDM. Please clarify how this project is eligible under GS4GG after the completion of crediting period under CDM.				
Project participant response				**Date:** 07/08/2020
For the operation of the project, the carbon revenue is mandatory as the project expenses are much higher than the revenues generated from sale of compost and waste collection. The profit and loss statement of year 2019 are submitted for reference. Moreover, the Gold standard confirmed the eligibility and approved in the preliminary review.				
Documentation provided by project participant				
Profit and Loss statement-Year 2019 *GS Preliminary review report*				
VVB assessment				**Date:** 10/08/2020
The assessment team checked the GS preliminary review report and found that it is concluded positively on the eligibility under GS4GG. However, a FAR was raised by GS during the preliminary review which is assessed above. Hence, it is accepted. CL is closed.				

CL ID	02	**Section no.**	D.2	**Date:** 04/08/2020
Description of CL				
PP shall clarify whether the project is a small scale project or micro scale project.				
Project participant response				**Date:** 07/08/2020
The project is a micro scale project. References to the small scale project in the PDD are corrected.				
Documentation provided by project participant				
PDD				
VVB assessment				**Date:** 10/08/2020
PP confirmed that the project is a micro scale project and had made necessary corrections in the PDD. CL is closed.				

CL ID	03	Section no.	D.5.7	Date: 04/08/2020
Description of CL				
In Section B.6.3, the value of the parameter Emission factor for electricity generation ($EF_{EL,j,y}$) is fixed based on the 2016 data published by Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia. However the latest data available is year 2017 data. Clarify why the year 2017 data is not used.				
Project participant response				**Date:** 07/08/2020
The emission factor is now updated based on the year 2017 data				
Documentation provided by project participant				
Revised PDD				
VVB assessment				**Date:** 10/08/2020
PP has now updated the value of parameter Emission factor for electricity generation ($EF_{EL,j,y}$) based on the year 2017 data published by Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia. Hence OK. CL is closed.				

CL ID	04	Section no.	D.2	Date: 04/08/2020
Description of CL				
As per section B.6.5, the emission reduction is more than the micro scale limit for the year 2023. Clarify				
Project participant response				**Date:** 07/08/2020
This is the estimation based on the full capacity operation. In actual the emission reduction for all the years is expected to be within micro scale limit. In any year, if the actual emission reduction exceeds micro scale limit of 10,000 tCO2e, then the emission reduction claim will be capped at 10,000 tCO2e.				
Documentation provided by project participant				
Revised PDD				
VVB assessment				**Date:** 10/08/2020
PP has confirmed that the emission reduction claim will be capped at micro scale limit, if any year the emission reduction is higher than 10,000 tCO_2e. This is found to be appropriate. CL is closed.				

Table 2. CARs from this validation

CAR ID	01	Section no.	D.2	Date: 04/08/2020
Description of CAR				
In section A.2, the justification of project eligibility under GS4GG is not in line with the General Eligibility Criteria described in Section 3 of GS4GG Principles & Requirements, v1.2				
Project participant response				**Date:** 07/08/2020
The project eligibility justification is modified as per the Section 3 of GS4GG Principles & Requirements v1.2				
Documentation provided by project participant				
Revised PDD				
VVB assessment				**Date:** 10/08/2020
PP has now justified the project eligibility under GS4GG as per requirement of section 3 of GS4GG Principles & Requirements v1.2 CAR is closed.				

CAR ID	02	Section no.	D.2	Date: 04/08/2020
Description of CAR				
In section A.3, PP mentioned that VER ownership is with Yayasan Pemilahan Sampah Temesi as it is the project legal owner. However no supporting documents provided to justify the legal ownership.				
Project participant response				**Date:** 07/08/2020
Perjanjian Kerjasama YPST - Pemkab - (Government License for Temesi (YPST to operate) is attached as proof for legal ownership of the project.				
Documentation provided by project participant				
Perjanjian Kerjasama YPST - Pemkab				
VVB assessment				**Date:** 10/08/2020

The assessment team checked the Government License for Temesi for operation of the waste composting facility which confirms that the legal ownership of the project is Yayasan Pemilahan Sampah Temesi. CAR is closed.

CAR ID	03	**Section no.**	D.5.1	**Date:** 04/08/2020
Description of CAR				
In section B.2 of the PDD: • The scope of the methodology is not justified • Condition 11.b of the methodology (ie, Establish that it is common practice in the region to dispose of the waste in solid waste disposal site (landfill)/stockpile(s).) is not justified.				
Project participant response				**Date:** 07/08/2020
In section B.2 of the PDD: • *The scope of the methodology is justified* • *Condition 11.b of the methodology is justified.*				
Documentation provided by project participant				
Revised PDD				
VVB assessment				**Date:** 10/08/2020
PP has now justified the scope of the methodology and condition 11.b of the methodology in the revised PDD. The same is verified and found to be OK. CAR is closed.				

CAR ID	04	**Section no.**	D.5.5	**Date:** 04/08/2020
Description of CAR				
In Section B.5, • No supporting evidence is given to justify the financial barrier. • The market barrier is not justified with data or supporting evidence • Common practice analysis is not done as per the CDM Tool “Common practice”				
Project participant response				**Date:** 07/08/2020
As per PP understanding, the additionality is not needed to be reassessed for the CDM registered project. Hence, the same addtionality justification from CDM PDD is retained. However based on the comments, the additionality is now revised as per the tool ‘Demonstration of additionality of small-scale project activities’ v13 • *The justification on the financial barrier is modified based on the actual financial barrier faced by the project and the Year 2019 profit and loss statement are submitted as supporting document.* • *Market barrier is now justified with supporting data* • *Common practice analysis is removed from PDD as it is not a requirement as per tool ‘‘Demonstration of additionality of small-scale project activities’ v13*				
Documentation provided by project participant				
Profit and loss statement of 2019 *Revised PDD*				
VVB assessment				**Date:** 10/08/2020
• PP has provided supporting evidence for the financial barrier. • The market barrier is now justified based on the supporting data. • Common practice is removed from the additionality as per tool ‘‘Demonstration of additionality of small-scale project activities’ v13. Hence, the query lost its relevance CAR is closed				

CAR ID	05	**Section no.**	D.5.7	**Date:** 04/08/2020
Description of CAR				
Section B.6.5, the Baseline emission, project emission and emission reduction reported is not in consistent with ER calculation sheet.				
Project participant response				**Date:** 07/08/2020
The project emission in Section B.6.5 is now corrected.				
Documentation provided by project participant				
Revised PDD				
VVB assessment				**Date:** 10/08/2020

PP has corrected the project emission in section B.6.2 which is in consistent with the ER calculation sheet. CAR is closed.

CAR ID	06	**Section no.**	D.5.7	**Date:** 04/08/2020
Description of CAR				
As per para 32 of applied methodology (AMS III.F,v12) "In case of projects involving increase of capacity utilization of existing composting facilities, the historical records of annual amount of waste treated at the facility in the last five years prior to the project implementation and additional information to cross check the historical records (e.g. invoices of compost sales) shall be provided for project activity validation." Since the project involves capacity addition of existing pilot project, PP shall provide the historical records of annual amount of waste treated at the facility in the last five years prior to the project implementation shall be provide.				
Project participant response				**Date:** 07/08/2020
The pilot project was commissioned in the year 2005. The pilot facility was operational for approximately three years, but not continuously running. The methodology requirements of five year period cannot be met. However, the highest amount of waste composted is derived by taking the average processing volume under operation, times the maximum processing days per year. This results in 595 t of waste processed in the BAU scenario ($TWCOM_{BAU}$). The same approach was followed in the CDM registered PDD.				
Documentation provided by project participant				
Revised PDD				
VVB assessment				**Date:** 10/08/2020
As mentioned by PP, the pilot project was installed about 15 years back and was operational only for about 3 years. Also it was also not operational continuously. Hence, PP does not have complete data of the pilot project. However, VVB accept the same considering the below facts that the calculation of $WCOM_{BAU}$ and the same was considered in the CDM registered PDD as well. Hence, OK. CAR is closed.				

CAR ID	07	**Section no.**	D.5.8	**Date:** 04/08/2020
Description of CAR				
In Section B.7: • PP shall include the estimated values for all the monitoring parameter • The measurement procedures for the parameter TDLj,y is missing • The Measurement methods and procedures mentioned for the SDG 11 is not appropriate for the parameter • The PP shall clarify how the Soil application of the compost in agriculture or related activities will be monitored in line with para 34 requirements of applied methodology.				
Project participant response				**Date:** 07/08/2020
In Section B.7: • The estimated values for all the monitoring parameter is included • The measurement procedures for the parameter TDLj,y is included • The Measurement methods and procedures mentioned for the SDG 11 is corrected now • The requirements details regarding the proper soil application is included in section B.7.3				
Documentation provided by project participant				
Revised PDD				
VVB assessment				**Date:** 10/08/2020
In Section B.7: • PP has included the estimated values for all the monitoring parameter • The measurement procedures for the parameter TDLj,y is now included by PP • PP has changed he Measurement methods and procedures mentioned for the SDG 11 which is now appropriate for the parameter • The PP included the monitoring details of Soil application of the compost in agriculture or related activities in section B.7.3 in line with para 34 requirements of applied methodology. CAR is closed.				

CAR ID	08	**Section no.**	D.8	**Date:** 04/08/2020
Description of CAR				

In Section E: • Explanation on how the stakeholder feedback consultation was conducted in line with the section 9 of GS4GG Stakeholder Consultation and engagement Guidelines is missing • PP shall include the grievance mechanism in place at the project site • The stakeholder consultation report submitted is incomplete in few sections
Project participant response **Date:** 07/08/2020
In Section E: • The stakeholder feedback consultation was conducted as per the Section 9 of GS4GG Stakeholder Consultation and engagement Guidelines. The details are now included in section E.1 • The grievance mechanism in place is included in section E.3 • The completed stakeholder consultation report is submitted.
Documentation provided by project participant
Revised PDD
VVB assessment **Date:** 10/08/2020
In Section E: • PP has included explanation on how the stakeholder feedback consultation was conducted in line with the section 9 of GS4GG Stakeholder Consultation and engagement Guidelines is missing • PP has include the grievance mechanism in place at the project site in section E.3 • PP submitted the revised stakeholder consultation reports with all sections filled. CAR is closed.

Table 3. FARs from this validation

~~**FAR ID**~~	~~xx~~	~~**Section no.**~~		~~**Date:** DD/MM/YYYY~~
~~**Description of FAR**~~				
~~**Project participant response**~~				~~**Date:** DD/MM/YYYY~~
~~**Documentation provided by project participant**~~				
~~**VVB assessment**~~				~~**Date:** DD/MM/YYYY~~