PoA Validation Report

Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia

Report No. 2011-9535

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POA VALIDATION REPORT

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Title of PoA: Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia
Host country/ies: Indonesia
Methodology: AMS-III.F **Version:** 10
GHG reducing Measure/Technology: Avoidance of methane emissions through composting, Sectoral Scope 13
ER estimate: 10 130 tCO_2e yearly
Size
☐ Large Scale ☒ Small Scale
Validation Phases:
☒ Desk Review ☒ Follow up interviews
☒ Resolution of outstanding issues
Validation Status
☐ Corrective Actions Requested ☐ Clarifications Requested
☒ Full Approval and submission for registration ☐ Negative validation opinion

In summary, it is DNV's opinion that the Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia, as described in the PoA-DD of 17 January 2012 meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodology AMS-III.F, version 10. DNV thus requests the registration of the project as a CDM programme of activities.

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Report title:
Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia

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Key words:
Programme of Activities (PoA)
Clean Development Mechanism (CDM)
Climate Change

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Abbreviations

ABC	Aerated Bunker Co-composting Plant
AMWS	Animal Waste Management System
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM-SSC-CPA-DD	CDM small-scale programme activity design document
CDM-SSC-POA-DD	CDM small-scale programme of activities design document
CH_4	Methane
CL	Clarification request
CME	Coordinating/Managing Entity
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COD	Chemical Oxygen Demand
CPA	CDM programme activity
CPO	Crude Palm Oil
DNA	Designated National Authority
DNV	Det Norske Veritas
EFB	Empty Fruit Bunch
EIA	Environment Impact Assessment
EMMP	Environmental Management and Monitoring Plan
FAR	Forward Action Request
FFB	Fresh Fruit Bunch
GHG	Greenhouse gas(es)
GPS	Global Positioning System
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MCF	Methane Correction Factor
MP	Monitoring Plan
NGO	Non-governmental Organisation
NPV	Net Present Value
ODA	Official Development Assistance
PoA-DD	Programme of activities Design Document
PKS	Palm Kernel Shells
PoA	Programme of activities
POME	Palm Oil Mill Effluent
RSPO	Roundtable on Sustainable Palm Oil
SWDS	Solid Waste Disposal Site
UNFCCC	United Nations Framework Convention on Climate Change
WWTS	Waste Water Treatment System

Table of Content *Page*

1 EXECUTIVE SUMMARY – VALIDATION OPINION 1

2 INTRODUCTION 2
2.1 Objective 2
2.2 Scope 2

3 METHODOLOGY 3
3.1 Desk review of the programme design documentation 3
3.2 Follow-up Interviews with Programme Stakeholders 5
3.3 Resolution of outstanding issues 6
3.4 Internal quality control 9
3.5 Validation team 9

4 VALIDATION FINDINGS 10
4.1 Participation requirements 10
4.2 Programme design 10
4.3 Criteria for inclusion of CDM Programme Activities 11
4.4 Operational, management and verification plan 17
4.5 Baseline identification 18
4.6 Project boundary 20
4.7 Additionality 21
4.8 Monitoring plan 23
4.9 Environmental impacts 27
4.10 Comments by local stakeholders 27
4.11 Comments by Parties, stakeholders and NGOs 27

Appendix A: Validation Protocol
Appendix B: Protocol for Assessing Compliance of Specific CDM Programme Activities with the Programme of Activities
Appendix C: Curricula vitae of the validation team members

1 EXECUTIVE SUMMARY – VALIDATION OPINION

DNV Climate Change Services AS (DNV) has performed a validation of the small-scale programme of activity (PoA) titled "Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia" and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CDM programme activities (CPAs) to be included in this PoA.

The validation was performed on the basis of UNFCCC criteria for programme of activities under the Clean Development Mechanism (CDM), as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the programme design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host Party is Indonesia. The host Party fulfils the participation criteria and has approved the programme and authorized the programme participant. The DNA from Indonesia confirmed that the programme assists in achieving sustainable development.

The programme correctly applies AMS-III.F "Avoidance of methane emissions through composting", version 10.

By composting and/or co-composting of palm oil mill waste, the programme results in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the programme is not a likely baseline scenario. Emission reductions attributable to the programme are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the first participant of the programme are estimated to be on the average 10 130 tCO_2e per year over the selected 7 year crediting period.

Adequate training and monitoring procedures have been described.

In summary, it is DNV's opinion that the PoA titled Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia, as described in the CDM-SSC-PoA-DD of 17 January 2012, meets all relevant UNFCCC requirements for a PoA under the CDM and correctly applies the baseline and monitoring methodology AMS-III.F, version 10. DNV thus requests the registration of the PoA titled Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia as a PoA under the CDM.

Kuala Lumpur and Oslo, 2012-06-20

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2 INTRODUCTION

PT. Carbon Agro Indo has commissioned DNV Climate Change Services AS (DNV) to perform a validation of the small-scale CDM Programme of Activities (PoA) with the title "Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia" (hereafter called "the PoA"). This report summarises the findings of the validation of the PoA and the PoA specific small-scale CDM programme activities Design Document (CDM-SSC-CPA-DD) with generic information relevant to all CDM programme activities (CPAs) to be included in this PoA. The validation was performed on the basis of UNFCCC criteria for PoAs under the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the simplified modalities and procedures for small-scale CDM project activities, the procedures for registration of a programme of activities and the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party assess the small-scale PoA design document (CDM-SSC-PoA-DD) and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA. In particular, the eligibility criteria for inclusion and demonstration of additionality of CPAs, the programme's baseline determination, monitoring plan, and the programme's compliance with relevant UNFCCC criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM PoAs and is seen as necessary to provide assurance to stakeholders of the quality of the programme and its intended generation of certified emission reductions (CERs).

2.2 Scope

The validation scope is defined as an independent and objective review of the CDM-SSC-PoA-DD and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA. The CDM-SSC-PoA-DD and CDM-SSC-CPA-DD were reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, the simplified modalities and procedures for small-scale CDM project activities, the procedures for procedures for registration of a programme of activities as a single CDM project activity and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS-III.F version 10 /29/.

The validation of the programme has also considered the completed CDM-SSC-CPA-DD for the CPA with the title Socfindo EFB plus POME Co-Composting Project (CPA No. 001) submitted together with the CDM-SSC-CPA-DD.

The validation is not meant to provide any consulting towards the programme participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

3 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the CDM-SSC-PoA-DD and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA

II follow-up interviews with programme stakeholders

III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

3.1 Desk review of the programme design documentation

The following table lists the documentation that was reviewed during the validation:

3.1.1 Documentation provided by the project participants

/1/ PT. Carbon Agro Indo: *CDM-SSC-PoA-DD for PoA titled "Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia"*, Version 01 dated 28 June 2011 published for comments and Version 03 dated 17 January 2012 for final report

/2/ PT. Carbon Agro Indo: *Generic CDM-SSC-CPA-DD for PoA titled "Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia"*, Version 01 dated 28 June 2011 published for comments and Version 03 dated 31 May 2012 for final report

/3/ PT. Carbon Agro Indo: *CDM-SSC-CPA-DD for CPA titled "Socfindo EFB plus POME Co-Composting Project (CPA No. 001)"*, Version 01 dated 28 June 2011 published for comments and Version 03 dated 31 May 2012 for final report

/4/ PT. Carbon Agro Indo: *Financial Analysis Spread Sheet for CPA titled "Socfindo EFB plus POME Co-Composting Project (CPA No. 001)"*, Version 01 dated 28 June 2011 published for comments and *CPA BB FInancial Analysis ver_3.xls* for final report
Fertilizer savings calculation: *Fertilizer Savings_template CPA inclusion_Option A.xls*
Fertilizer savings calculation: *Fertilizer Savings_template CPA inclusion_Option B.xls*

/5/ PT. Carbon Agro Indo: *Emission Reduction Spread Sheet for CPA titled "Socfindo EFB plus POME Co-Composting Project (CPA No. 001)"*, Version 01 dated 28 June 2011 published for comments and *CPA BB Emission Reduction spreadsheet ver_4.xls* for final report

/6/ Roundtable on Sustainable Palm Oil : *RSPO Principles and Criteria for Sustainable Palm Oil Production – Including Indicators and Guidance*, dated October 2007

/7/ PT. Socfin Indonesia: *Fertilizer Supply Agreements for Dolomite, Muriate of Potash, Rock Phosphate Egypt and Urea*, for the year 2009

/8/ PT. Socfin Indonesia: *Socfindo Standard Fertilisation Programme*, version 09-30 for the year 2009

/9/ PT. Socfin Indonesia: *Palm Oil Tree Census for Fertiliser Usage*, for the year 2009

/10/ Carbon Conservation: *Proposal for Carbon Services for PT Socfin Indonesia*, dated 9 April 2010

/11/ PT. Socfin Indonesia: *Feasibility Study Co-Composting at Bangun Bandar Mill*, dated

27 April 2010

/12/ PT. Socfin Indonesia: *Minutes of Meeting of the Board of The Commissioners of the P.T. Socfin Indonesia (Socfindo) held in Jakarta*, dated 28 April 2010

/13/ Burden et al: *A Business Case for the Aerated Bunker Composting (ABC) System*, published in 2010

/14/ PT. Socfin Indonesia: *Report on Stakeholder Consultation Meeting*, dated 27 September 2010

/15/ UNFCCC Secretariat: *Submission of Prior Consideration of CDM Form for PT Socfin Indonesia*, dated 1 October 2010

/16/ Indonesian CDM Designated National Authority: *Receipt of Document from P.T. Socfin Indonesia*, dated 12 October 2010

/17/ North Sumatra Provincial Authority: *Wastewater Test Reports for the year 2008, 2009 and 2010*, dated December 2010

/18/ PT. Socfin Indonesia: *Wastewater Production Records for the year 2008, 2009 and 2010*, dated December 2010

/19/ Det Norske Veritas: *Climate Change Services Agreement between PT. Socfin Indonesia and DNV*, dated 8 June 2011

/20/ PT. Socfin Indonesia: *Contract for Piling Works between PT. Socfin Indonesia and PT. Perintis Pondasi Teknotama*, dated 4 July 2011

/21/ PT. Socfin Indonesia: *Contract for Concrete, Steel & Roof Works between PT. Socfin Indonesia and CV Cikini Raya*, dated 4 July 2011

/22/ PT. Socfin Indonesia: *Contract for Precast Concrete Panel between PT. Socfin Indonesia and Wijaya Karya Beton*, dated 4 July 2011

/23/ Technical Department of PT. Socfin Indonesia: *Clarification on the choice of MCC Panel and Bunker Filler*, dated 15 August 2011

/24/ Sucofindo: *Wastewater Analysis Certificate for the Wastewater Measurement Campaign from 11 August 2011 to 23 August 2011*, dated 27 August 2011

/25/ PT. Carbon Agro Indo: *Cooperation Agreement to join CDM Program of Activities, Co-composting Programme of Activities in Indonesia*, dated 3 October 2011

/26/ PT. Carbon Agro Indo: *Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia – Management Plan for the Inclusion of CDM Program of Activities (CPAs)*, dated 16 December 2011

3.1.2 Letters of approval

/27/ DNA of Indonesia, National Committee on Clean Development Mechanism: *Letter of Approval dated 6 March 2012*

3.1.3 Methodologies, tools and other guidance by the CDM Executive Board

/28/ CDM Executive Board: *Validation and Verification Manual*, EB44 Annex 1 version 1.2

/29/ CDM Executive Board: *Baseline and monitoring methodology "Avoidance of methane emissions through composting" AMS-III.F*, EB59 version 10

/30/ CDM Executive Board: *Guidelines on the assessment of investment analysis*, EB62 Annex 5 version 05

/31/ CDM Executive Board: *Information on Additionality (Attachment A of Appendix B of 4/CMP.1 Annex II)*, EB63 Annex 24 version 08

/32/ CDM Executive Board: *CDM-SSC-PoA-DD Small Scale CDM Programme of Activities Design Document form*, EB33 Annex 43 version 01.0

/33/ CDM Executive Board: *General Guidelines to SSC CDM methodologies*, EB61 Annex 21 Version 17

/34/ CDM Executive Board: *Tool to determine the remaining lifetime of equipment*, EB 50 Annex 15 version 01

/35/ CDM Executive Board: *Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities*, EB65 Annex 3 version 01.0

/36/ CDM Executive Board: *Co-composting Programme of Activities in Indonesia*, http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/2MJW8CICWDNRL1F72DM11M3M8A6Q8M/view.html last accessed 20 December 2011

/37/ CDM Executive Board: *Emissions from solid waste disposal sites*, EB65 Annex 19 version 06.0.0

/38/ CDM Executive Board: *Baseline and monitoring methodology "Methane recovery in wastewater treatment" AMS-III.H*, EB58 version 16

/39/ CDM Executive Board: *Tool to calculate baseline, project and/or leakage emissions from electricity consumption*, EB39 Annex 7 version 01

/40/ CDM Executive Board: *Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion*, EB41 Annex 11 version 02

3.1.4 Documentation used by DNV to validate / cross-check the information provided by the project participants

/41/ Ministry of Environment of Indonesia: *EIA Requirements for Projects and/or Activities*, dated 2 October 2006

/42/ Stichnothe and Schuchardt: *Greenhouse gas reduction potential due to smart palm oil mill residue treatment*, published in 2010

Main changes between the PoA-DD published for the 30 days stakeholder commenting period and the PoA-DD recommended for registration:

- Incorporate responses to address the findings raise in Table 3
- Revising the title of the PoA-DD to reflect the activities included as part of the Programme
- The managing entity of the PoA has been changed from PT. Socfin Indonesia to a local subsidiary, PT. Carbon Agro Indo
- The starting date of the programme has been changed from 29 June 2011 to 8 June 2011

3.2 Follow-up Interviews with Programme Stakeholders

On 8 August 2011, DNV visited the project site of PT. Socfin Indonesia and performed interviews with project stakeholders.

	Date	Name	Organization	Topic
/43/	2011-08-08	Mr. Lufaldy Ernanda Mr. Mark Harding	Carbon Conservation/ PT. Carbon Agro Indo	➢ Project technology. ➢ Project participants. ➢ Applicability criteria. ➢ Additionality. ➢ CDM consideration. ➢ Baseline, Project and Emission reduction calculations. ➢ Stakeholder consultation process.
/44/	2011-08-08	Mr. P. Sinurat Mr. Julians Sinuraya	PT. Socfin Indonesia	➢ Project technology. ➢ POME generation ➢ COD of wastewater ➢ Mill licenses. ➢ Legal and environmental issues. ➢ Stakeholder consultation process. ➢ Monitoring plan and project management

3.3 Resolution of outstanding issues

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified prior to DNV's positive conclusion on the PoA. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in a transparent manner the criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of four tables. The different columns in these tables are described in the figure below. The completed validation protocol for the programme of activity "Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia" is enclosed in Appendix A to this report.

Table 2 of the validation protocol documents the findings of the desk review of the project design documentation and follow-up interviews with project stakeholders. Any findings raised in Table 2 are listed in Table 3 of the protocol, and changes to the description of the project design as a result of these findings will be addressed in Table 3. Table 2 thus may not reflect all aspects of the project as described in the final PDD submitted for registration.

A corrective action request (CAR) is raised if one of the following occurs:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The CDM requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Validation Protocol Table 1: Mandatory Requirements for CDM Programme of Activities		
Requirement	***Reference***	***Conclusion***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), a Corrective Action Request (**CAR**) due to non-compliance with stated requirements or a request for Clarification (**CL**) where further clarifications are needed.*

Validation Protocol Table 2: Requirement Checklist				
Checklist question	***Reference***	***Means of verification (MoV)***	***Assessment by DNV***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the CDM-PDD	*Gives reference to documents where the answer to the checklist question or item is found.*	*Means of verification (MoV) are **document review (DR)**, **interview (I)** or any other follow-up actions (e.g., on site visit and telephone or email interviews) and **cross-checking (CC)** with available information relating to projects or technologies similar to the proposed CDM project activity under validation.*	*The discussion on how the conclusion is arrived at and the conclusion on the compliance with the checklist question so far.*	*OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements. A **corrective action request (CAR)** is raised when project participants have made mistakes, the CDM requirements have not been met or there is a risk that emission reductions cannot be monitored or calculated. A **clarification request (CL)** is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. A **forward action request (FAR)** during validation is raised to highlight issues related to project implementation that require review during the first verification of the project activity.*

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Corrective action and/ or clarification requests	***Ref. to checklist question in table 2***	***Response by project participants***	***Validation conclusion***
*The **CARs** and/ or **CLs** raised in Table 2 are repeated here.*	*Reference to the checklist question number in Table 2 where the CAR or CL is explained.*	*The responses given by the project participants to address the CARs and/or CLs.*	*The validation team's assessment and final conclusions of the CARs and/or CLs.*

Validation Protocol Table 4: Forward Action Requests		
Forward action request	***Ref. to checklist question in table 2***	***Response by project participants***
The FARs raised in Table 2 are repeated here.	*Reference to the checklist question number in Table 2 where the FAR is explained.*	*Response by project participants on how forward action request will be addressed prior to first verification.*

Figure 1 Validation protocol tables

3.4 Internal quality control

The validation report underwent a technical review performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation team

				Type of involvement						
Role	***Last Name***	***First Name***	***Country***	Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	TA 13.1 competence	Financial expertise
Team leader (Validator)	Wong	Yon Sing (Simon)	Malaysia	✓	✓	✓	✓		✓	
Assessor under training / Financial expert from 28 October 2011 onwards)	Khalid	Fathullah Akmal	Malaysia	✓	✓	✓				✓
Assessor under training	Foo	Wei Yee	Malaysia	✓	✓					
Financial expert (before 28 October 2011)	Lai	Siew Sit (Denise)	Malaysia	✓						✓
Technical reviewer	Brinks	Hendrik	Norway					✓	✓	

The qualification of each individual validation team member is detailed in Appendix B to this report.

4 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the programme design as documented and described in the PoA design documentation dated 17 January 2012 /1/.

4.1 Participation requirements

The coordinating/managing entity of the PoA and the project participant is PT. Carbon Agro Indo. The host Party of the project is the Republic of Indonesia. The host Party (Indonesia) meets all relevant participation requirements. No Annex I Party has yet been identified in this programme.

Indonesia has fulfilled the participation requirement. Indonesia ratified the Kyoto Protocol on 3 December 2004 and has designated National Committee on Clean Development Mechanism as the national authority for CDM activities.

A letter of approval (LoA) was issued by DNA of Indonesia on 6 March 2012 authorizing PT. Carbon Agro Indo as project participant and confirming that the project assists in achieving sustainable development /27/. The letter of approval was received from the project participant. DNV does not doubt the authenticity of the letter of approval. DNV considers the letter is in accordance with paragraphs 45 to 48 of the VVM.

The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards Indonesia.

4.2 Programme design

The ‘Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia’ consists of implementation of composting or co-composting facility in palm oil mills located throughout Indonesia. The PoA aims to avoid atmospheric release of methane from Palm Oil Mill Effluent (POME) that would have been treated in open anaerobic lagoon systems in absence of the PoA and from Empty Fruit Bunches (EFB) that would have been left to decay anaerobically at unmanaged solid waste disposal sites in absence of the PoA. In this programme, controlled aerobic treatment by composting of EFB or co-composting of EFB and POME is introduced /11/.

EFB and POME are major organic waste streams generated from palm oil processing mills during the process of extracting Crude Palm Oil (CPO) from Fresh Fruit Bunches (FFB). Under the baseline scenario, POME is treated anaerobically in a series of open lagoon system before being discharge to open water course way or land application. Similarly, EFB would be left to anaerobic decay at unmanaged solid waste disposal sites. In some CPAs, EFB would be shredded to recover any residual oil before being left to anaerobic decay at unmanaged solid waste disposal sites.

The output compost generated will be nutritionally rich organic compost and will improve the soil-conditioning value in the plantations by increasing the latter’s organic matter content /13/. As an added benefit, the co-composting and composting processes under the programme

produce organic compost which can be reapplied to the plantation. This would result in reduced usage of inorganic chemical fertilizer in the plantation /13/.

The PoA is limited to newly built co-composting or composting facilities. There will be various different types and techniques for co-composting and composting to be employed in the programme, which includes:

a) Non-reactor systems:
    a. Windrow Composting
    b. Static pile Composting
    c. Advanced Furrow Composting
b) Enclosed reactor systems:
    a. Channel, Cell and Windrow Composting
    b. Aerated Pile Composting with Automatic Turning Machines
    c. Aerated bunker composting systems
    d. Tunnel Composting
    e. Rotating Drum Composting
    f. Vertical Flow Composting

The programme is expected to bring environmental benefits by turning waste (EFB and POME) into a valuable resource, which is high fertile organic compost. In addition, the programme also contributes to avoidance of methane emissions thus reducing GHG emissions, avoidance of odour associated with POME lagoons and reducing or avoiding altogether the discharge of treated POME into natural waterways, therefore improving water quality of local streams, thus contributing sustainable development objective of Indonesia. /27/

The PoA and all its CPAs are planned to be implemented in the geographical boundary of Indonesia. The programme starting date is selected as 8 June 2011 and the contract agreement between the CME and the DOE is taken as commitment on expenditure for PoA development /19/. During the site visit, it was found that the first CPA to be included in the proposed programme has started construction /43//44/. DNV has confirmed that a financial commitment of IDR 4 127 million has been made by reviewing signed contracts /20//21//22/. These contracts have been signed on 4 July 2011, which is after the starting date of the programme. This is about 28.9% of the total investment cost of IDR 14 281 million anticipated for this CPA.

The length of the PoA does not exceed 28 years.

4.3 Criteria for inclusion of CDM Programme Activities

The programme clearly establishes eligibility criteria for inclusion of each CPA under the programme. Section A.4.2.2 of the PoA-DD /1/ has been checked against the minimum requirements mentioned in paragraph 13 of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. The eligibility criteria for inclusion of a SSC-CPA in the PoA are validated as follows:

- Eligibility criterion 1 specifies that the entire boundary of the CPA project activity must be physically located within the territory of the Republic of Indonesia. Therefore, it is concluded that the geographical boundary of the CPA has been specified. In addition, a time-induced boundary has also been included to ensure that only CPAs commencing

within the 28 year period of the PoA are eligible for inclusion. Therefore, it is concluded that paragraph 14(a) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/ has been complied. Compliance with this criterion is checked against CPA location details such as address and GPS coordinates provided by the CPA prior to inclusion.

- Eligibility criterion 2 specifies that to avoid double counting of emission reductions, each CPA must provide specific geographic GPS coordinates for the CPA to enable unique identification of the project. Therefore, it is concluded that conditions to avoid double counting of emission reductions have been specified and paragraph 14(b) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/ has been complied. Compliance with this criterion is checked against the adequacy of the CPA location details provided prior to inclusion to allow unique identification of the proposed CPA.
- Eligibility criterion 3 specifies that each CPA owner must enter into a cooperation agreement with the coordinating entity. The minimum requirements for the cooperation agreement has been specified in section A.4.4.1(iv) of the PoA-DD /1/. Compliance with this criterion is checked against the cooperation agreement signed by both parties provided to the validation team prior to inclusion. The contents of the cooperation agreement will be checked to ensure that they meet the minimum requirements of section A.4.4.1(iv) of the PoA-DD.
- Eligibility criterion 4 specifies that each CPA shall be implemented at a Palm Oil Mill site where no composting or co-composting activity was taking place before the project activity.
- Eligibility criterion 5 specifies that each CPA must be a newly developed co-composting or composting facility using composting technology as specified in section A.4.2.1 of the PoA-DD /1/. Technology/measures specified is the composting of organic waste streams from Palm Oil Mills where each CPA produces the same output (i.e. organic compost for reapplication as fertilizer to land), involve the same conversion process (aerobic composting) and employ the same kinds of equipment (e.g. pre-treatment, turning/moving and aeration). In addition, the facility must also not become a source of environmental pollution by installing an impermeable composting pad/floor and includes a system/process to deal with run-off leachate from compost. Therefore, it is concluded that the technology/measure required to be adopted by each participant has been specified and this is in accordance to paragraph 14(c) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. Compliance with this criterion is checked by reviewing project documents during desk review and confirmed through site visit if necessary.
- Eligibility criterion 5 also specifies that each CPA must meet the requirements of the approved methodology AMS-III.F version 10 /29/, including its relevant tools and guidelines. The compliance of each CPA to the requirements of the approved methodology AMS-III.F version 10 is demonstrated as follows:
    - *This methodology comprises measures to avoid the emissions of methane to the atmosphere from biomass or other organic matter that would have otherwise been left to decay anaerobically in a solid waste disposal site (SWDS), or in animal*

waste management system (AMWS), or in a wastewater treatment system (WWTS). In the project activity, controlled aerobic treatment by composting of biomass is introduced.

Each CPA avoids methane emission to the atmosphere from a) POME wastewater treatment systems that would otherwise involve the treatment of POME in outdoor anaerobic and aerobic lagoons and/or b) the disposal of EFB that would otherwise been left to decay in a solid waste disposal site. Each CPA will introduce controlled aerobic treatment of EFB and/or POME by co-composting and proper application to soil of the output as organic fertilizer.

- *The project activity does not recover or combust landfill gas from the disposal site (unlike AMS-III.G "Landfill methane recovery"), and does not undertake controlled combustion of the waste that is not treated biologically in a first step (unlike AMS-III.E "Avoidance of methane production from decay of biomass through controlled combustion, gasification or mechanical/thermal treatment"). Project activities that recover biogas from wastewater treatment shall use methodology AMS-III.H "Methane recovery in wastewater treatment". Project activities involving co-digestion of organic matters shall apply methodology AMS-III.AO "Methane recovery through controlled anaerobic digestion".*

  The project proponent has stated that CPAs involving recovery of combustion of landfill gas, undertaking controlled combustion of the waste, recovery of biogas or methane and anaerobic digestion are not eligible for inclusion.

- *Measures are limited to those that result in emission reductions of less than or equal to 60 ktCO_2 equivalent annually.*

  The project proponent has stated that CPAs reducing more than 60 ktCO_2 equivalent annually are not eligible for inclusion. Therefore, it is concluded that conditions that ensure each CPA in aggregate meets the small-scale threshold criteria as per the General guidelines to SSC CDM methodologies have been specified and the requirements of paragraph 14(k) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/ have been met. Compliance with this criterion is checked by reviewing design documents related to the project and the estimated emission reduction calculations provided at the time of inclusion.

- *This methodology is applicable to the composting of the organic fraction of municipal solid waste and biomass waste from agricultural or agro-industrial activities including manure.*

  The project proponent has stated that CPAs involve composting of biomass waste in order to participate in the programme. The PoA would only be limited to newly built co-composting or composting facilities.

- *This methodology includes construction and expansion of treatment facilities as well as activities that increase capacity utilization at an existing facility. For project activities that increase capacity utilization at existing facilities, project participant(s) shall demonstrate that special efforts are made to increase the capacity utilization, that the existing facility meets all applicable laws and regulations and that the existing facility is not included in a separate CDM project activity. The special efforts should be identified and described.*

The construction and expansion of treatment facilities as well as activities that increase capacity utilization at an existing facility are not considered for this PoA.

- *This methodology is also applicable for co-composting wastewater and solid biomass waste, where wastewater would otherwise have been treated in an anaerobic wastewater treatment system without biogas recovery.* The wastewater in the project scenario is used as a source of moisture and/or nutrients to the biological treatment process e.g. composting of empty fruit bunches (EFB), a residue from palm oil production, with the addition of palm oil mill effluent (POME) which is the wastewater co-produced from palm oil production.

  The project proponent has stated that CPAs involve co-composting of solid biomass waste (EFB) and wastewater (POME) where without the project activity, POME would have been treated in outdoor anaerobic lagoons without biogas recovery. In the project activity POME will be co-composted with EFB and used as a source of moisture and nutrients.
- *In case of co-composting, if it cannot be demonstrated that the organic matter would otherwise been left to decay anaerobically, baseline emissions related to such organic matter shall be accounted for as zero, whereas project emissions shall be calculated according to the procedures presented in this methodology for all co-composted substrates.*

  The project proponent has stated that in cases where CPAs involve the co-composting of EFB and POME, if it cannot be demonstrated that EFB would otherwise been left to decay anaerobically, baseline emissions in relation to EFB decay shall be accounted for as zero.
- *The location and characteristics of the disposal site of the biomass, animal manure and co-composting wastewater in the baseline condition shall be known, in such a way as to allow the estimation of its methane emissions, using the provisions of AMS-III.G, AMS-III.E (concerning stockpile), AMS-III.D "Methane recovery in animal manure management systems" or AMS-III.H respectively. Project activities for composting of animal manure shall also meet the requirements under paragraphs 1, and 2 (c) of AMS-III.D. Further no bedding material is used in the animal barns or intentionally added to the manure stream in the baseline. Blending materials may be added in the project scenario to increase the efficiency of the composting process (e.g. to achieve a desirable C/N ratio or free air space value), however, only monitored quantity of solid waste or manure or wastewater diverted from the baseline treatment system is used for emission reduction calculation. The following requirements will be checked ex ante at the beginning of each crediting period: a) Establish that identified landfill(s)/stockpile(s) can be expected to accommodate the waste to be used for the project activity for the duration of the crediting period; or b) Establish that it is common practice in the region to dispose off the waste in solid waste disposal site (landfill)/stockpile(s).*

  Since each CPA involves POME wastewater from palm oil mills, the wastewater baseline condition will be accounted in accordance with AMS-III.H.
- *The project participants shall clearly define the geographical boundary of the region referred in paragraph 8 (b), and document it in the CDM-PDD. In defining the geographical boundary of the region, project participants should take into*

account the source of the waste i.e. if waste is transported up to 50 km, the region may cover a radius of 50 km around the project activity. In addition, it should also consider the distance to which the final product after composting will be transported. In either case, the region should cover a reasonable radius around the project activity that can be justified with reference to the project circumstances but in no case it shall be more than 200 km. Once defined, the region should not be changed during the crediting period(s).

Each CPA will be required to clearly define the geographical boundary of the region in the CPA-DD with a radius of not more than 200 km.

- *In case produced compost is handled aerobically and submitted to soil application, the proper conditions and procedures (not resulting in methane emissions) must be ensured.*

  The project proponent has specified that only CPA involving co-composting technology which can ensure the aerobic condition during the composting process are eligible for inclusion.
- *In case produced compost is treated thermally/mechanically, the provisions in AMS-III.E related to thermal/mechanical treatment shall be applied.*

  CPAs are required to apply the provisions in AMS-III.E in case the produced compost is treated thermally/mechanically.
- *In case produced compost is stored under anaerobic conditions and/or delivered to a landfill, emissions from the residual organic content shall to be taken into account and calculated as per the latest version of the Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site.*

  The project proponent has specified that the final compost will not be stored under anaerobic conditions or delivered to landfill. Each CPA is required to use the final compost product as organic compost.

Therefore, it is concluded that conditions to ensure compliance with the applicability and other requirements of the approved methodology have been specified. This meets the requirement of paragraph 14(e) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. Compliance with this criterion is checked by reviewing project documents prior to inclusion.

- Eligibility criterion 6 specifies that each CPA owner must be able to provide documentary evidence to verify the start date of the CPA. The investment decision date of the CPA shall be sourced from board or management decision, depending on the internal authorization procedures of the CPA entity. On the other hand, the date project starts operating is sourced from external documents such as the feasibility study report or or the construction estimation schedule. In cases where more than one external document exists, the most conservative one shall be used. Therefore, it is concluded that conditions to check the start date of the CPA through documentary evidence have been specified and this meets the requirements of paragraph 14(d) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. Compliance with this criterion is checked by reviewing documents provided by the CPA to substantiate the starting date.
- Eligibility criterion 7 specifies that each CPA must be able to demonstrate that the project activity would not have occurred anyway through an investment analysis by following and

applying all steps of the additionality assessment as set out in sections E.5.1 ad E.5.2 of the PoA-DD /1/. It has been checked that this is derived from the relevant requirements of Attachment A to Appendix B of the Simplified modalities and procedures for small-scale CDM project activities which is in accordance to the Standard for demonstration of additionality of a programme of activities. Therefore, it is concluded that this meets the requirement of paragraph 14(f) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. Compliance with this criterion is checked by assessing the investment barrier analysis prepared by the CPA and provided prior to inclusion.

- Eligibility criterion 8(i) specifies that each CPA must provide a copy of the approved Environmental Impact Analysis (EIA) or Environmental Management and Monitoring Plan (EMMP) depending on the size of the compost facility. Therefore, it is concluded that conditions related to the undertaking of the environmental impact analysis (EIA) have been specified and this meets the requirement of paragraph 14(g) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. Compliance with this requirement is checked by reviewing the EIA or EMMP submitted prior to inclusion.
- Eligibility criterion 8(ii) specifies that each CPA must comply with the relevant Indonesian National or Regional National Standard. By this it ensures that only CPAs that comply with current discharge laws and regulations are eligible for the programme. This will be checked by reviewing the CPA's Environmental Impact Analysis of the Environmental Management and Monitoring Plan. In addition, the CPA's periodic reports submitted to the relevant authorities are also reviewed. Therefore, it is concluded that this eligibility criteria further strengthens the argument for additionality of the CPA for inclusion.
- Eligibility criterion 8(iii) specifies that each CPA must be able to demonstrate with appropriate documentary evidence regarding the Stakeholder Consultation. Therefore, it is concluded that conditions related to the undertaking of the local stakeholder consultation have been specified and this meets the requirement of paragraph 14(g) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. Compliance with this requirement is checked by assessing the local stakeholder consultation report provided at the time of inclusion.
- Eligibility criterion 9 specifies that each CPA must not be a debundled component of a large scale activity. Therefore, it is concluded that the requirements for debundling check have been stated and these requirements are in accordance with the Guidelines on assessment of debundling for SSC project activities. The requirements of paragraph 14(l) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/have been met. Compliance with this criterion is checked by reviewing project documents during desk review and confirmed through site visit if necessary.
- Eligibility criterion 10 specifies that each CPA shall not reduce more than 60 ktCO_2e annually. Therefore, it is concluded that conditions that ensure each CPA in aggregate meets the small-scale threshold criteria as per the General guidelines to SSC CDM methodologies have been specified and the requirements of paragraph 14(k) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and

Application of Multiple Methodologies for Programme of Activities /35/ have been met. Compliance with this criterion is checked by reviewing design documents related to the project and the estimated emission reduction calculations provided at the time of inclusion.

- Eligibility criterion 11 specifies that each CPA must certify in writing whether any Development Aid or Assistance funds have been used for funding the construction and operation of the Project Activity which forms the PoA. If ODA is involved in the project, the CPA shall provide evidence to confirm that such funds do not result in a diversion of any official development assistance funds. This is in accordance to paragraph 14(h) of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/. Compliance with this criterion is checked by reviewing sources of funding of the project and interviewing project personnel.

The following paragraphs of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/ are not applicable to the programme:

- Paragraph 14(i) as the programme has not defined any target group and distribution mechanism applicable to each CPA.
- Paragraph 14(j) as the programme has not specified any conditions related to sampling requirements. The project proponent has decided that the latest guidance available from the CDM Executive Board shall be used to carry out verification following a sampling approach.

4.4 Operational, management and verification plan

The operational and management plan has clearly defined the roles and responsibilities of the managing/coordinating entity and the CPA owner. In addition, the Coordinating Entity implements a record keeping system for each CPA under the PoA which is summarized as follows:

- A serial numbering system is adopted to uniquely identify each CPA under the PoA. For example, the first CPA has been given the serial number CPA No. 001 /3/.
- For each CPA under the PoA, the following information is recorded under the serial numbering system:
    - Basic plant information such as plant capacity, plant location, technical specifications and the plant's Standard Operating Procedures. This is checked from technical specifications of the plant and feasibility studies /11/ used in the development of the project, as demonstrated in the 1st CPA.
    - Baseline activity and baseline emissions. This is checked from historical production data of the plant and wastewater tests /24/ during a measurement campaign, as demonstrated in the 1st CPA.
    - Monitoring data. This data is not yet available as the 1st CPA is under construction and has not yet commissioned.
    - Emissions reduction data. This data is not yet available as the 1st CPA is under construction has not yet commissioned.

The following system/procedure is implemented to avoid double accounting of carbon emissions reductions:

- The coordinating/managing entity maintains a database of all registered CPA under the PoA.
- New CPAs are compared with the existing database as well as the list of project activities listed with the UNFCCC.
- CPA owners are made aware of double accounting and are required to certify in writing that the proposed CPA is not currently registered or seeking registration under the CDM or any other voluntary scheme.

CPA owners are required to provide ongoing warranty that they will not seek to have the project activity registered under any other scheme that earns carbon credits while the project is included under the PoA.

4.5 Baseline identification

The PoA and consequently each CPA applies the simplified baseline methodology for selected small-scale CDM project activity AMS-III.F "Avoidance of methane emissions through composting", AMS-III.F, version 10. The programme meets the applicability criteria of AMS-III.F (version 10) as it is demonstrated that:

- This project category *comprises measures to avoid the production of methane from biomass or other organic matter that would have otherwise been left to decay anaerobically in a waste disposal site without methane recovery*. The application of the value 0 as the Methane Correction Factor in the first CPA titled 'Socfindo EFB plus POME Co-composting Project' in calculating the methane emissions avoided due to prevention of waste disposal at the SWDS, $\mathbf{BE_{CH4,SWDS,y}}$ is justified. It was confirmed during the site visit that the EFB dump site is located in plantation lands and in patches of not more than 2 meters height and 5 meters width. Although methane production from the decay of the EFB is likely to occur at such disposal practise, the determination of an appropriate MCF was not possible in line with the criteria listed in "Emissions from solid waste disposal sites" /37/ referred by the AMS-III.F methodology in the calculation of $\mathbf{BE_{CH4,SWDS,y}}$. Baseline methane emission from the current dumping situation of the EFB is thus not included in emission reduction calculations. Therefore, this is considered to be conservative;
- The project activity *does not recover or combust methane and does not undertake controlled combustion of the waste*. The PoA would not involve the recovery of biogas from wastewater treatment. This was similarly confirmed for the 1st CPA which does not recover biogas from wastewater treatment;
- The *total emissions reductions from the* 1st CPA have been confirmed to be 10 130 tCO_2e/year and *less than 60 000 tCO_2e/year over its crediting period*, this limit will be applied for all CPAs included in this PoA;
- *This methodology is applicable to the composting of the organic fraction of municipal solid waste and biomass waste from agricultural or agro-industrial activities including manure.* This project involves the composting of POME and EFB which are biomass waste from agro-industrial activities;The PoA would *include construction and expansion of treatment facilities as well as activities that increase capacity utilization at an existing*

facility. In the 1st CPA titled 'Socfindo EFB plus POME Co-composting Project', the co-composting plant is a new treatment facility on-site;

- The project activity *involves co-composting wastewater and solid biomass waste, where wastewater would otherwise have been treated in an anaerobic wastewater treatment system without methane recovery*. In the 1st CPA titled 'Socfindo EFB plus POME Co-composting Project', it was confirmed during the site visit that the waste water (POME) is currently treated in a conventional open lagoon wastewater treatment system without methane recovery. The wastewater in the project scenario will be used as a source of moisture and/or a nutrient to the composting of empty fruit bunches (EFB). Methane generation is prevented through the diversion of all POME released from the palm oil mill on to the shredded EFB during composting in a new treatment facility;
- *In case of co-composting, if it cannot be demonstrated that the organic matter would otherwise been left to decay anaerobically, baseline emissions relate to such organic matter shall be accounted as zero, whereas project emissions shall be calculated according to the procedures presented in this methodology for all co-composted substrates.* In the 1st CPA, the project proponent was unable to demonstrate that the EFB would otherwise been left to decay anaerobically in a solid waste disposal site (SWDS) where determination of an appropriate MCF value was possible, therefore baseline emissions related to this is regarded as zero;
- The *location and characteristics of the disposal site of the biomass in the baseline condition* has been identified on-site by the validation team. In the 1st CPA titled 'Socfindo EFB plus POME Co-composting Project', the EFB disposal site is approximately 10 km from the mill;
- The bio-fertilizer (compost) from the biological treatment will be applied in the nearby plantation reducing the dependency of the inorganic fertilizer and/or sold to nearby plantations with *no thermal treatment* or *storage under anaerobic conditions* and in landfill in the PoA and this has been confirmed in the 1st CPA;
- The *geographical boundary of the region* for each CPA-DD is defined as the area with a radius of 200 km of the project activity. During the site visit, it has been determined that the EFB disposal site and the location where compost will be applies is approximately 10 km from the mill;
- The compost will be *handled aerobically and submitted to soil application* and *proper conditions and procedures (not resulting in methane emissions)* are ensured.
- The produced compost will not be *treated thermally/mechanically* in the PoA and this has been confirmed in the 1st CPA.
- The produced compost will not be *stored under anaerobic conditions and/or delivered to a landfill* in the PoA and this has been confirmed in the 1st CPA.

In the absence of the PoA, POME is treated anaerobically in a series of open lagoon system before being discharge to open water course way or sent for land application. Similarly, EFB would be left to anaerobic decay at unmanaged solid waste disposal sites. In some CPAs, EFB would be shredded to recover any residual oil before being left to anaerobic decay at unmanaged solid waste disposal sites.

4.6 Project boundary

The programme's spatial boundary has been clearly specified as the boundary of Indonesia. All CPA under this PoA will be located in Indonesia.

The programme's system boundaries are clearly defined in the SSC-PoA-DD. They are in accordance with the requirements of the selected methodology /29/. The programme's system boundaries are the newly introduced co-composting system, existing open lagoon wastewater treatment system, EFB disposal site, palm plantation sites and its associated transport system and on-site electricity generation system, all are clearly defined. The Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia will reduce methane emissions by co-composting of EFB and POME.

A summary of GHGs involved in the system boundaries is presented as follows:

	GHGs involved	*Description*
Baseline emissions	*CH_4*	• *Methane emissions from biomass decay in the SWDS.* • *Methane emissions from anaerobic digestion of POME in open air lagoons.*
Project emissions	*CO_2*	• *CO_2 emissions from power consumption in the mill are accounted for.* • *CO_2 emissions from incremental use of fossil fuels for transportation and auxiliary equipment due to project activity are accounted for.* • *Methane emissions from anaerobic pockets during composting if composting takes place in sub-optimal conditions and is not managed properly are accounted for.* • *Methane emissions from portion of POME produced by mill that may not be able to be used for co-composting and continues to be treated via open air lagoons as well as any portion of run-off POME or water that may be collected into open air holding tank or existing outdoor POME ponds for treatment and disposal through existing outdoor POME pond system are accounted for.*
Leakage	*No leakage.*	*This is consistent with AMS-III.F version 10 where the project proponent does not need to consider leakage as the*

		composting technology does not involve equipment transferred from another activity as the project facilities would be newly procured as evidenced by contracts of the first CPA /20//21//22/.

The identified boundary and selected sources and gases are justified for the project activity. The validation of the project activity did not reveal other greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, which are not addressed by AMS-III.F (version 10).

4.7 Additionality

4.7.1 Additionality of the programme

The proposed PoA /1/ aims to assist Crude Palm Oil Production in Indonesia to become more sustainable by the introduction of sustainable waste management practices and the recycling of waste materials to plantations. Specifically, it targets to introduce the practice of composting and co-composting of the major organic waste streams (EFB and POME) and to encourage the recycling of these waste streams back onto palm oil plantations as organic compost. It is noted that there are no mandatory laws or regulations in Indonesia requiring the composting of any organic waste applicable to palm oil mills or requiring the recycling of these waste materials in plantations.

Therefore, it is concluded that the proposed PoA is a voluntary coordinated action and not implementing a mandatory policy/regulation. This is also applicable to palm oil mills operating under the membership of Roundtable on Sustainable Palm Oil (RSPO). It has been clarified that RSPO membership is voluntary and does not impose any requirements regarding waste management treatment practices /6/. It is noted that the first CPA is a RSPO certified palm oil mill. However, other palm oil mills that are not RSPO certified are also eligible to join the programme.

The current waste management practice in palm oil mills in Indonesia involves the anaerobic treatment of POME in open lagoon wastewater systems and the anaerobic decay of EFB in unmanaged solid waste disposal sites /13/. The project participant has argued that without the PoA, waste management practices in palm oil mills will continue to be business-as-usual. This is supported by the fact that the proposed waste management practice requires additional investment that does not directly lead to increase in production and profitability. Therefore, it is concluded that the voluntary coordinated action implemented by the PoA would not be implemented in its absence.

Based on the arguments made, it is established that in the absence of CDM, none of the implemented CPAs would occur. Hence, the programme is considered to be additional. For each CPA, additionality will be determined at CPA level (c.f. Section 4.7.3).

4.7.2 Additionality of typical CPA

A typical CPA under the PoA is defined as a palm oil mill implementing a newly developed waste treatment system using composting or co-composting of EFB and POME. This would

replace the existing legally compliant wastewater management system at the mill which is the anaerobic treatment of POME in open lagoon wastewater systems and the anaerobic decay of EFB in unmanaged solid waste disposal sites. This is also commonly practiced throughout Indonesia. The CME has raised eligibility criterion 8(ii) to ensure that all CPA participating in the PoA meets current laws and regulations prior to inclusion in the programme. Therefore, this strengthens the argument for additionality.

To meet the requirements of the PoA, a typical CPA needs to invest in capital to purchase technology and equipment related to the new composting or co-composting system. In addition, an impermeable composting pad/floor of concrete and a compost run-off or leachate treatment system need to be implemented. It is noted that the proposed project activity does not result in direct increase in the production and the profitability of the mill. However, this project results in cost savings from the reduced usage of inorganic fertilizer /13/. In certain cases, the produced compost can be sold in the market as a new revenue stream for the mill /13/.

For each CPA, the project owner has a choice whether to invest capital and undertake the proposed project activity or not to invest and continue with the current waste management system in the mill while meeting the existing environmental standards and legislation. Therefore, it is concluded that without the PoA, a typical CPA faces a financial barrier demonstrated via an investment analysis and this barrier can be uplifted by the inclusion of the CPA in the PoA.

4.7.3 Approach for demonstrating additionality of CPAs

As the PoA consists of small-scale projects, the eligibility criteria have included all the relevant requirements of the Attachment A to Appendix B of the Simplified modalities and procedures for small-scale CDM project activities /31/. This meets the requirements of paragraph 9 of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities /35/.

According to the "Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities" /31/, investment barrier, technological barrier, barrier due to prevailing practice or other barrier may be used for demonstrating additionality. For this PoA, investment analysis will be used for additionality demonstration as the CPAs under the PoA will generate revenue from either the sale of compost and/or savings from the avoided purchase of inorganic fertilizers apart from CER revenue and baseline scenario of CPAs under the PoA is not an investment project. DNV was able to verify that the revenue of the CPA included in the PoA could come in at least one or more than the following sources:

a) Sales of compost – the price of compost will be determined via third party signed contract or commercial agreement available at the time of decision making,
b) Inorganic fertilizer savings –
    i) Option A when there is specific external published data for the region from technology supplier or compost expert on specific percentage of inorganic fertilizer savings that can be achieved, then the source will be used as input in the calculation template *Fertilizer Savings_template CPA inclusion_Option A.xls* /4/, or
    ii) Option B when such data does not exists, the savings are calculated according to the template *Fertilizer Savings_template CPA inclusion_Option B.xls* /4/.

Each CPA is required to calculate the pre-tax project IRR and compare it with the benchmark calculated at the time of inclusion. This is supplemented by a sensitivity analysis on critical parameters contributing to the cost and revenue of the project (investment cost, operation and maintenance cost and compost sales price/inorganic fertilizer savings).

The benchmark chosen and determined at the PoA level was in accordance to the "Guidelines on the Assessment of Investment Analysis" /29/. The programme is implemented on composting and co-composting technology, thus falling under 'Group 1: Waste Handling and Disposal' in Appendix of the Guideline. Since the geographical boundary of the progamme is located Indonesia and all CPAs fall within the boundary of this Party, default value of 12.5% was selected for the country Indonesia for Group 1 projects. The application of a post-tax IRR benchmark selected from the defaults in the Guideline to the financial calculations which is pre-tax project IRR is conservative. DNV is able to confirm this benchmark is suitable and reasonable. If the IRR of a CPA is lower than 12.5% (before tax), the CPA is additional.

The project IRR calculations for subsequent CPAs using investment analysis for additionality demonstration were provided in a spreadsheet template /4/. The calculations and assumptions used in the calculation in the spreadsheet template were verified by DNV to be correct and in accordance with "Guidelines on the Assessment of Investment Analysis" /29/.

For the first CPA under the PoA titled Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia--CPA-001:

- The CPA involves savings of inorganic fertilizer and as specific information was available from externally published sources with regards to the fertilizer savings, Option A was appropriately selected in the compost savings calculations,
- Apart from the labour cost which was based on internal company estimation, all financial inputs to the pre-tax project IRR was sourced from external sources which were all available at the time of decision making for CPA 001,
- The resulting pre-tax project IRR is -5.14%, lower than the benchmark of 12.5% determined at PoA level.

Given above discussion, it is sufficiently demonstrated that the typical CPA of the PoA is not a likely baseline scenario and that emission reductions of a typical CPA thus are additional to what would otherwise have occurred. The additionality of each CPA will be assessed with respect to the compliance of the CPA with the eligibility criteria.

4.8 Monitoring plan

A monitoring plan has been included in the SSC-CDM-PoA-DD /1/. It is based on the approved simplified monitoring methodology AMS-III.F version 10 /29/ which is applied to the proposed CDM programme activity.

4.8.1 Methodological choices and equations to be used for calculation of emission reductions of a CPA

Baseline Emissions

Procedures to calculate baseline emissions of an individual CPA have been specified in the PoA. Equations used for calculation of baseline emissions of a SSC-CPA are specified as follows:

- Baseline emissions are calculated using equation 1 of AMS-III.F version 10 /29/.

- The yearly methane generation potential of the solid waste composted by the project activity during the years from the beginning of the project activity up to the calculated year is calculated using equation 1 specified in the methodological tool titled "Emissions from solid waste disposal sites /37/."
- Baseline emission due to methane emission from baseline wastewater treatment system is calculated using equation 2 of AMS-III.H version 16 /38/.
- Baseline emission due to methane emissions on account of inefficiencies in the baseline wastewater treatment systems and presence of degradable organic carbon in the treated wastewater discharged into river/lake/sea is calculated using equation 6 of AMS-III.H version 16 /38/.
- Baseline emission from manure composted by the project is not applicable to the project as this project only valid for palm oil mills.
- The amount of methane that would have been captured and combusted in the year is zero as the project does not involve methane capture and combustion.

It is concluded that procedures to calculate baseline emissions of an individual CPA have been specified in the PoA.

Project Emissions

Procedures to calculate project emissions of an individual CPA have been specified in the PoA. Equations used for calculation of project emissions of a SSC-CPA are specified as follows:

- Project emissions are calculated using equation 2 of AMS-III.F version 10 /29/.
- Project emission from incremental transport distances is calculated using equation 3 of AMS-III.F version 10 /29/.
- Project emission from electricity consumption is calculated in accordance with equation 1 of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption /39/."
- Project emission from fossil fuel consumption is calculated using equation 1 of the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion /43/."
- Project emission due to methane emission during composting activity is calculated using equation 4 of AMS-III.F version 10 /29/.
- Project emission from runoff water from the composting yard is calculated using equation 5 of AMS-III.F version 10 /29/.
- Project emission due to methane emissions from anaerobic storage and/or disposal in a landfill is calculated as per the latest version of the methodological tool titled "Emissions from solid waste disposal sites /37/."

It is concluded that procedures to calculate baseline emissions of an individual CPA have been specified in the PoA.

Leakage Emissions

Equipment and project technology implemented in the programme are brand new and not transferred from another facility. Therefore, leakage emission is considered as zero.

In conclusion, the PoA-DD has outlined procedures to calculate emission of an individual CPA. The procedures specified are complete, transparent and in accordance with the approved methodology.

4.8.2 Parameters determined ex-ante

Data and parameters listed here are determined only once when validation is undertaken. They are not monitored and thus remain fixed throughout the crediting period. The list of parameters determined *ex-ante* is as follows:

- Methane producing capacity of the wastewater, $\mathbf{B_{o,ww}}$, 0.25 $kgCH_4$/kg COD
- Fraction of methane in the solid waste disposal gas (volume fraction), **F**, 0.5
- Fraction of degradable organic carbon that can decompose, $\mathbf{DOC_f}$, 0.5

These parameters have been verified to be taken from default values of the methodology AMS-III.F version 10 /29/ and the methodological tool "Emissions from solid waste disposal sites /37/."

Some parameters are specific to each CPA. Therefore, the determination and validation of these parameters are done at CPA level. They are listed as follows:

- Oxidation factor (reflecting the amount of methane from solid waste disposal sites that is oxidized in the soil or other material covering the waste), **OX**
- Methane correction factor, **MCF**
- Fraction of degradable organic carbon (by weight) in the waste type j, $\mathbf{DOC_j}$
- Decay rate for the waste type j, $\mathbf{k_j}$

4.8.3 Parameters monitored ex-post

The following parameters are monitored during the crediting period to estimate emission reduction:

- The quantity of EFB entering the composting or co-composting facility, $\mathbf{Q_y}$, unit: Tons
- Quantity of produced compost, $\mathbf{Q_{y,treatment,i}}$, unit: Tons
- The runoff wastewater from composting yard, $\mathbf{Q_{y,ww,runoff}}$, unit: m^3
- The chemical oxygen demand of the runoff wastewater from composting yard, $\mathbf{COD_{y,ww,runoff}}$, unit: $tCOD/m^3$
- Average truck capacity from transportation, $\mathbf{CT_y}$, unit: tons/truck
- Average truck capacity for compost transportation, $\mathbf{CT_{y,treatment}}$, unit: tons/truck
- Average incremental distance for raw solid transportation, $\mathbf{DAF_y}$, unit: km/truck
- Average incremental distance for compost transportation, $\mathbf{DAF_{y,treatment}}$, unit: km/truck
- Amount of organic waste type j prevented from disposal in the solid waste disposal site in year x, $\mathbf{W_{j,x}}$, unit: tons
- Fraction of methane captured at the solid waste disposal site and flared combusted or used in another manner, **f**

- Global Warming Potential of methane, valid for the relevant commitment period, **GWP_{CH4}**, unit: tCO_2e/tCH_4
- Check of aerobic conditions of the composting process,
- Parameters related to emissions from electricity and/or fuel consumption
- Parameters related to baseline emissions from wastewater co-composted

For each monitored parameter, the measurement method, measuring equipment, measuring accuracy and the measurement interval are specific to individual CPA and the different types of technology implemented. These are determined at CPA level. Therefore, it is concluded that data and parameters required to be monitored by each CPA have been specified in the PoA.

4.8.4 Management system and quality assurance for monitoring and reporting

All monitored data required for verification and issuance will be archived for 2 years from the end of the crediting period or the last request for issuance. This has been clearly stated in the PoA-DD /1/.

The CME has developed a management system /26/ as per paragraph 17 of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities EB65 Annex 3 version 01.0 /35/. An assessment of the management plan is as follows:

- The management plan /26/ has defined the roles and responsibilities of various personnel involved in the process of the inclusion of CPAs. The required minimum competencies for all positions have been specified. In addition, an organization chart has been prepared to define roles, establish reporting lines and specify information flow. Therefore, it is concluded that this meets the requirements of 17(a) of the standard.
- Arrangements for training and capacity development for the personnel involved have been specified in the management plan /26/. It also states that training records will be kept and made available for inspection. Therefore, it is concluded that the requirements of paragraph 17(b) have been met.
- Procedures of technical review of inclusion of CPAs have been specified in the management plan /26/. The process for evaluation and inclusion of potential CPAs will be done in 4 stages. The management plan also documents the steps to be taken in every stage. In addition, a flow chart has been developed to summarise the review process. By this, it is concluded that the requirements of 17(c) of the standard have been met.
- The management plan /26/ covers procedures taken to avoid double counting of emission reductions. It requires every CPA to provide details of project location and GPS coordinates in order to allow unique identification of each CPA. Steps taken to avoid double counting have also been included in the cooperation agreement between the CPA and the CME /25/. Therefore, it is concluded that this meets the requirements of paragraph 17(d) of the standard.
- The management plan /26/ includes records and documentation control process for each CPA under the PoA. This is done to allow proper evaluation and validation of the CPA inclusion process. Therefore, it is concluded that the requirements of paragraph 17(e) have been met.

- Measures for continuous improvement to the PoA management system have been included in the management plan. It takes into account both informal and formal procedures. These measures include the creation of a suggestion box, regular reports by the PoA Manager to the Head of CDM, regular meeting by the PoA management team and communication to the entire CDM team of any changes. It is concluded that this is in accordance with paragraph 17(f) of the standard.

In conclusion, the management system developed by the CME meets the requirements of paragraph 17 of the standard /35/. The management system /26/ has been made available to DNV at the time of validation for assessment as part of the validation of the PoA.

4.9 Environmental impacts

The environmental impacts are assessed at CPA level.

4.10 Comments by local stakeholders

Local stakeholders are consulted at CPA level.

4.11 Comments by Parties, stakeholders and NGOs

The CDM-SSC-PoA-DD dated 28 June 2011, the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA and the CDM-SSC-CPA-DD for the CPA with the title 'Socfindo EFB plus POME Co-composting Project' was made publicly available on the UNFCCC's website (http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/2MJW8CICWDNRL1F72DM11M3M8A6Q8M/view.html) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 1 July 2011 to 30 July 2011. No comments were received.

APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Programmes of Activities

Requirement	Reference	Conclusion
About Parties		
1. The programme shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	~~CAR 1~~ OK
2. The programme shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	~~CAR 1~~ OK
3. The programme shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	~~CAR 1~~ OK
4. The programme shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	~~CAR 1~~ OK
5. In case public funding from Parties included in Annex I is used for the programme, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK No public funding involved.
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	~~CAR 1~~ OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	Annex 1 Party not yet identified.
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	Annex 1 Party not yet identified.

Requirement	Reference	Conclusion
About Design of Programme		
10. The CDM-POA-DD sets a framework for the implementation of the PoA and defines unambiguously a CPA under the PoA.	PoA Procedures § 2	OK
11. The coordinating/managing entity shall be identified.	PoA Procedures § 2 (a)	OK
12. The boundary for the PoA in terms of a geographical area (e.g., municipality, region within a country, country or several countries) within which all CPAs included in the PoA will be implemented is defined.	PoA Procedures § 2 (b)	OK
13. Eligibility criteria are defined for inclusion of a project activity as a CPA under the PoA, which shall include criteria for demonstration of additionality, and the type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements) that shall be provided by each CPA in order to ensure its eligibility.	PoA Procedures § 2 (g)	~~CL 1~~ OK
14. The length of the PoA is not exceeding 28 years.	PoA Procedures § 2 (h)	OK
15. The operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA is decribed, including a description of a record keeping system for each CPA under the PoA, a system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA, the provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA.	PoA Procedures § 2 (i)	OK
16. The proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of emission reductions achieved by CPAs under the PoA is described. In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA there is a transparent system defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA.	PoA Procedures § 2 (k)	OK

Requirement	Reference	Conclusion
About small-scale programmes of activities (if applicable)		
17. The CPAs shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakech Accords.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK
About additionality		
18. Additionality of the programme as a whole is demonstrated because in the absence of the CDM (i) the proposed voluntary measure would not be implemented, or (ii) the mandatory policy/regulation would be systematically not enforced and that non-compliance with those requirements is widespread in the country/region, or (iii) that the PoA will lead to a greater level of enforcement of the existing mandatory policy /regulation.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43 PoA Procedures § 2 (e)	~~CAR 3~~ OK
19. Additionality of a typical CPA is demonstrated by using the procedure provided in the baseline and monitoring methodology applied.	PoA Procedures § 2 (f)	OK
About application of baseline and monitoring methodology		
20. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
21. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	OK
22. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
23. The monitoring plan for a typical CPA is developed in accordance with the approved monitoring methodology, and identification of the monitoring provisions and data parameters a CPA has is to apply/monitor	PoA Procedures § 2 (j)	~~CAR 6~~ OK
24. Provisions for monitoring, verification and reporting shall be in accordance with	CDM Modalities and Procedures §37f	OK

Requirement	Reference	Conclusion
the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.		
About forecast emission reductions		
25. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
About environmental impacts		
26. Documentation on the analysis of the environmental impacts of the programme activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the programme participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	☐ Analysis at PoA level ☒ Analysis at CPA level
About stakeholder comments		
27. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	☐ Analysis at PoA level ☒ Analysis at CPA level
28. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
Other		
29. The project design document shall be in conformance with the CDM-PoA-DD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK

Table 2 Requirements Checklist

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A. General Description of the Programme of Activities *The project design is assessed.*					
A.1. Title of the PoA					
A.1.1. Does section A.1 of the PoA-DD include a clearly identifiable project title, version number of the PoA-DD and date of the PoA-DD?	/1/	DR	☒ Clearly identifiable title of the project activity ☒ Version number of the PoA-DD is included ☒ Date of the PoA-DD is included. The SSC-PoA-DD dated 28 June 2011 of version 01 mentions the title clearly as "Co-composting Programme of Activities in Indonesia". It has been clarified with the project proponents that the project would involve either co-composting or composting, which is within the applicability of the applied methodology AMS-III.F, thus a revision of the PoA-DD title has been requested to reflect the actual situation	~~CAR 2~~	OK
A.1.2. Is the PoA-DD is in accordance with the applicable requirements for completing PoA-DDs?	/1/ /32/	DR CC	☒ Yes Cross-checking done with /32/ to verify that the PoA-DD is complete.		OK
A.2. Programme Boundaries *Programme Boundaries are the limits and borders*					

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
defining the GHG emission reduction project.					
A.2.1. Are the programme's spatial boundaries (geographical) clearly defined?	/1/	DR	The political boundary of Indonesia is chosen as the geographical boundary of the PoA.		OK
A.2.2. Are the programme's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/ /29/	DR	The programme's system boundaries are clearly defined in the SSC-PoA-DD. They are in accordance with the requirements of the selected methodology. The programme's system boundaries are the newly introduced co-composting system, existing open lagoon wastewater treatment system, EFB disposal site, palm plantation sites and its associated transport system and on-site electricity generation system, all are clearly defined. The Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia will reduce methane emissions by co-composting of EFB and POME.		OK
A.2.3. Can each CPA under the PoA be clearly identified individually including spatial boundaries (geographical) clearly defined?	/1/	DR	The geographical boundary of the each CPA will be determined by: i. EFB disposal site and methane emissions that would have occurred in absence of the CPA; ii. Anaerobic co-composted wastewater (POME) system in the absence of the CPA; iii. Treatment system of biomass through composting;		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			iv. Where the products from composting (compost) are handled, disposed, and submitted to soil application; and v. The itineraries between them (i, ii, iii, and iv) and the transportation of waste, wastewater or compost. The coordinates of mill factory in the first CPA are clearly demonstrated in the CDM-SSC-CPA-DD for CPA titled "Socfindo EFB plus POME Co-composting Project".		
A.2.4. Does the programme establish eligibility criteria for inclusion of a project as a CPA under the PoA?	/1/	DR	Section A.4.2.2 of the PoA-DD lists down the eligibility criteria for inclusion of a project as a CPA under the PoA. However, clarification is sought on the exclusion of the following as the criteria for inclusion: • Additionality test. This is to ensure that the CPA is additional. • Geographical location. This is to ensure that the CPA is located within the boundary of the PoA. • CPA starting date and crediting time. This is to ensure that the CPA timeline falls within the PoA period.	~~CL 1~~	OK
A.3. Participation Requirements *Referring to Part A, Annex 1 and 2 of the PoA-DD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.*					

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A.3.1. Which Parties and programme participants are participating in the programme?	/1/	DR	Indonesia is the Host Party and PT Socfin Indonesia is the programme participant.		OK
A.3.2. Has the coordinating/managing entity of the programme been identified?	/1/	DR	The programme participant, PT Socfin Indonesia is the managing entity of the programme.		OK
A.3.3. Have all involved Parties provided a valid and complete letter of approval and have all private/public programme participants been authorized by an involved Party?	/1/	DR	Letter of approval from Indonesia is pending.	~~CAR 1~~	OK
A.3.4. Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority?	/1/	DR	Indonesia has fulfilled the participation requirement. Indonesia ratified the Kyoto Protocol on 3 December 2004 and has designated National Committee on Clean Development Mechanism as the national authority for CDM activities.		OK
A.3.5. Do all participating Parties fulfil the participation requirements as follows:	/1/	DR	Letter of approval from Indonesia is pending.	~~CAR 1~~	OK
	Indonesia (host) a) Party has ratified the Kyoto Protocol ☒ Yes ☐ No b) Party has designated a Designated National Authority ☒ Yes ☐ No c) The assigned amount has been determined ☒ Yes ☐ No				
A.3.6. Do the letters of approval meet the following requirements?	/1/ /27/	DR	Letter of approval from Indonesia is pending.	~~CAR 1~~	OK
	Indonesia (host) a) LoA confirms that Party has ratified the Kyoto Protocol ☒ Yes ☐ No b) LoA confirms that participation is voluntary ☒ Yes ☐ No c) The LoA confirms that the project contributes to the ☒ Yes ☐ No				

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
sustainable development of the host country?					
d) The LoA refers to the precise project activity title in the PoA-DD	☒ Yes ☐ No				
e) The LoA is unconditional with respect to (a) to (d) above	☒ Yes ☐ No				
f) The LoA is issued by the respective Party's DNA	☒ Yes ☐ No				
g) The LoA was received directly by the DNA or the PP	☐ DNA ☒ PP				
h) In case of doubt regarding the authenticity of the letter of approval, describe how it was verified that the letter of approval is authentic	DNV does not doubt the authenticity of the LoA				
A.3.7. Does the programme make provisions for meeting training and maintenance needs?	/1/	DR	Provisions for meeting training and maintenance needs are not clarified in the project document.	~~CL 2~~	OK
A.4. Contribution to Sustainable Development *The project/programme's contribution to sustainable development is assessed.*	/1/	DR			
A.4.1. Has the host Party confirmed that the programme assists it in achieving sustainable development?	/1/	DR	Yes. DNV has verified that Socfin Group is a member of the Roundtable on Sustainable Palm Oil (RSPO) on 7 December 2004 via RSPO website. Moreover, the contribution of the proposed CDM project activity to sustainable development is assessed by using the sustainable development criteria of Indonesia. However, confirmation by the DNA of Indonesia that the programme contributes to sustainable development is pending.	~~CAR 1~~	OK
A.4.2. Will the programme create other environmental or social benefits than GHG emission reductions?	/1/	DR	Yes. Other benefits are as follows:		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			• Environmental – project reduces local waste production • Environmental – project conserves natural resources • Economic – project provides opportunity of new jobs for local community.		
A.5. Small scale programme activity *It is assessed whether the project qualifies as small-scale CDM project activity*					
A.5.1. Do CPAs under the programme qualify as small scale CDM project activities as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	/1/	DR	Yes. The project applies the simplified baseline methodology for selected small-scale CDM project activity AMS-III.F, "Avoidance of methane emissions through composting" version 10. CPAs will be defined to ensure that the methane emissions reductions from the mills included a single CPA may not exceed the equivalent of 60 ktCO_2e per year.		OK
A.6. Operational, management and monitoring plan for the programme					
A.6.1. Do the operational and management arrangements established by the coordinating entity include a record keeping system for each CPA under the programme?	/1/	DR	Yes. A database and a serial numbering system will be developed for proper record keeping.		OK
A.6.2. Do the operational and management arrangements established by the coordinating entity include a system/procedure to avoid including CPAs that have already been registered	/1/	DR	Yes. Cross-checking with UNFCCC will be done. CPA owners will also be made aware of the need to avoid double accounting. CPA owners will provide ongoing warranty that		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
either as CDM project activity or as a CPA of another PoA?			the project will not seek additional carbon credits outside the PoA.		
A.6.3. Do the operational and management arrangements established by the coordinating entity include provisions to ensure that CPA implementers are aware and have agreed that their activity is being subscribed to the PoA?	/1/	DR	Yes. CPA implementers are made aware of the project being subscribed to the PoA. Voluntary participation by CPA implementers is required for inclusion in PoA.		OK
A.6.4. Does the monitoring plan include a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme? OR If the programme does not use verification method that applies a statistical method for sampling, has a system been defined to avoid double counting of CERs, and is the system transparent?	/1/	DR	Yes. The programme uses verification method that applies a statistical method for sampling. The following steps are taken to prevent double counting of CERs: • The undertaking from all operators to confirm that project is not part of any other CDM project activity or any other PoA. • Centralized database to aid operations, management and monitoring of CPAs. • Centralized process to claim emission reductions.		OK
B. Duration of the Programme of Activities, Crediting Period					
B.1.1. Are the programme starting date and length of the programme clearly defined and evidenced?	/1/	DR	Yes, the starting date of the PoA has been defined as 29 June 2011. It needs to be clarified how this start date meets the definition for the start date adopted by the CDM EB at its 41st meeting, i.e. the starting date shall be considered to be the earliest date on which the project participant has	~~CL 3~~ ~~CL 4~~	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			committed or will commit to expenditures related to the implementation or related to the construction of the project activities The length of the programme is 28 years. The CPA's starting date is specified as 1 July 2011 and its operational lifetime is 20 years. However, during the site visit, it was verified that the construction is on-going and contracts have been signed prior to the site visit. Further clarification is sought regarding the project starting date.		
B.1.2. Does the PoA design documentation confirm that the length of the PoA does not exceed 28 years?	/1/	DR	The SSC-PoA-DD confirms the length of the PoA as 28 years.		OK
C. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*			☐ Analysis at PoA level ☒ Analysis at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
C.1.1. Has an analysis of the environmental impacts of the programme been sufficiently described?	/1/	DR	The environmental impacts of the CPA cannot be assessed due to insufficient description of its effects. Possible positive and/or negative impacts of the project are not clearly stated. For example, it is not clear how does the project would improve water and air quality around the project activity area. Further clarification is requested to allow this assessment to be done.	~~CL 5~~	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
C.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)?	/1/	DR	Not applicable. Analysis done at CPA level.		OK
C.1.3. Will the programme create any adverse environmental effects?	/1/	DR	Not applicable. Analysis done at CPA level.		OK
C.1.4. Are transboundary environmental impacts considered in the analysis?	/1/	DR	Not applicable. Analysis done at CPA level.		OK
C.1.5. Have identified environmental impacts been addressed in the programme design?	/1/	DR	Not applicable. Analysis done at CPA level.		OK
C.1.6. Does the programme comply with environmental legislation in the host country?	/1/	DR	Not applicable. Analysis done at CPA level.		OK
D. Stakeholder Comments *The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*			☐ Consultation at PoA level ☒ Consultation at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
D.1.1. Have relevant stakeholders been consulted?	/1/	DR	It is confirmed that during the site visit, a meeting with relevant stakeholders have been conducted to inform them of the project activity. Similarly, feedback and responses from the stakeholders have been obtained. More information is required in order to assess whether stakeholders have been properly consulted in the development of the project.	~~CL 6~~	OK
D.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	Not applicable. Consultation done at CPA level.		OK
D.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out	/1/	DR	Not applicable. Consultation done at CPA level.		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
in accordance with such regulations/laws?					
D.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR	Not applicable. Consultation done at CPA level.		OK
D.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	Not applicable. Consultation done at CPA level.		OK
E. Programme Baseline *The validation of the programme baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
E.1. Baseline Methodology *It is assessed whether the programme applies an appropriate baseline methodology.*					
E.1.1. Does the programme apply an approved methodology and the correct version thereof?	/1/	DR	The programme applies the methodology AMS-III.F; "Avoidance of methane emissions through composting", version 10		OK
E.1.2. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 1: This methodology comprises measures to avoid the emissions of methane to the atmosphere from biomass or other organic matter that would have otherwise been left to decay anaerobically in a solid waste disposal site (SWDS), or in an animal waste management system (AWMS), or in a wastewater treatment system (WWTS). In the project activity, controlled aerobic treatment by composting of biomass is introduced.	/1/	DR	Applicable. The project activity involves controlled aerobic treatment by composting of EFB and POME to avoid emissions of methane. In the absence of the project activity, this biomass matter will be left to decay anaerobically in a solid waste disposal site.		OK
E.1.3. Are the applicability criteria in the baseline methodology all fulfilled?	/1/	DR	Applicable. CPAs are not allowed to involve recovery or combustion of landfill gas,		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
Criterion 2: The project activity does not recover or combust landfill gas from the disposal site and does not undertake controlled combustion of the waste that is not treated biologically in a first step.			undertaking controlled combustion of waste, recovery of biogas or methane, and anaerobic digestion.		
E.1.4. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 3: Measures are limited to those that result in emission reductions of less than or equal to 60 ktCO_2 equivalent annually.	/1/	DR	Applicable. The SSC-PoA-DD specifies that a CPA results in emission reductions of less than or equal to 60 kt CO_2e annually.		OK
E.1.5. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 4: This methodology is applicable to the composting of the organic fraction of municipal solid waste and biomass waste from agricultural or agro-industrial activities including manure.	/1/	DR	Applicable. This project involves composting of EFB and POME which are biomass waste from palm oil industrial activities.		OK
E.1.6. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 5: This methodology includes construction and expansion of treatment facilities as well as activities that increase capacity utilization at an existing facility. For project activities that increase capacity utilization at existing facilities, project participant(s) shall demonstrate that special efforts are made to increase the capacity utilization, that the existing facility meets all applicable laws and regulations and that the existing facility is not included in a separate CDM project activity. The special efforts should be identified and described.	/1/	DR	Applicable. One of the criteria for eligibility as CPA is the co-composting plant must be newly developed, upgraded or expanded.		OK
E.1.7. Are the applicability criteria in the baseline methodology all fulfilled?	/1/	DR	Applicable. Project involves co-composting POME (wastewater) and EFB (solid biomass		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
Criterion 6: This methodology is also applicable for co-composting wastewater and solid biomass waste, where wastewater would otherwise have been treated in an anaerobic wastewater treatment system without biogas recovery. The wastewater in the project scenario is used as a source of moisture and/or nutrients to the biological treatment process.			waste). POME would otherwise have been treated in an anaerobic wastewater treatment system without biogas recovery.		
E.1.8. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 7: In case of co-composting, if it cannot be demonstrated that the organic matter would otherwise been left to decay anaerobically, baseline emissions related to such organic matter shall be accounted for as zero, whereas project emissions shall be calculated according to the procedures presented in this methodology for all co-composted substrates.	/1/	DR	Applicable. It has been stated in the SSC-PoA-DD that methane emissions form EFB shall only be counted depending on the baseline disposal practice at the mill.		OK
E.1.9. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 8: The location and characteristics of the disposal site of the biomass, animal manure and co-composting wastewater in the baseline condition shall be known, in such a way as to allow the estimation of its methane emissions.	/1/	DR	Applicable. CPAs are required to identify disposal site location and characteristics in order to estimate baseline emissions.		OK
E.1.10. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 9: The project participants shall clearly define the geographical boundary of the region referred and document it in the CDM-PDD. In defining the geographical boundary of the region, project participants should take into account the source	/1/	DR	Applicable. Each CPA is required to define its own geographical boundary. Geographical boundary definition takes into account the transportation of waste and final compost product.		OK

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of the waste i.e. if waste is transported up to 50 km, the region may cover a radius of 50 km around the project activity. In addition, it should also consider the distance to which the final product after composting will be transported. In either case, the region should cover a reasonable radius around the project activity that can be justified with reference to the project circumstances but in no case it shall be more than 200 km. Once defined, the region should not be changed during the crediting period(s).					
E.1.11. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 10: In case produced compost is handled aerobically and submitted to soil application, the proper conditions and procedures (not resulting in methane emissions) must be ensured.	/1/	DR	Applicable. Each CPA is required to employ technologies that take measures to prevent methane emissions due to improper compost handling.		OK
E.1.12. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 11: In case produced compost is treated thermally/mechanically, the provisions in AMS-III.E related to thermal/mechanical treatment shall be applied.	/1/	DR	Not applicable. The produced compost is not subject to thermal or mechanical treatment.		OK
E.1.13. Are the applicability criteria in the baseline methodology all fulfilled? Criterion 12: In case produced compost is stored under anaerobic conditions and/or delivered to a landfill, emissions from the residual organic content shall to be taken into account and calculated as per the latest version of the "Tool to determine methane emissions avoided from disposal of waste at a solid	/1/	DR	Not applicable. The produced compost is directly returned for soil application and not subject to anaerobic storage conditions or landfill disposal. Therefore, emissions from the residual organic content are not taken into account.		OK

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waste disposal site".					
E.2. Baseline Scenario Determination *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.*					
E.2.1. What is the baseline scenario?	/1/ /29/	DR	The baseline scenario is the anaerobic decay of EFB and POME within the project boundary and as a result, methane is emitted to the atmosphere.		OK
E.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/	DR	No other alternative scenarios have been considered in the SSC-PoA-DD. The selected scenario is the most likely one as it meets legal requirements and incurs minimal investment and operational costs.		OK
E.2.3. Has the baseline scenario been determined according to the methodology?	/1/	DR	The baseline scenario selected is in accordance with the methodology.		OK
E.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/	DR	The baseline scenario has been determined using the most conservative assumptions possible.		OK
E.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR	The baseline scenario determination has taken into account that the current prevailing practice is meeting legal obligations.		OK
E.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/	DR	The baseline scenario determination is compatible with all available data and literature sources.		OK

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E.2.7. Have the major risks to the baseline been identified?	/1/	DR	It has been highlighted that the baseline would continue to cause GHG emissions to the atmosphere and thus jeopardizes the sustainability of the palm oil industry.		OK
E.3. Additionality of the Programme of Activities					
E.3.1. Has it been demonstrated that the programme is a voluntary coordinated action that would not be implemented in the absence of CDM?	/1/	DR	Clarification is sought on legibility of the Programme to be qualified as a CDM project activity when the PoA-DD mentions that the recycling of POME and EFB is part of the obligation to meet the mill's RSPO obligation.	~~CAR 3~~	OK
E.3.2. If the programme is implementing a mandatory policy/regulation, has it been demonstrated whether the policy/regulation is being enforced? If it is enforced, has it been demonstrated that the programme will lead to a higher level of enforcement?	/1/	DR	Pending closure of CAR 3.	~~CAR 3~~	OK
E.3.3. Are all assumptions stated in a transparent and conservative manner?	/1/	DR	Pending closure of CAR 3.	~~CAR 3~~	OK
E.3.4. Is sufficient evidence provided to support the relevance of the arguments made?	/1/ /41/ /42/	DR	Pending closure of CAR 3.	~~CAR 3~~	OK
E.4. Additionality of CPAs					
E.4.1. Is the approach described for demonstrating additionality of a CPA in accordance with the	/1/ /33/	DR	The approach described for demonstrating additionality of a CPA is in accordance with		OK

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using the procedure provided in the baseline and monitoring methodology applied?			the procedures provided in the methodology. It requires barriers to be identified as per /33/		
E.4.2. Are specific criteria for demonstrating the additionality of a specific CPA included to the PoA?	/1/	DR	The PoA has specified criteria for demonstration of additionality. It requires that CPAs that economically benefit from this project due to savings in fertilizer expense to demonstrate additionality by financial analysis. For CPAs involving newly built co-composting facilities, they are required to show that non-action is a credible alternative to the project scenario.		OK
E.4.3. Is the additionality of a typical CPA demonstrated?	/1/	DR	The sensitivity analysis has been performed for the project revenues, total investment and O&M costs at -10% to 10% variation. Further information is to be included in the PoA-DD to demonstrate how much variation is required in order to reach the benchmark. The project proponent needs to substantiate that the likelihood of this to occur is low. It is not clear whether CDM benefits were considered necessary in the decision to undertake the project. Evidences of prior CDM consideration and the chronology of events leading to the start of the project needs to be substantiated. The prior CDM consideration chronology event needs to be substantiated with evidence.	~~CL 7~~ ~~CL 8~~ ~~CL 9~~ ~~CL 10~~	OK

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			To enrol in the PoA, a CPA needs to have a cooperation agreement with the Coordinating Entity. This is part of the eligibility criteria for inclusion. The project proponent is requested to clarify whether the CPA meets this requirement. To argue for additionality, the CPA uses an investment analysis. In assessing the financial analysis, clarification is required with regard to the following: • The role of the Beta was appropriately included in the CAPM calculation. Nevertheless, it needs to be justified that the Unlevered Beta from the Environment sector can be applied for the co-composting project. • The source of the investment cost was evidenced via quotations from third party suppliers. Nevertheless it was found that two quotations were using the higher figures in the quotations provided, which are for the purchase of 'MCC Panel and Cable to EFB from Engine room' and 'Traymaster Bunker Filler'. Clarification is sought on the appropriateness on the assumed cost for these two components. • Economic savings due to reduced		

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			inorganic fertilizer usage needs to be substantiated with evidences.		
E.5. Calculation of GHG Emission Reductions – Project emissions *It is assessed whether the procedure for calculating project emissions is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
E.5.1. Has the procedure to calculate project emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	Yes, the procedure to calculate project emissions of an individual CPA has been documented in the SSC-PoA-DD. It is in accordance with the approved methodology adopted by the project.		OK
E.5.2. Have conservative assumptions been used when determining the procedure to be used to calculate the project emissions?	/1/ /3/	DR	In calculating project emissions due to runoff water, $\mathbf{PE_{y,runoff}}$, the model correction factor, $\mathbf{UF_b}$ needs to be applied as specified in AMS-III.F. It was found that this factor has not been applied correctly. Project emissions calculations shall be revised to apply the correct $\mathbf{UF_b}$. The following values used in the emission reduction calculation and CPA-DD needs to be further substantiated: • 0.10 $kgCO_2$/km in the project emission due to transportation • Inconsistency of the average truck capacity for waste and compost	~~CAR 4~~ ~~CL 11~~	OK

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			transportation in the CPA-DD and spreadsheet • The usage of 'ton' and 'tonnes' needs to be consistent and applicable to the context • The appropriateness on using the default values for the fuel Net Calorific Value and Emission Factor with respect to the requirements of "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion."		
E.5.3. Are uncertainties in the project emission calculation procedure properly addressed?	/1/	DR	Not applicable as calculation of project emissions is done at CPA level.		OK
E.6. Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the procedure for calculating baseline emissions is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
E.6.1. Has the procedure to calculate baseline emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	Yes, the procedure to calculate project emissions of an individual CPA has been documented in the SSC-PoA-DD. It is in accordance with the approved methodology adopted by the project.		OK
E.6.2. Have conservative assumptions been used when determining the procedure to be used to calculate the baseline emissions?	/1/ /3/	DR	The application of the value 0.8 as the Methane Correction Factor in calculating the methane emissions avoided due to prevention of waste disposal at the SWDS, $\mathbf{BE_{CH4,SWDS,y}}$	~~CAR 5~~ ~~CL 12~~	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			needs to be reconsidered. It was confirmed during the site visit that the EFB dump site is located in plantation lands and in patches of not more than 2 meters height and 5 meters width. Clarification is sought on the conservativeness to claim methane emission from the current dumping situation of the EFB. The stated baseline emissions cannot be assessed due to the following reasons: • The 3 years EFB generation results were crosschecked on-site and it was found that the results presented in the CPA-DD and its emission reduction spreadsheet was not consistent with the raw data recorded by the mill internal monitoring system. Consistency is requested on the EFB generation data to be reported in the CPA-DD and its emission reduction spreadsheet. • The 3 years COD historical data were crosschecked on-site and it was found that the results presented in the CPA-DD spreadsheet was taken from the internal laboratory results. These results were found to different in comparison to the externally tested results as part of the plant monitoring for discharge compliance to the local authority.		

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			Clarification is sought on the appropriateness to apply the internally test results when an external accredited lab has performed the same measurement. • DNV has verified the wastewater COD test results on the measurement campaign conducted from 17 February 2011 to 3 March 2011 indicated in the CPA-DD and emission reduction spreadsheet. It was checked that the test results only indicates the date of receiving samples and date of testing but not the date where the samples were collected, in line with the AMS-III.H methodology. Clarification is sought on the appropriateness of the wastewater COD test results with respect to the dates mentioned in the 10 days campaign measurement.		
E.6.3. Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	Not applicable as calculation of baseline emissions is done at CPA level.		OK
E.7. Calculation of GHG Emission Reductions – Leakage *It is assessed whether the procedure for calculating leakage is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
E.7.1. Has the procedure to calculate leakage emissions of an individual CPA been documented according to the approved methodology and in a complete	/1/	DR	Yes, the procedure to calculate leakage emissions of an individual CPA has been documented according to the approved		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
and transparent manner?			methodology.		
E.7.2. Have conservative assumptions been used when determining the procedure to be used to calculate the leakage emissions?	/1/	DR	Not applicable as calculation of leakage emissions is done at CPA level.		OK
E.7.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	Not applicable as calculation of leakage emissions is done at CPA level.		OK
E.8. Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
E.8.1. Does the PoA-DD provide a clear and correct way of calculating the emission reductions from each CPA?	/1/	DR	Yes, the SSC-PoA-DD provides a clear and correct way of calculating the emissions reductions from each CPA.		OK
E.9. Monitoring Methodology *It is assessed whether the project applies an appropriate monitoring methodology.*					
E.9.1. Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	Clarification is sought on the completeness of the monitoring plan when the following parameters are not included: a. Fraction of methane captured at solid waste disposal site that are flared or utilized, b. Global warming potential of methane, and c. Quantity of raw waste fed to the co-composting facility	~~CAR 6~~	OK
E.9.2. Will all monitored data required for verification and issuance be kept for two years after the end of	/1/	DR	The SSC-PoA-DD has specified that each CPA must ensure that all monitored data will		OK

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the crediting period or the last issuance of CERs, for this programme, whichever occurs later?			be kept and made available as per CDM requirements.		
E.10. Monitoring Plan *It is established whether the monitoring plan provides for reliable and complete emission data over time.*					
E.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the programme boundary during the crediting period?	/1/	DR	Fuel oil will be used as fuel source in the operation of the auxiliaries in the co-composting facility. Further clarification is needed on how the project monitors the mass of fuel oil used in the project activity with respect to the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion".	~~CL 13~~	OK
E.10.2. Are the choices of programme GHG indicators reasonable and conservative?	/1/	DR	Yes, the choices of programme GHG indicators are reasonable and conservative.		OK
E.10.3. Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/1/	DR	The measuring method for each GHG value will be specified at CPA level.		OK
E.10.4. Is the measurement equipment described and deemed appropriate?	/1/	DR	The measuring equipment will be described at CPA level.		OK
E.10.5. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/	DR	The measuring equipment accuracy is addressed at CPA level.		OK
E.10.6. Is the measurement interval identified and deemed appropriate?	/1/	DR	The measuring interval is addressed at CPA level.		OK
E.10.7. Is the registration, monitoring, measurement and reporting procedure defined?	/1/	DR	Procedures for registration, monitoring, measurement and reporting are addressed in		OK

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			the CDM Operations and Monitoring Manual developed by the Project Participant. This document will be finalized after the registration of the PoA.		
E.10.8. Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/1/	DR	Each CPA is required to perform maintenance and calibration of measuring equipments according to the manufacturer's specification, international standards or national standards. The calibration is to be done by an accredited party.		OK
E.10.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR	Procedures for day-to-day records handling are addressed in the CDM Operations and Monitoring Manual.		OK
E.11. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
E.11.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country	/1/	DR	There is no requirement for monitoring of sustainable development indicators or environmental impacts warranted by legislation in Indonesia.		OK
E.11.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	The monitoring plan does not provide for the collection of relevant data concerning environmental, social and economic impacts because it is not warranted by legislation.		OK
E.11.3. Are the sustainable development indicators in line	/1/	DR	Sustainable development indicators are not		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
with stated national priorities in the Host Country?			monitored because it is not warranted by legislation.		
E.12. Management System and Quality Assurance for Monitoring and Reporting *It is checked that programme implementation is properly prepared for and that critical arrangements are addressed.*					
E.13.1. Is the authority and responsibility of overall programme management clearly described?	/1/	DR	Responsibilities and authorities for project management, monitoring and reporting activities, measurement, training and reporting techniques and QA/QC procedures are defined in PoA. However, the following needs to be described further in the PoA-DD: a. Procedures for emergency preparedness for cases where emergencies can cause unintended emissions and also the risk of fire on emergency condition, b. Corrective actions procedures in order to provide for more accurate future monitoring and reporting. The coordinating entity should ensure that each CPA has the necessary data (i.e. FFB production, EFB production etc.) for the crediting period as for the verification of emission reductions there needs to be reliable data at the mill.	~~CL 14~~	OK
E.13.2. Are procedures identified for training of	/1/	DR	These procedures are developed at CPA		OK

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monitoring personnel?			level.		
E.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	These procedures are developed at CPA level.		OK
E.13.4. Are procedures identified for review of reported results/data?	/1/	DR	These procedures are developed at CPA level.		OK
E.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	These procedures are developed at CPA level.		OK

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Table 3 Resolution of corrective action requests and clarification requests

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CAR 1 The Letter of approval from Indonesia is pending.	Table 1 A.3.3 A.3.4 A.3.5 A.3.6 A.4.1	Letter of approval from DNA of Indonesia is in process and will be submitted to DOE once received.	The Letter of Approval was received on 15 March 2012. CAR is closed.
CAR 2 It has been clarified with the project proponents that the project would involve either co-composting or composting, which is within the applicability of the applied methodology AMS-III.F, thus a revision of the PoA-DD title has been requested to reflect the actual situation	A.1.1	The title of the PoA-DD has been revised and some minor amendments have been made accordingly to clarify that the project activity would include either composting or co-composting within the applicability of AMS.III.F ver 10. Please refer to PoA-DD version 03.	The title of the PoA-DD version 3 dated 18 October has been updated to "Co-composting and Composting Program of Activities for Palm Oil Mills in Indonesia." This change is done to reflect the actual design of the PoA which involves co-composting and composting projects, based on discussions with the project proponent. Therefore, this change is accepted. CAR is closed.
CAR 3 It is unclear to whether the Programme is eligible to be qualified as a CDM project activity when the PoA-DD mentions that the recycling of POME and EFB is part of the obligation to meet the mill's RSPO obligation.	E.3.1	RSPO membership or certification of a mill's Palm Oil does not affect the eligibility of the Program to be qualified as CDM Project Activity. To clarify, RSPO membership or certification does not impose any "obligations" for a Palm oil mill to change its baseline waste management practices for processing POME and	The PoA-DD has been revised to clarify that the programme is not related in helping mill and plantation managers in meeting their RSPO obligations. It is also clear that RSPO membership is voluntary and does not impose any requirements regarding waste management treatment practices. CAR is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		EFB, provided they are legally compliant with their own national legislation. RSPO is a voluntary certification process that certifies that the Palm Oil produced from the mill does not come from plantations which are converting high conservation primary rain forest to Palm plantation. In relation to mill requirements, there exist only a general requirement to "reduce waste" (criterion 5.3 of the RSPO principles) but this does not mandate or require specific waste management techniques. Likewise there is a very general requirement to reduce pollution including green house gases (criterion 5.6 of RSPO principles) but again this does not mandate nor impose any specific requirements. There is no requirement in the Principles and Criteria of the RSPO for a Palm Oil mill to change their baseline waste management practice of disposing of POME through open air –anaerobic ponds and then discharging their POME effluent into waterways, nor with disposing of their EFB by dumping, provided it is legally compliant with current national legislation. Therefore	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		there is no obligation under RSPO for a palm oil mill to adopt co-composting or change their baseline waste management practices provided they are legally compliant. The PDD has been updated to remove the reference to ”obligations” in relation to RSPO as this is potentially misleading. Please refer to << Indonesia Co-composting POA -POA -DD ver 2.doc >> and <<Attachment 29_RSPO Principles & Criteria Document.pdf>>	
CAR 4 In calculating project emissions due to runoff water, $\mathbf{PE_{y,runoff}}$, the model correction factor, $\mathbf{UF_b}$ needs to be applied as specified in AMS-III.F. It was found that this factor has not been applied correctly. Project emissions calculations shall be revised to apply the correct $\mathbf{UF_b}$.	E.5.2	The model correction factor (UF_b) for project emission due to runoff water is changed to 1.12. Please refer to <<CPA BB Emission Reduction spreadsheet ver_2.xls>>.	The emission reduction spread sheet has been checked and it is confirmed that the model correction factor ($\mathbf{UF_b}$) has been rectified to 1.12. This value has been used in the calculation of project emissions due to runoff water. Due to this, the CAR is closed.
CAR **5** The application of the value 0.8 as the Methane Correction Factor in calculating the methane emissions avoided due to prevention of waste disposal at the SWDS, $\mathbf{BE_{CH4,SWDS,y}}$ needs to be reconsidered. It was confirmed during the site visit that the EFB dump site is located in plantation lands and in patches of	E.6.2	The Methane Correction Factor (MCF) has been amended to 0 to keep the conservativeness. Please refer to << CPA DD_Bangun Bandar_version 3_clean_20 Dec 2011.doc>> section B.5.1 - B.5.2 and <<CPA BB Emission Reduction spreadsheet ver_3.xls>>.	The revised CPA-DD and the emission reduction spread sheet have been revised to use the Methane Correction Factor (MCF) value of 0 in calculating the methane emissions avoided due to prevention of waste disposal at the solid waste disposal site (SWDS). Due to this, baseline emission due to

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
not more than 2 meters height and 5 meters width. Clarification is sought on the conservativeness to claim methane emission from the current dumping situation of the EFB.			prevention of waste disposal at the SWDS is calculated as zero. Therefore, this is considered conservative and in compliance with the methodology. CAR is closed.
CAR 6 The following parameters were not found in the monitoring plan per the requirement of the AMS-III.F methodology: a. Fraction of methane captured at solid waste disposal site that are flared or utilized, b. Global warming potential of methane, and c. Quantity of raw waste fed to the co-composting facility	E.9.1	Fraction of methane captured at solid waste disposal site that are flared or utilized, Global warming potential of methane, and Quantity of raw waste fed to the co-composting facility have been added into parameters to be monitored. Please refer to << Indonesia Co-composting POA -POA -DD ver 2.doc >> in section E.7.1 and << CPA DD_Bangun Bandar_version 2.doc>> in section B.6.1.	The parameter **F** for the fraction of methane in the SWDS gas (volume fraction) has been included in the monitoring plan. The value applied for this parameter is 0.5 and this has been validated to be consistent with the default value recommended by IPCC. The parameter for the global warming potential of methane has been specified in the data and parameters to be monitored by each SSC-CPA. The applied value, sources of data used, measurement methods and QA/QC procedures will be specified by each SSC-CPA. The quantity of raw waste fed to the co-composting facility is monitored through parameter $\boldsymbol{Q_y}$ which is described as the quantity of EFB entering the composting or co-composting facility.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			In conclusion, the monitoring plan has been revised to meet the requirements of the AMS-III.F methodology. Therefore, this CAR is closed.
CL 1 Section A.4.2.2 of the PoA-DD lists down the eligibility criteria for inclusion of a project as a CPA under the PoA. However, clarification is sought on the exclusion of the following as the criteria for inclusion: • Additionality test. This is to ensure that the CPA is additional. • Geographical location. This is to ensure that the CPA is located within the boundary of the PoA. • CPA starting date and crediting time. This is to ensure that the CPA timeline falls within the PoA period. • The applicability criteria of AMS-III.F version 10. Clarification is sought on how the new requirements on setting eligibility criteria as outlined in the Standard for Eligibility Criteria released in EB 63 have been met by the management system.	A.2.4	Section A.4.2.2. of the PoA-DD has been revised based on the Standard for Eligibility Criteria released in EB 63. Please refer to PoA-DD version 03. Section A.4.2.2 of the PoA-DD has been updated to include eligibility Criteria for time-induced boundary as specified in para 14(a).	The CME has developed a management system as per paragraph 17 of the Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities EB65 Annex 3 version 01.0. An assessment of the management plan is as follows: • The management plan has defined the roles and responsibilities of various personnel involved in the process of the inclusion of CPAs. The required minimum competencies for all positions have been specified. In addition, an organization chart has been prepared to define roles, establish reporting lines and specify information flow. Therefore, it is concluded that this meets the requirements of 17(a) of the standard. • Arrangements for training and capacity development for the

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			personnel involved have been specified in the management plan. It also states that training records will be kept and made available for inspection. Therefore, it is concluded that the requirements of paragraph 17(b) have been met. • Procedures of technical review of inclusion of CPAs have been specified in the management plan. The process for evaluation and inclusion of potential CPAs will be done in 4 stages. The management plan also documents the steps to be taken in every stage. In addition, a flow chart has been developed to summarise the review process. By this, it is concluded that the requirements of 17(c) of the standard have been met. • The management plan covers procedures taken to avoid double counting of emission reductions. It requires every CPA to provide details of project location and GPS coordinates in order to allow unique identification of each CPA. Steps taken to avoid double counting have also been included in the cooperation agreement between the

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			CPA and the CME. Therefore, it is concluded that this meets the requirements of paragraph 17(d) of the standard. • The management plan includes records and documentation control process for each CPA under the PoA. This is done to allow proper evaluation and validation of the CPA inclusion process. Therefore, it is concluded that the requirements of paragraph 17(e) have been met. • Measures for continuous improvement to the PoA management system have been included in the management plan. It takes into account both informal and formal procedures. It is concluded that this is in accordance with paragraph 17(f) of the standard. Section A.4.2.2 of the PoA-DD has been checked against the minimum requirements mentioned in paragraph 13 of the Standard (EB65 Annex 3 Version 01.0). The eligibility criteria for inclusion of a SSC-CPA in the PoA is validated as follows: • The geographical boundary of the

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			CPA has been specified. It is clearly stated that the CPA project activity must be located within the territory of the Republic of Indonesia in order to be eligible for participation. In addition, a time-induced boundary has also been included to ensure that only CPAs commencing within the 28 year period of the PoA is eligible for inclusion. Therefore, it is concluded that paragraph 14(a) of the Standard has been complied. • Conditions to avoid double counting of emission reductions have been specified. Each participant is required to provide geographic coordinates of the project in order to enable unique identification of the project activity. Therefore, it is concluded that paragraph 14(b) of the Standard has been complied. • The technology/measure required to be adopted by each participant has been specified in the eligibility criteria for inclusion. Therefore, it is concluded that this is in accordance to paragraph 14(c) of the Standard. • Conditions to check the start date of the CPA through documentary evidence have been specified. It is

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			concluded that this meets the requirements of paragraph 14(d) of the Standard. • Conditions to ensure compliance with the applicability and other requirements of the approved methodology have been specified. It is clearly stated that CPAs must meet the requirements of AMS-III.F version 10, including its relevant assessment tools and guidelines. Therefore, it is concluded that this meets the requirement of paragraph 14(e) of the Standard. • Conditions pertaining to ensure that the CPA meets the requirements pertaining to the demonstration of additionality have been specified. The project proponent has specified that each CPA must use the investment barrier to demonstrate additionality. This has been derived from the relevant requirements of Attachment A to Appendix B of the Simplified modalities and procedures for small-scale CDM project activities which is in accordance to the Standard for demonstration of additionality of a programme of activities. Therefore,

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			it is concluded that this meets the requirement of paragraph 14(f) of the Standard. • Conditions related to the undertaking of local stakeholder consultations and the environmental impact analysis (EIA) have been specified in the eligibility criteria for inclusion. Therefore, it is concluded that this meets the requirement of paragraph 14(g) of the Standard. • Paragraph 14(h) of the Standard is not applicable to the programme. Therefore, the programme has not defined any target group and distribution mechanism applicable to each CPA. • Paragraph 14(i) of the Standard is not applicable to the programme. The programme has not specified any conditions related to sampling requirements. • Conditions that ensure each CPA in aggregate meets the small-scale threshold criteria as per the General Guidelines to SSC CDM methodologies have been specified. It is stated that each CPA shall not reduce more than 60 ktCO_2e on an

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			annual basis. By this, it is concluded that paragraph 14(j) has been met. • The requirements for debundling check have been stated. The requirements are in accordance with the Guidelines on assessment of debundling for SSC project activities. Therefore, it is concluded that paragraph 14(k) of the Standard has been met. • Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance have been covered in the eligibility criteria. Each CPA is required not to use any Development Aid or Assistance for the construction and operation of the project activity. This is in accordance to paragraph 14(l) of the Standard. This CL is closed.
CL 2 Provisions for meeting training and maintenance needs are not clarified in the project document.	A.3.7	The proposed training needs to be provided by the CE are clearly stated in the PoA-DD section A.2, section A.4.4.1, and section E.7.2, that training will be conducted for monitoring and maintenance of data archiving for CDM purposes as required.	Provisions for meeting training needs have been specified in the revised PoA-DD. It is stated that the CME meet the training needs of local technicians to ensure proper monitoring and maintenance of data for CDM purposes.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		In addition: • assistance with monitoring system establishment and calibration as required; and • compost advice and analysis as required to optimize composting facility, process and output compost quality will provided upon demand depending on the demands of each CPA owner However, as the training in each case will depend: • on the existing or actual skill of the operators • the type of system implemented • the demand and requirements of each CPA Owner Therefore a detailed description of the training programme can not be described in the PoA-DD apart from a generic description of the matters that will be covered. **Maintenance Needs** To clarify, the training services provided by the coordinating entity will not extend to training in relation to the	Provisions related to meeting the maintenance needs of each CPA will be specified at individual CPA level. This is because the technology adopted by each CPA might not be the same. Therefore, it is not possible to address maintenance needs at PoA level. The project proponent has clarified the provisions related to training and maintenance needs. Therefore, this CL is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		maintenance needs of physical equipment, which is beyond the skills of the coordinating entity and will be specified and provided by the vendors of equipment / contractors in each specific CPA project. In addition in relation to maintenance needs, as the different potential types of composting that could be brought under the PoA is vast, and the types of systems, equipment in different cases very different, it is not considered practical to attempt to set out maintenance requirements in the PoA – DD (for example, the maintenance needs of a simple turned windrow system will be very different from the requirements of an advanced Aerated Bunker System). Instead maintenance requirements will be specified in each individual CPA-DD and will be driven by the requirements of the technology provider in each case.	
CL 3 The starting date of the PoA has been defined as 29 June 2011. It needs to be clarified how this start date meets the definition for the start date adopted by the CDM EB at its 41st meeting, i.e. the starting date shall be	B.1.1	The starting date of the PoA is changed to June 08th 2011. The contract agreement between coordinating entity and DOE is deemed as commitment on expenditure for PoA development. We note that the PoA itself does not (apart	The starting date of the PoA mentioned in the PoA-DD has been revised to 8 June 2011. As the PoA does not involve any implementation or construction works, the contract agreement between the CME and the DOE is taken as

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
considered to be the earliest date on which the project participant has committed or will commit to expenditures related to the implementation or related to the construction of the project activities.		from the individual CPAs) involve the implementation or construction of project activities, therefore the commitment to undertake validation is the main commitment / expenditure for the PoA Please refer to << Attachment 25_Contract with DOE.pdf>>.	commitment on expenditure for PoA development. Due to this, the CL is closed.
CL 4 The starting date of the CPA Socfindo EFB plus POME Co-Composting Project (CPA No. 001) is specified as 1 July 2011 and its operational lifetime is 20 years. However, during the site visit, it was verified that the construction is on-going and contracts have been signed prior to the site visit. Further clarification is sought regarding the project starting date.	B.1.1	The CPA's starting date has been amended to July 4th 2011 which is the date of signing the main contracts for civil works for the project activity. These contracts are the first and main contracts for the Project activity and represent the largest line item in the capital expenditure for the Project activity and therefore can be considered to be earliest date on which the CPA owner committed to expenditures related to the construction of the project activities (in line with CDM EB 41 re starting date) Please see contracts document as following: 1. <<Attachment 6_Pilling Work Contract.pdf>> 2. <<Attachment 7_Concrete Steel Roof Contract.pdf>> 3. <<Attachment 8_Panel Contract.pdf>>	The CPA-DD for the CPA titled Socfindo EFB plus POME Co-Composting Project (CPA No. 001) has been revised to amend the starting date of the CPA to 4 July 2011. This date corresponds to the dates where contracts for works related to the project activity were signed. Evidences to substantiate this claim have been provided and reviewed by the validation team. The contract signed prior to July 2011 is for consultancy works and therefore, cannot be considered as the project starting date as per CDM EB 41. Therefore, it is concluded that the starting date of the CPA Socfindo EFB plus POME Co-Composting Project (CPA No. 001) is 4 July 2011 and the starting date of this first CPA is thus after the date of commencing validation of the PoA on 1 July 2011.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		Please refer to << CPA DD_Bangun Bandar_version 2.doc>> section A.4.2.1. To Clarify, there is only one other contract that was signed prior to 4 July 2011, which was the contract between PT Socfin Indonesia and Carbon Conservation "Proposal and Agreement for Carbon Services for PT Socfin Indonesia, dated 9 April 2011" (Refer to Attachment 10). However, this Contract relates only to the consultancy arrangements between CC as carbon service provider and PT Socfin Indonesia as Project Owner. This contract does not relate to the construction of the Project, or represent a significant commitment to the Project Expenditure, therefore is not appropriate to be considered as the Project Start Date. Therefore the appropriate start date is the 4th July which is date of signing of the first and main contracts in relation to the construction of the Project (comprising 50% of the entire capital cost of the Project (including all machinery) in line with EB 41.	This CL is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		In relation to construction being ongoing at the time of the site visit, the site visit took place on the on August 8th and 9th, almost 6 weeks from the commencement of the main construction contracts, therefore the Project construction was already well underway by this time for the first 4 bunkers (the project is scheduled to have up to 8 bunkers at capacity). As the rainy season starts in October there is an urgent need to commence and complete major construction as soon as possible during the dry months. In addition as informed during site visit, the co-composting project activity is using the existing lagoon area (which means earthworks had already been completed earlier by Socfindo's own internal team). In addition the Co-composting plant uses pre cast cement walls and plain steel frame therefore the construction of the shell (as visible during the site visit) is relatively short. . Please see <<Attachment 34_Bangun Bandar_DNA.pdf>> for 1 month progress of the project activity.	

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CL 5 The environmental impacts of the CPA cannot be assessed due to insufficient description of its effects. Possible positive and/or negative impacts of the project are not clearly stated. For example, it is not clear how does the project would improve water and air quality around the project activity area. Further clarification is requested to allow this assessment to be done.	C.1.1	It is clearly stated in the last paragraph of section C.2 of the CPA-DD the project activity would bring positive environment impacts to the area around the project activity. However, amendments to section C.2 have been made to elaborate on the project's positive environmental impacts to the area around the project activity.	The CPA-DD has been revised to indicate hot the project activity would bring positive environmental impacts to the surrounding area. In addition, the project participant has clarified that the project is not required to prepare an EIA by the host party of Indonesia. Therefore, it is unlikely that the programme will create any adverse environmental effects. Therefore, this CL is closed.
CL 6 It is confirmed that during the site visit, a meeting with relevant stakeholders have been conducted to inform them of the project activity. Similarly, feedback and responses from the stakeholders have been obtained. More information is required in order to assess whether stakeholders have been properly consulted in the development of the project.	D.1.1	The stakeholder consultation meeting (SCM) was conducted on September 27th 2010. Please refer to <<Attachment 9_Stakeholder Consultation Meeting.pdf>> for the list of participants and minutes of the SCM. Please see section D2 to D4 of the << CPA DD_Bangun Bandar_version 2.doc>>. In addition, the SCM participants were invited through invitation letter which was signed by head of Bangun Bandar mill (representative of the mill) and head of subdistrict of Bangun Bandar (representative of the government). Please refer to <<Attachment 33_SCM Invitation_Bangun Bandar.pdf>> as for	From the stakeholder consultation meeting report and the attendance list, it is clear that the event was attended by local residents, villager's representatives, government representatives and palm oil mill employees. Therefore, it is concluded that relevant stakeholders have been consulted. To solicit comments by local stakeholders, invitation letters have been handed out on 25 September 2010, which is 2 days before the actual event on 27 September 2010. By this, it is concluded that sufficient time was given and the appropriate media was used to invite comments by local stakeholders.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		scanned copy of the invitation letter.	The summary of the stakeholder comments and the report on due account taken of any comments received have been included in the CPA-DD. This CL is closed.
CL 7 The sensitivity analysis has been performed for the project revenues, total investment and O&M costs at -10% to 10% variation. Further information is to be included in the PoA-DD to demonstrate how much variation is required in order to reach the benchmark. The project proponent needs to substantiate that the likelihood of this to occur is low.	E.4.3	The likelihood scenarios where the IRR would meet the benchmark is included in the PoA-DD, please refer to << Indonesia Co-composting POA -POA -DD ver 2.doc >> section E.5.2. To clarify, the level of variation of compost is already included currently in the sensitivity analysis for all CPA as part of the "Project Revenue" parameter (see section E.5.2 PoA-DD for details) The "Project Revenue" parameter in addition to revenue produced from each project activity from CERs, it is expected that some other economic/financial benefits will accrue to the project from savings in inorganic fertilizer that are realized by the plantation by being able to reduce their inorganic fertilizer use due the application to field of the output organic compost. Therefore the variation of the	The PoA-DD has been revised to require each CPA to demonstrate how much variation is required in order to reach the benchmark. The likelihood of each scenario reaching the benchmark is then required to be justified as unlikely. In cases where the CPA generates revenue from the sale of compost, project revenue is a function of compost price and compost production. Therefore, it has been clearly specified that the sensitivity analysis needs to cover variation in the amount of compost produced and the variation in the compost selling price. On the other hand, if the CPA achieves savings due to reduced usage of inorganic fertilizer, the sensitivity analysis is required to cover the variation in compost production and the variation in the cost of inorganic fertilizer. Therefore, this CL is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		project revenues in the sensitivity analysis will cover the variation of compost produced and inorganic fertilizer price and/or compost price. An amendment to the PoA-DD has been made to section E.5.2 make this clear.	
CL 8 It is not clear whether CDM benefits were considered necessary in the decision to undertake the project. Evidences of prior CDM consideration and the chronology of events leading to the start of the project needs to be substantiated. The prior CDM consideration chronology event needs to be substantiated with evidence.	E.4.3	Table of CDM consideration is now provided in section B.3 << CPA DD_Bangun Bandar_version 2.doc>> of CPA-DD. Supporting document for CDM consideration is provided as following: 1. <<Attachment 10_Contract CC and Socfin (CDM Consideration_9 April 2010).pdf>> 2. <<Attachment 5_FSR_Bangun Bandar_Complete Report.pdf>> 3. <<Attachment 4_Board of Resolution.pdf>> 4. <<Attachment 9_Stakeholder Consultation Meeting.pdf>> 5. <<Attachment 2_Receipt from UN.pdf>> 6. <<Attachment 1_Receipt from DNA of Indonesia.pdf>> 7. <<Attachment 13_Email from CC to TUV Sud (CDM consideration_03 December	The project participant has informed the DNA of Indonesia and the UNFCCC secretariat in writing of the commencement of the project activity and the intention to seek CDM status. These notifications have been made on 11 October 2010 and 20 September 2010. The conclusion regarding the serious consideration of CDM prior to the time of decision to proceed with the project activity is positive. This CL is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		2010).pdf>> 8. <<Attachment 11_Email from CC to ERM (CDM consideration_26 January 2011).pdf>> 9. <<Attachment 12_Email from CC to TUV Nord (CDM consideration_14 February 2011).pdf>> 10. << Attachment 25_Contract with DOE.pdf>> 11. <<Attachment 6_Pilling Work Contract.pdf>> 12. <<Attachment 7_Concrete Steel Roof Contract.pdf>> <<Attachment 8_Panel Contract.pdf>>	
CL 9 To enrol in the PoA, a CPA needs to have a cooperation agreement with the Coordinating Entity. This is part of the eligibility criteria for inclusion. The project proponent is requested to clarify whether the CPA meets this requirement.	E.4.3	Its expected the agreement can be signed by both parties in the 1st week of October 2011, will be submitted afterwards. We have now provided a copy of the Cooperation Agreement, <<Attachment 31_Socfin Coop Agreement 20111003.pdf>>. This is the cooperation agreement between the CPA Owner and Coordinating entity for the Socfindo CPA as required by item 3 in the Eligibility Criteria.	The CPA has signed a cooperation agreement with the Coordinating Entity. An agreement titled "Cooperation Agreement to join CDM Program of Activities, Co-composting Programme of Activities in Indonesia" has been provided as evidence. This agreement is dated on 3 October 2011 and signed by PT. Carbon Agro Indo as the Coordinating Entity and PT Socfin Indonesia as the CPA Owner. Therefore, this fulfils part of the eligibility criteria for inclusion. This CL is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CL 10 To argue for additionality, the CPA Socfindo EFB plus POME Co-Composting Project (CPA No. 001) uses an investment analysis. In assessing the financial analysis, clarification is required with regard to the following: • The role of the Beta was appropriately included in the CAPM calculation. Nevertheless, it needs to be justified that the Unlevered Beta from the Environment sector can be applied for the co-composting project. • The source of the investment cost was evidenced via quotations from third party suppliers. Nevertheless it was found that two quotations were using the higher figures in the quotations provided, which are for the purchase of 'MCC Panel and Cable to EFB from Engine room' and 'Traymaster Bunker Filler'. Clarification is sought on the appropriateness on the assumed cost for these two components. • Economic savings due to reduced inorganic fertilizer usage needs to be substantiated with evidences.	E.4.3	• As confirmed in table 6 of the PoA-DD that the Beta of industry relative to market is categorized as agronomical industry or biotechnical industry or environmental industry because co-composting process can be categorized as three industry markets above, and therefore Beta used for the CPA is under environment sector. However, to keep the conservativeness (e.g. based on the latest co-composting project registered as CDM project reference number of 4445 which the WACC is 19.93%), Beta used in the CPA is revised to be under biotechnology sector unlevered beta. Please see <<CPA BB Financial Analysis ver_2.xls>> and << CPA DD_Bangun Bandar_version 2.doc>> section B.3. • The using of higher price of MCC Panel and Traymaster is based on technical specification requirement; please refer to <<Attachment 18_Email from Technical Department for Traymaster and MCC Panel.pdf>>	According to version 2 of the financial analysis spread sheet, the value for beta has been revised to 1.12 which is sourced from the unlevered beta corrected for cash for the Biotechnology industry. This is sourced from publicly available data published by an independent third party. This information is also available at the time of decision as the data was published in 2010. Therefore, the value of beta used in determining the benchmark is accepted. The usage of higher prices for the purchase of 'MCC Panel and Cable to EFB from Engine room' and 'Traymaster Bunker Filler' has been justified. The higher cost was assumed for these two components to meet the requirements of the plant. This is supported by clarifications from the Technical Department of Socfindo. Therefore, the costs applied for these two components are considered appropriate. Economic savings due to reduced inorganic fertilizer usage have been substantiated with evidences. Steps

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		as internal clarification from Head of Technical Department of PT Socfin Indonesia. • Supporting document for economical savings due to reducing inorganic fertilizer is provided as following: ○ Existing inorganic fertilizer contracts;<< Attachment 19_Dolomite_compile 2009.pdf>>, <<Attachment 20_KCL_compile 2009.pdf>>, <<Attachment 21_RP_compile 2009.pdf>>, and <<Attachment 22_Urea_compile 2009.pdf>> ○ Existing inorganic dosing procedure; <<Attachment 23_Fertilizer Dosage_BB.pdf>> Census of plantation; <<Attachment 24_Tree per hectare.pdf>>	taken to validate this source of revenue is as follows: • The price of inorganic fertilizer is sourced from its average prices for the year 2009. This is obtained from sales and purchase agreements from the palm oil mill. These documents have been checked in order to validate this assumption. Therefore, it is concluded that the assumed price of inorganic fertilizer in the financial analysis is substantiated. • The dosage of fertilizer per tree has been validated against the standard fertilization programme provided by the management of the plant. It has been confirmed that the same dosage rates have been used in estimating project revenue. • It has been validated that there are 124 trees per hectare in the plantation. The annual tree census for the year 2009 has been provided to justify this. • The project is assumed to produce 30 000 tonnes of compost and this is validated against the emissions reductions spread sheet. • It is assumed that the resulting compost can be applied in the

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			plantation at a rate of 16 tonnes per hectare. This information is sourced from the report from the technological provider. • The amount of cost savings is assumed to be 35% of the total cost of inorganic fertilizer displaced by the usage of compost. This assumption is sourced from the report from the technology provider. Therefore, it is concluded that the amount of cost savings from the project has been justified. This CL is closed.
CL 11 The following values used in the emission reduction calculation and CPA-DD needs to be further substantiated: • 0.10 $kgCO_2$/km in the project emission due to transportation • Inconsistency of the average truck capacity for waste and compost transportation in the CPA-DD and spreadsheet • The usage of 'ton' and 'tonnes' needs to be consistent and applicable to the context • The appropriateness on using the default values for the fuel Net Calorific Value and Emission Factor with respect to the	E.5.2	• As stated in section B.5.2 of << CPA DD_Bangun Bandar_version 2.doc>>, the project emissions due to transportation of EFB and POME to the co-composting facility is considered as zero, to make consistency in the ER calculation, the EF value is changed to 0. • The average truck capacity is changed to 6 tons/truck. • The unit of tonne is changed to ton.	Project emissions due to incremental transport distances are not calculated as it is stated that there is no incremental transportation distance for both POME and EFB. This has been verified in the site visit. Therefore, this CL is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
requirements of "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion."		• The usage of NCV and EF of diesel oil is changed to upper value. Please refer to <<CPA BB Emission Reduction spreadsheet ver_2.xls>>.	
CL 12 The stated baseline emissions cannot be assessed due to the following reasons: • The 3 years EFB generation results were crosschecked on-site and it was found that the results presented in the CPA-DD and its emission reduction spreadsheet was not consistent with the raw data recorded by the mill internal monitoring system. Consistency is requested on the EFB generation data to be reported in the CPA-DD and its emission reduction spreadsheet. • The 3 years COD historical data were crosschecked on-site and it was found that the results presented in the CPA-DD spreadsheet was taken from the internal laboratory results. These results were found to different in comparison to the externally tested results as part of the plant monitoring for discharge compliance to the local authority. Clarification is sought on the appropriateness to apply the internally test results when an external	E.6.2	• Historical data of FFB, EFB, and POME has been based on internal monitoring system at Bangun Bandar, please refer to <<Attachment 26_PRODUKSI & DEBIT LIMBAH TAHUN 2008.xls>>, <<Attachment 27_PRODUKSI & DEBIT LIMBAH TAHUN 2009.xls>>, <<Attachment 28_PRODUKSI & DEBIT LIMBAH TAHUN 2010.xls>>. • Historical data of COD to the water body has been changed to external laboratory certificates, please refer to <<Attachment 15_COD 2008.pdf>>, <<Attachment 16_COD 2009.pdf>>, <<Attachment 17_COD 2010.pdf>> • COD campaign re-test result has been inputted in the ER calculation. Please refer to test certificates from Sucofindo that explain date of sample taken for lab test <<Attachment 30_COD Campaign	The CPA-DD has been revised to rectify the data presented in Annex 3. It has been checked that the historical data of FFB, EFB and POME generated are consistent with the production records of the palm oil mill. The 3 years COD historical data presented in the CPA-DD has been checked against the external laboratory certificates for the years 2008, 2009 and 2010. It is concluded that the information presented in Table 3 of Annex 3 of the CPA-DD is consistent with the documents checked. After the site visit, the project proponent has conducted another wastewater COD measurement campaign for the dates of 11 August 2011 to 23 August 2011. This has been presented in the revised emission reduction spread sheet. In addition, Table 2 of Annex 3 of the CPA-DD has

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
accredited lab has performed the same measurement. • DNV has verified the wastewater COD test results on the measurement campaign conducted from 17 February 2011 to 3 March 2011 indicated in the CPA-DD and emission reduction spreadsheet. It was checked that the test results only indicates the date of receiving samples and date of testing but not the date where the samples were collected, in line with the AMS-III.H methodology. Clarification is sought on the appropriateness of the wastewater COD test results with respect to the dates mentioned in the 10 days campaign measurement.		Test.pdf>> and please see <<CPA BB Emission Reduction spreadsheet ver_2.xls>>.	been revised to include this information. Therefore, this CL is closed.
CL 13 Fuel oil will be used as fuel source in the operation of the auxiliaries in the co-composting facility. Further clarification is needed on how the project monitors the mass of fuel oil used in the project activity with respect to the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion".	E.10.1	Project emission from fossil fuel combustion is based on Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion version 2. Option B is used due to uncertainty of availability data of mass unit of the fuel. Therefore mass unit of the fuel is excluded from parameters to be monitored. Please refer to footnote number 10 of the << CPA DD_Bangun Bandar_version 2.doc>>.	The revised CPA-DD has been updated to specify the monitoring and calculation of project emission due to fossil fuel combustion are done in accordance to the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion." The monitoring plan also includes that diesel usage for machineries, engines and backup power generators which will be monitored using a fuel meter at the fuel station. It is concluded that this allows the usage of diesel with respect to the project activity to be monitored. Therefore, this

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			CL is closed.
CL 14 It is unclear to whether the coordinating has made provisions for the following procedures in the PoA: a. Procedures for emergency preparedness for cases where emergencies can cause unintended emissions and also the risk of fire on emergency condition, b. Corrective actions procedures in order to provide for more accurate future monitoring and reporting. The coordinating entity should ensure that each CPA has the necessary data (i.e. FFB production, EFB production etc.) for the crediting period as for the verification of emission reductions there needs to be reliable data at the mill.	E.13.1	Both procedures of emergency cases such as fire, and Corrective actions procedures in order to provide for more accurate future monitoring and reporting are available at the CPA-DD level, however will be prepared in detail in the CDM Operational and Monitoring Manual which will be prepared before the beginning of the first crediting period. PoA-DD The PoA-DD has been amended in section E.7.2 'Operational and Performance Obligation' to expressly state in the PoA-DD that all the procedures for monitoring and reporting including procedures for emergency preparedness will be accommodated in the CDM Operational and Monitoring Manual which will be prepared before the beginning of the first crediting period. CPA-DD On site procedures information in relation to Emergency Preparedness are provided in section B.6.1 of the CPA-DD. Please refer to << Indonesia Co-	Both PoA-DD and CPA-DD have been revised to mention that procedures for emergency and emergency preparedness will be provided by the CME in the CDM Monitoring Manual. This will also include corrective action procedures to provide for more accurate future monitoring and reporting. This document will be prepared before the beginning of the first crediting period. Therefore, this CL is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		composting POA -POA -DD ver 2.doc >> section E.7.2 and << CPA DD_Bangun Bandar_version 2.doc>> in section B.6.1.	

Table 4 Forward action requests

Forward action request	Reference to Table 2	Response by project participants
Not applicable		

APPENDIX B

PROTOCOL FOR ASSESSING COMPLIANCE OF SPECIFIC CDM PROGRAMME ACTIVITIES WITH THE PROGRAMME OF ACTIVITIES

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General description of CPA					
A.1. Project boundaries					
A.1.1 Are the CPA's spatial boundaries (geographical) clearly defined, allowing the unique identification of the CPA?					
A.1.2 Are the CPA's system boundaries (components and facilities used to mitigate GHGs) clearly defined?					
A.1.3 Has it been demonstrated that the CPA is within the geographical borders of the PoA?					
A.1.4 Has it been confirmed that no part of the CPA is registered as a CDM project or included in a registered POA?					
A.2. Participation requirements					
A.2.1 Which Parties and CPA implementer are participating in the CPA? Are they included in the PoA?					
A.3. Duration of the CDM programme activity, Crediting Period					
A.3.1 Are the CPA's starting date and operational lifetime clearly defined and evidenced?					
A.3.2 Has the crediting period been clearly defined and is the start of the crediting period deemed to be reasonable?					
A.3.3 Has it been confirmed that the length of the CPA crediting period does not exceed the end of PoA?					
B. Eligibility of CPA and Estimation of Emission Reductions					
B.1. Eligibility criteria for CDM Programme Activities *It is assessed whether the CPA complies with the criteria for inclusion in the registered programme of activities.*					

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B.1.1 Has it been sufficiently justified that the CPA complies with: **Boundary:** (i) **Physical boundary:** The entire boundary of the CPA project activity must be physically located within the territory of the Republic of Indonesia as set out in section A.4.1.2 of the PoA-DD. (ii) **Time Induced Boundary:** No CPA shall commence before the Start Date of the PoA, as set out in section B.1. of this PoA-DD. In addition, no CPA shall commence later than 28 years after the start date of the PoA-DD as set out in section B.1. of the PoA-DD.					
B.1.2 Has it been sufficiently justified that the CPA complies with: **Double Counting:** To avoid double counting of emission reductions each CPA must provide specific geographic GPS coordinates for the Project Activity to enable unique identification of the Project Activity.					
B.1.3 Has it been sufficiently justified that the CPA complies with: **Cooperation Agreement:** Each CPA owner must enter into a cooperation agreement with the Coordinating entity which includes at a minimum the matters set out in section A.4.4.1(iv) of the PoA-DD: (i) The CPA Owner is aware and voluntarily agrees that the CPA will be subscribed to the present PoA under the conditions as required by the approved PoA and the					

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contractual arrangement between the CPA Owner and the Coordinating Entity. (ii) Certifies the CPA has not been and will not be registered as a single CDM project activity nor as a CPA under another PoA, nor any voluntary scheme and warrants on an ongoing basis that they will not seek to have the project activity which forms the basis of the proposed CPA registered as a CDM project or registered under any other scheme that earns carbon credits for the emission reductions achieved while the project is included in a CPA or proposed CPA under the present PoA. (iii) The CPA Owner will certify in writing that the proposed CPA is not a debundled part of a bigger project. (iv) CPA Owner cedes all rights to independently claim and own emission reductions under the Clean Development Mechanism of the UNFCCC or any voluntary scheme other than through the managing entity of the present PoA as agreed.					
B.1.4 Has it been sufficiently justified that the CPA complies with: **No Pre-existing Co-composting or Composting at Site:** Each CPA shall be implemented at a Palm Oil Mill site where no composting or co-composting activity was taking place before the Project Activity.					
B.1.5 Has it been sufficiently justified that the CPA complies with: **Technology and compliance with Methodology:** Each CPA					

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must be a newly developed, upgraded or expanded co-composting or composting facility using composting technology that: (i) Uses Palm Oil Mill Organic waste as inputs and via an aerobic composting process within the parameters set out in section A.4.2.1 of the PoA-DD produces organic compost for reapplication to land as organic fertilizer (ii) Meets the requirements of approved methodology AMS-III.F version 10, including its relevant assessment tools and guidelines: 1. This methodology comprises measures to avoid the emissions of methane to the atmosphere from biomass or other organic matter that would have otherwise been left to decay anaerobically in a solid waste disposal site (SWDS), or in an animal waste management system (AWMS), or in a wastewater treatment system (WWTS). In the project activity, controlled aerobic treatment by composting of biomass is introduced. 2. The project activity does not recover or combust landfill gas from the disposal site (unlike AMS-III.G "Landfill methane recovery"), and does not undertake controlled combustion of the waste that is not treated biologically in a first step (unlike AMS-III.E "Avoidance of methane production from decay of biomass through controlled combustion, gasification or mechanical/thermal treatment"). Project activities that recover biogas from wastewater treatment shall use methodology AMS-III.H "Methane recovery in wastewater treatment". Project activities involving co-digestion of organic matters shall apply methodology AMS-III.AO "Methane recovery					

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through controlled anaerobic digestion." 3. Measures are limited to those that result in emission reductions of less than or equal to 60 ktCO_2 equivalent annually. 4. This methodology is applicable to the composting of the organic fraction of municipal solid waste and biomass waste from agricultural or agro-industrial activities including manure. 5. This methodology includes construction and expansion of treatment facilities as well as activities that increase capacity utilization at an existing facility. For project activities that increase capacity utilization at existing facilities, project participant(s) shall demonstrate that special efforts are made to increase the capacity utilization, that the existing facility meets all applicable laws and regulations and that the existing facility is not included in a separate CDM project activity. The special efforts should be identified and described. 6. This methodology is also applicable for co-composting wastewater and solid biomass waste, where wastewater would otherwise have been treated in an anaerobic wastewater treatment system without biogas recovery. The wastewater in the project scenario is used as a source of moisture and/or nutrients to the biological treatment process e.g. composting of empty fruit bunches (EFB), a residue from palm oil production, with the addition of palm oil mill effluent (POME) which is the wastewater co-produced from palm oil production. 7. In case of co-composting, if it cannot be demonstrated that the organic matter would otherwise been left to					

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decay anaerobically, baseline emissions related to such organic matter shall be accounted for as zero, whereas project emissions shall be calculated according to the procedures presented in this methodology for all co-composted substrates. 8. The location and characteristics of the disposal site of the biomass, animal manure and co-composting wastewater in the baseline condition shall be known, in such a way as to allow the estimation of its methane emissions, using the provisions of AMS-III.G, AMS-III.E (concerning stockpile), AMS-III.D "Methane recovery in animal manure management systems" or AMS-III.H respectively. Project activities for composting of animal manure shall also meet the requirements under paragraphs 1, and 2 (c) of AMS-III.D. Further no bedding material is used in the animal barns or intentionally added to the manure stream in the baseline. Blending materials may be added in the project scenario to increase the efficiency of the composting process (e.g. to achieve a desirable C/N ratio or free air space value), however, only monitored quantity of solid waste or manure or wastewater diverted from the baseline treatment system is used for emission reduction calculation. The following requirement shall be checked ex ante at the beginning of each crediting period: a. Establish that identified landfill(s)/stockpile(s) can be expected to accommodate the waste to be used for the project activity for the duration of the crediting period; or					

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b. Establish that it is common practice in the region to dispose of the waste in solid waste disposal site (landfill)/stockpile(s).					
9. The project participants shall clearly define the geographical boundary of the region referred in paragraph 8 (b), and document it in the CDM-PDD. In defining the geographical boundary of the region, project participants should take into account the source of the waste i.e. if waste is transported up to 50 km, the region may cover a radius of 50 km around the project activity. In addition, it should also consider the distance to which the final product after composting will be transported. In either case, the region should cover a reasonable radius around the project activity that can be justified with reference to the project circumstances but in no case it shall be more than 200 km. Once defined, the region should not be changed during the crediting period(s).					
10. In case produced compost is handled aerobically and submitted to soil application, the proper conditions and procedures (not resulting in methane emissions) must be ensured.					
11. In case produced compost is treated thermally/mechanically, the provisions in AMS-III.E related to thermal/mechanical treatment shall be applied.					
12. In case produced compost is stored under anaerobic conditions and/or delivered to a landfill, emissions from the residual organic content shall to be taken into account and calculated as per the latest version of the					

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"Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site." (iii)In addition in order ensure the environmental integrity of each co-composting facility that is brought under this PoA and to ensure that the co-composting facility does not become a source of environmental pollution itself, each facility must: 1. Locate the main composting facility upon an impermeable composting pad / floor of concrete or some other impermeable material (This ensures leaching from the compost does not take place directly into the soil below and improves the composting process); 2. Incorporates a system / process to adequately deal with any run-off or leachate from the compost itself and / or ensure any liquid discharge would be diluted or treated to environmentally acceptable levels before entering the surrounding environment.					
B.1.6 Has it been sufficiently justified that the CPA complies with: **Start date:** Each CPA Owner must be able to provide documentary evidence to verify the start date of the CPA.					
B.1.7 Has it been sufficiently justified that the CPA complies with: **Additionality:** Each CPA must be able to demonstrate that the Project Activity which forms the CPA would not have occurred anyway due to an investment barrier by following and applying					

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all steps of the additionally assessment as set out in sections E.5.1 and E.5.2 of the PoA-DD.					
B.1.8 Has it been sufficiently justified that the CPA complies with: **PoA Specific Requirements:** (i) **Environmental Impact Analysis (EIA):** Each CPA which involves the implementation of a Compost Facility with a compost output capacity: a. Greater than or equal to 100 tons per day shall provide a copy of their EIA which has been submitted to, and approved by the Indonesian Ministry of the Environment. b. Less than 100 tons per day, shall provide a copy of the Environmental Management and Monitoring Plan (EMMP) that was submitted and approved by the responsible Indonesian authorities. (ii) **Compliance with Relevant National Standards:** Each CPA Project Activity must comply with the relevant Indonesian National or Regional Environmental Standard. (iii)**Stakeholder Consultation:** Each CPA must be able to demonstrate with appropriate documentary evidence that Stakeholder Consultation has been undertaken in accordance with the requirements of CDM rules and procedures.					
B.1.9 Has it been sufficiently justified that the CPA complies with: **Debundling:** To ensure A CPA is not a debundled component of a large scale activity, the Project Activity under each CPA must not have the same activity implementer as the proposed small					

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scale CPA or a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure which is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.					
B.1.10 Has it been sufficiently justified that the CPA complies with: **SSC Threshold Criteria:** Each CPA shall not reduce more than 60 ktCO_2e annually.					
B.1.11 Has it been sufficiently justified that the CPA complies with: **Use of Development or Assistance Funds:** Each CPA must certify in writing whether any Development Aid or Assistance funds have been used for funding the construction and operation of the Project Activity which forms the PoA. If any Development Aid or Assistance funds have been used, then before inclusion in the PoA, the CPA owner must provide evidence to confirm that such funds do not result in a diversion of any official development assistance funds.					
B.2. Additionality *Additionality of a CPA is assessed through eligibility criteria 7 above.*					
B.2.1 Is it demonstrated that the IRR of the CPA is lower than 12.5% (before tax)?					
B.3. Calculation of GHG Emission Reductions – Project emissions *It is assessed whether the project emissions are stated according to the methodology and the PoA-DD and whether the argumentation for the choice of default factors and values -*					

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where applicable – is justified.					
B.3.1 Is the calculation of project emissions of the CPA in accordance with the procedure described in the PoA-DD?					
B.3.2 Are CPA-specific conservative assumptions used when calculating the project emissions?					
B.3.3 Are CPA-specific uncertainties in the project emission estimates properly addressed?					
B.4. Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the baseline emissions are stated according to the methodology and the PoA-DD and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
B.4.1 Is the calculation of baseline emissions of the CPA in accordance with the procedure described in the PoA-DD?					
B.4.2 Are CPA-specific conservative assumptions used when calculating the baseline emissions?					
B.4.3 Are CPA-specific uncertainties in the baseline emission estimates properly addressed?					
B.5. Calculation of GHG Emission Reductions – Leakage *It is assessed whether leakage emissions are stated according to the methodology and the PoA-DD and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
B.5.1 Is the calculation of leakage emissions of the CPA in accordance with the procedure described in the PoA-DD?					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.5.2 Are CPA-specific conservative assumptions used when calculating the leakage emissions?					
B.5.3 Are CPA-specific uncertainties in the leakage emission estimates properly addressed?					
B.6. Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
B.6.1 Has it been demonstrated that the total emission reductions of the CPA of activities will be real, measurable and give long-term benefits related to the mitigation of climate changeP					
B.7. Monitoring Methodology *It is assessed whether the CPA applies an appropriate monitoring methodology.*					
B.7.1 Is the monitoring plan for the CPA documented according to the approved methodology, in accordance with the programme of activities and in a complete and transparent manner?					
B.7.2 Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this programme, whichever occurs later?					
B.8. Data and Parameters Available at Validation *It is established whether appropriate values were selected for parameters determined ex-ante.*					
B.8.1 Does the applied methodology allow determining the selected values ex-ante?					
B.8.2 Have adequate assumptions been used for determining the values and are underlying					

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	calculations correct?					
B.8.3	Has sufficient documentary evidence been presented to verify the selected values or to verify the input data used in the calculation of the values of the parameters determined ex-ante.					
B.9. Ex-Post Monitoring *It is established whether the monitoring plan provides for reliable and complete emission data over time.*						
B.9.1	Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the CPA boundary during the crediting period?					
B.9.2	Are the choices of CPA GHG indicators reasonable and conservative?					
B.9.3	Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?					
B.9.4	Is the measurement equipment described and deemed appropriate?					
B.9.5	Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?					
B.9.6	Is the measurement *interval* identified and deemed appropriate?					
B.9.7	Is the *registration, monitoring, measurement* and *reporting* procedure defined?					
B.9.8	Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?					

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B.9.9 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)					
B.10. CPA Management Planning *It is checked that programme implementation is properly prepared for and that critical arrangements are addressed.*					
B.10.1 Is the authority and responsibility of overall CPA management clearly described?					
B.10.2 Are procedures identified for training of monitoring personnel?					
B.10.3 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?					
B.10.4 Are procedures identified for review of reported results/data?					
B.10.5 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?					
C. Environmental impacts *It is assessed whether environmental impacts of the CPA have been properly addressed.*			☐ Analysis at PoA level ☒ Analysis at CPA level This section must only be completed if the analysis of environmental impacts must be at CPA level.		
C.1.1. Has an analysis of the environmental impacts of the CPA been sufficiently described?					
C.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)?					
C.1.3. Will the programme create any adverse					

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environmental effects?					
C.1.4. Are transboundary environmental impacts considered in the analysis?					
C.1.5. Have identified environmental impacts been addressed in the programme design?					
C.1.6. Does the programme comply with environmental legislation in the host country?					
D. Stakeholders' comments *It is assessed whether stakeholders have been properly consulted in the development of the CPA.*			☐ Consultation at PoA level ☒ Consultation at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
D.1.6. Have relevant stakeholders been consulted?					
D.1.7. Have appropriate media been used to invite comments by local stakeholders?					
D.1.8. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?					
D.1.9. Is a summary of the stakeholder comments received provided?					
D.1.10. Has due account been taken of any stakeholder comments received?					

APPENDIX C

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

Mr Simon Wong Yon Sing holds a Bachelor's Degree in Chemical Engineering with Environmental Engineering, with a year experience in the field of design and operation/maintenance of wastewater treatment as part of working in wastewater design & equipment supply services.
His experience in designing and maintaining the wastewater treatment systems covers the fields of various manufacturing and chemical industries in Malaysia.
He has experience of more than 4 years in validation and verification of numerous CDM projects in DNV, both in Malaysia and abroad. His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in "Energy Generation from Renewable Energy Sources", "Waste Handling and Disposal" and "Animal Waste Management System".

Mr Fathullah Akmal Khalid holds 2 Bachelor degrees majoring in both Chemical Engineering and Commerce from The University of Melbourne, Australia. Prior to joining DNV in June 2011, Fathullah had experience in cement manufacturing as a manufacturing engineer in a cement plant. During the course of his previous employment, he was involved in a number of plant upgrading and improvement projects. Fathullah is also a member of The Institution of Chemical Engineers (IChemE) and Engineers Australia.

Ms Foo Wei Yee holds a Master of Science degree majoring in Polymer Technology and a Bachelor of Science degree in Industrial Chemistry from University of Technology, Johor and is a qualified Licentiate Registered Chemist under the Malaysian Institute of Chemistry. Prior to joining DNV in July 2011, she has experience in synthetic surgical and exam glove R&D, design and development control documentations. In addition, she had performed validation for new product in Sri Lanka's plant, innovate and research on new product and performed internal audit in the areas of management, HR and purchasing section for the department.

Ms Denise Lai Siew Sit holds a Business Degree in Business Management and specialised in Company Secretarial matters. Having an overall experience of around 11 years. Prior to joining DNV having 1 year experience in printing industry covering costing and operation matters. In the past 11 years with DNV, she has gained numerous experience including those of quality management system auditing and training for a period of 2 years.

She has been exposed to CDM validation since 2007 and has ample experience in validation and verification of numerous CDM projects. Her qualification, industrial experience and experience in CDM demonstrate him/her sufficient sectoral competence in renewable projects.

Mr Hendrik Brinks holds a Master Degree in Inorganic Chemistry & Material Science and a Dr. Scient Degree in Inorganic Chemistry & Material Science. He has an overall experience of around 16 years. Prior to joining DNV, he has 7 years of working experience at a research institute by scientific research on future energy systems with hydrogen as an energy carrier and project management for monitoring system design. He has published >50 papers in international journals with peer reviews. His experience also covers teaching and research at University of Oslo, Norway.

He has 4 years extensive experience in validation and verification of >400 CDM projects worldwide and also experience from other 3rd party validation/verification schemes. Quality Manager Hendrik W. Brinks is the service line responsible for CDM in DNV and is qualified for approval of CDM projects. He has previously worked as Technical Director for CDM.

His qualification and experience in CDM demonstrate his sufficient sectoral competence in "Waste Handling and Disposal" and quality control (technical review) competence for projects within renewable energy, biomass power, waste heat recovery, energy efficiency, waste handling, wastewater, coal mine methane, transport, charcoal and flare reduction.