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# VALIDATION REPORT

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## Climate Change Capital Carbon Fund II S.a r.l

### Inno–Abedon - Palm Oil Mill Waste Recycle Scheme, Malaysia

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#### **SGS Climate Change Programme**

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<b>Date of Issue:</b>		<b>Project Number:</b>	
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<b>Project Title:</b>			
Inno-Abeldon – Palm Oil Mill Waste Recycle Scheme, Malaysia			
<b>Organisation:</b>		<b>Client:</b>	
SGS United Kingdom Limited		Climate Change Capital Carbon Fund II S.a.r.l	
<b>Publication of PDD for Stakeholders Consultation</b>			
<b>Commenting Period:</b>		15/03/2007 to 13/04/2007	
First PDD Version and Date:		Version 1 dated 19/12/2007	
Final PDD Version and Date:		Version 5 dated 16/06/2008	
<b>Summary:</b>			
<p>Climate Change Capital Carbon Fund II S.a r. I has commissioned SGS to perform the validation of the project: Inno-Abeldon – Palm Oil Mill Waste Recycle Scheme, Malaysia.</p> <p>Methodology used: AM0039</p> <p>Version and Date: Version 2 dated 2<sup>nd</sup> November 2007</p> <p>The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.</p> <p>The report is based on the findings of document reviews, the stakeholder consultation process and responses from the project participants to the findings raised in this report.</p> <p>The report and the annexed validation describes a total of 29 findings which include:</p> <ul style="list-style-type: none"> <li>• 14 Corrective Action Requests;</li> <li>• 15 New Information Requests; and</li> </ul> <p>Project will be recommended to the CDM Executive Board with a request for registration</p>			
<b>Subject:</b>			
CDM Validation			
<b>Validation Team:</b>			
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## Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CO <sub>2</sub>	Carbon Dioxide
COP/MOP	Conference of Parties serving as the Meeting of Parties to Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EFB	Empty Fruit Bunches
EIA	Environment Impact Assessment
FFB	Fresh Fruit Bunches
GHG	Green House Gas(es)
HCA	Host Country Approval
IPP	Independent Power Producers
ISHC	International Stakeholder Consultation
kWh	Kilo Watt Hour
MoV	Means of Verification
MWh	Mega Watt Hour
NIR	New Information Request
NOC	No Objection Certificate
ODA	Official Development Assistance
PDD	Project Design Document
POM	Palm Oil Mills
POME	Palm Oil Mill Effluent
PP	Project Proponent
UNFCCC	United Nations Framework Convention on Climate Change

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## 1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Climate Cange capital Carbon Fund II S.a r. l to perform a validation of the project: Inno–Abedon - Palm Oil Mill Waste Recycle Scheme, Malaysia in Malaysia..

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

SGS reviewed of the project design documentation, using a risk based approach and conducted follow-up interviews.

By the use of In-Vessel co-composting facility integrated with a bio-formulation technology for the treatment of waste (solid waste, decanter sludge, organic waste water), generating in Palm Oil Mill the project activity will result in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project correctly applies methodology AM0039 version 2. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 501834 tCO<sub>2</sub>e over a ten year crediting period, averaging 50183 tCO<sub>2</sub>e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration.

**Signed on Behalf of the Validation Body by Authorized Signatory**



Signature:

Name: Siddharth Yadav

Date: 30<sup>th</sup> June 2009

## 2. Introduction

### 2.1 Objective

Climate Change Capital Carbon Fund II S.a.r.l has commissioned SGS to perform the validation of the project: Inno-Abdon - Palm Oil Mill Waste Recycle Scheme, Malaysia with regard to the relevant requirements for CDM project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

### 2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

### 2.3 GHG Project Description

In Malaysia, 70 million tonnes of fresh fruit bunches of palm are processed in different mills to produce crude palm oil. The processing of palm oil produces the empty fruit bunches and effluent, high in degradable organic matter. In the pre project activity the empty fruit bunches are dumped in landfill sites and the waste water is treated in open lagoons. The landfill and open lagoon generates methane in the baseline scenario. In the project activity the waste (solid waste, decanter sludge and waste water) will be treated through in vessel composting technology, thereby avoiding direct methane emissions to the atmosphere. A site visit was performed by the Lead Assessor and Expert on 6<sup>th</sup> and 7<sup>th</sup> March 2008 to verify the project as described in the PDD and the underlying facts about the project described in the PDD.

### 2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Siddharth Yadav	Lead Assessor	SGS United Kingdom
Kaviraj Pradhan	Local Assessor & Expert	SGS India

### 3. Methodology

#### 3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline.

The site visit was performed by the Lead Assessor and the Expert on 6<sup>th</sup> March and 7<sup>th</sup> March, 2008 and the results are summarized in the Annex 1 (local assessment checklist). All the assumptions used in the baseline were verified and the results are summarized in section 4.4 baseline and additionality of this document.

#### 3.2 Use of the Validation Protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). New Information Request (NIR) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex A.1 to this report

#### 3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- mistakes have been made with a direct influence on project results;
- validation protocol requirements have not been met; or

- III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

**Observations** may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.2). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

### **3.4 Internal Quality Control**

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.



## 4. Validation Findings

### 4.1 Participation Requirements

The host party Malaysia has ratified the Kyoto Protocol on 4<sup>th</sup> September 2002. United Kingdom of Britain and Northern Ireland (referred as United Kingdom later) has been listed as 'Annex 1 Party'; United Kingdom has ratified the Kyoto Protocol on 31<sup>st</sup> May, 2002. CAR #1 was raised to get the Letter of Approval from the Designated National Authority of United Kingdom. The Letter of Approval from UK's DNA (Ref. no. C4F2/06/2008 issued on 6<sup>th</sup> June, 2008) was provided. Hence CAR #1 was closed.

The Letter of Approval from DNA in Malaysia was not provided initially; hence CAR #2 was raised. The letter of approval from DNA in Malaysia (Ref. no. NRE(S)62.120.010.001.002/012Jld.5(14)) dated 21<sup>st</sup> May, 2008 was provided by the project proponents. Hence CAR #2 was closed.

The letter confirming the modalities of communication with UNFCCC was not submitted initially, so CAR #3 was raised. The statement for modalities of communication, dated 1<sup>st</sup> March 2008 signed by both the project participants was submitted to the DOE. The letter states, that the project participants agree that Climate Capital Carbon Fund II S.a r. l. will serve as a focal point for all communications with CDM Executive Board and the UNFCCC Secretariat. Hence, CAR #3 was closed.

### 4.2 Project Design

The final version of the PDD upon closure of all issues raised during validation is version 5 dated 16<sup>th</sup> June 2008. The project design as described in relevant sections of the PDD was validated through raising CARs/NIRs, as discussed below and in Annexure 2 and Annexure 3 of this report.

The PDD version 1 dated 19<sup>th</sup> December, 2007, initially submitted for validation used the approved methodology AM0039 (version 01), however this was revised before the project was posted for international stakeholders comments. The revised PDD still mentioned version 1 dated 19<sup>th</sup> December, 2007, thus CAR #4 was raised. The revised PDD mentioned version 2 dated 29<sup>th</sup> February 2008 (revised further). Hence CAR #4 was closed.

The geographical location of the project site did not include the latitude and longitude, so NIR #5 was raised. In response to NIR #5, the PP included the coordinates of the project site in the PDD version 3. The physical attributes were checked. Hence NIR #5 was closed.

NIR #6 was raised to get more clarity on the ownership to operate between Inno Integrasi Sdn Bhd and Climate Change Capital Carbon Fund II S.a.r.l. The copy of Abedon Operating Licence (number -001189, dated 1<sup>st</sup> June 2007) defines clearly the ownership of the project by the project proponents. Hence NIR #6 was closed out.

NIR #7 was raised to check for the project's implementation schedules and the validity of the time line proposed in making emission reduction projections. Responding to this, a detailed description of the time line/implementation schedules was provided (Abedon Timeline dated 8<sup>th</sup> March 2008). Hence NIR #7 was closed. The main risk is the delay of the project activity due to delay in the construction work and that will be mitigated by timely payments for implementation of the project activity, which includes climate change funding from Annexure I Party.

NIR #8 was raised to check the source of funding for the project. There will be no public funding involved in the project activity, this was checked from and the Joint Research and development agreement dated 26<sup>th</sup> December 2007 and the underlying the financial details. Also, a declaration from the Project Proponent (dated 3<sup>rd</sup> March 2008) signed by the Lim, Chean Shen Director, Inno Integrasi Sdn Bhd. was obtained stating that there is no public funding involved. Hence NIR #8 was closed.

Section B.1 of the PDD version 2 was revised in response to NIR #9. The revised PDD version 3 mentioned the tools including their versions used in the project activity. Hence NIR #9 was closed.

Discussion on leaked waste water was not included in the project boundary in the PDD version 1 so NIR #10 was raised. The client provided the technological details/specifications for the project activity (Ecoregen In-

Vessel Process Technology dated 26<sup>th</sup> February 2007) . A review of the technology confirmed that there will be no leaked waste water from the in-vessel composting, except the leachate. The leachate will be collected and recycled back to the composting chambers because of its high microbial count. Hence there will be no leaked water from the project activity and thus, the leaked water was not considered as leakage in the project activity. The client's justification was accepted and NIR #10 closed; but since the project is still at the planning stage, it is recommended that any leakage of waste water in the project activity should be checked at the time of verification.

The additional transportation due to project activity was included in the project activity, while under the baseline, the emission from combustion of fossil fuel were excluded for simplification in the PDD version 1. Hence CAR #11 was raised for a justification. The additional transportation due to project activity would be the transportation of compost from the site to the plantation land (end use). The project activity emissions due to the transportation of compost were considered in the revised PDD version 3 and the spread sheet for emission reduction calculations was also revised accordingly. The monitoring plan was revised to reflect monitoring of the numbers of vehicle trips in the PDD version 3 (page 50). In the baseline scenario the empty fruit bunches are transferred to the land fill site, using the trucks and this will not happen in the CDM project activity because waste will be treated in house. The CO<sub>2</sub> emission due to transportation of these empty fruit bunches (EFB) in the baseline has been accounted as 26 tCO<sub>2</sub>e but the project proponent does not consider this for simplification of calculations of baseline estimations. Hence CAR #11 was closed out with the above justifications because the approach is conservative for the estimation of baseline emission reductions.

CAR #12 was raised because the projects spatial boundaries (geographical) and the projects system boundaries (components and facilities used to mitigate GHGs) were not clearly defined in the PDD version 1, the sources included in the boundary were not in accordance with AM0039 version 2. It was clarified (as also in CAR #11 above) that the project emissions from transportation of compost from project site are a part of the project boundary and the same will be monitored. CAR #12 was closed out.

NIR #26 and NIR #27 were raised to seek a clarification regarding the dates mentioned in PDD version 1 for baseline determination and changes required in the content to be consistent with AM0039 version 2. The date of baseline was updated (PDD version 3) and changes were made regarding tools used including their versions. Hence NIR #26 and NIR #27 were closed.

#### **4.3 Eligibility as a Small Scale Project**

Not applicable.

#### **4.4 Baseline Selection and Additionality**

The baseline for the project activity is to continue with the prevailing practice in the industry i.e. open dumping of the EFB at the land fill and anaerobic treatment of palm oil mill effluent (POME) in the open lagoon., this is the common practice in the Palm Oil Mills in the state of Sabah and also in other states of Malaysia. This situation complies with all the local environmental regulations set for these mills. The discussion on baseline and additionality as discussed in the PDD version 5 was checked (following sections).

The methodology requires consideration and assessment of various alternatives for the treatment of the organic wastewater and bioorganic solid waste.

The details of the issues raised regarding baseline assessment and demonstration of additionality are detailed in section B.3 and B.4 (Annexure 2) and CAR #13, CAR #14a, CAR #14b, CAR #14c and CAR #15 (Annexure 3).

CAR #14a and CAR #14b were raised asking the project participant to provide clarification on the following:

- 1) Profitability of palm oil mills, incentives to change the current practice of waste disposal
- 2) Level of penetration of the technology comprising solid and liquid waste streams (as used in this project) and risks involved
- 3) Prevailing business practice
- 4) Whether Abedon plantations use EFB's for mulching (currently and also in the past)

- 5) Evidence that EFB has limited fertilizer value, removes nitrogen from the soil
- 6) Historical use of biomass use in Boilers (in Abedon mill and other factories)
- 7) Energy generation from EFB not possible? (ref option 3-incineration and power generation). Also, to be checked the statement that Abedon is already using mesocarp fibre and shells for energy generation
- 8) check the quantity of waste dumped, waste composition, location, area, depth, spread, mode of transportation, costs involved in dumping the waste at the existing landfill site
- 9) possibility/potential of electricity generation, transfer, capture and use of landfill gas
- 10) why has landfill gas flare not been considered as an option?
- 11) Is waste treatment system in an open pond of depth (5m) a current practice?
- 12) allowable discharge levels of 5000mg/l for land application and 100g/l for water way discharge (regulatory)
- 13) Any recent stricter regulatory requirement forcing the palm oil mill owners to adhere to the permissible discharge levels
- 14) anaerobic lagoons with or w/o methane recovery and flaring – agreed that there is no market for electricity generation but methane recovery and flare is an option!! Why has this not been further analyzed??

CAR #14c was raised to confirm the validity of the most plausible baseline scenario i.e the continuation of the use of anaerobic lagoons and storage tanks throughout the crediting period as summarized by the Project proponents

A brief description of the main reasons for closure of CAR #14a, CAR #14b and CAR #14c are as below:

- 1) The Project Proponent gave a written undertaking (letter dated 29<sup>th</sup> March 2008) that Inno Abedon scheme will not receive any incentives (Government or other sources) to utilise the empty fruit bunches. These are revenues generated from CDM and from the production of organic fertilizer only.
- 2) During the site visit it was seen that a research centre was established on project site (prototype) for conducting tests. Regarding composition of compost – Ensearch's Letter (70/84 WP dated 1<sup>st</sup> June 2007, technological support agency) confirmed that In-vessel Composting technology is innovative and new in the palm oil mill sector in Malaysia. It was also confirmed through an interview with the technology supplier (Mr. Mark Fini ) on 7<sup>th</sup> March 2008 that the technology has been widely used in Europe and Australia in other sectors (e.g Landfill waste), but it is the first time that it is being used in Palm oil mill sector (EFB waste), hence there was a risk due to uncertainty about the success of the technology in palm oil mill sector.
- 3) A Letter from East Malaysia Planter's association dated 7<sup>th</sup> June 2007 substantiated that the in-vessel process technology is not a common practice in Sabah region. The representative of the technology providers (Mark Fini, Engineer, Ecoregion Nexus, Australia) was interviewed during the site visit, and confirmed that the project participant Inno Integrasi are the first company to use in-vessel process technology that converts palm oil mill wastes into bio-organic fertilizer in Malaysia.
- 4) Mulching at Abedon Mill – the document entitled "Abedon Waste Disposal Letter", letter dated 26<sup>th</sup> March 2008, from Abedon Oil Mill, stated that that mulching was not a common practice.
- 5) During the site visits, it was found that Mulching is not an option to the project developer because the following conditions are applicable to the project:
  - unfavourable field conditions- undulated ground, steep terrain, soft ground etc., which hinder deployment of vehicles;
  - heavy traffic causing damage to field roads and harvesting paths requiring frequent upgrading, field inaccessibility to light vehicles during rainy months;

- Improper management/constant rains are likely to encourage breeding of flies, Breeding of rhinoceros beetle
  - Insufficient vehicles during peak cropping months due to vehicle breakdowns and inhospitable weather conditions cause total neglect of EFB evacuation as the vehicles are given priority for FFB evacuation from the field.
- 6) Dr. David Safford, a UK based Expert in biotechnology/composting, also involved in the project and site visit confirmed that there can be leaching of potassium returned from the heaps and mulching initially reduces Nitrogen levels from the land which has an initial negative effect on the yield of the plantation
- 7) The document 'Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel' (January 2005) prepared by scientists through support from DANIDA mentions that use of EFB for energy generation is not common in Malaysia. It was also checked on site that Abedon Palm oil mill uses only mesocarp fibre and palm kernel shell (and not EFB) as a fuel for boilers.
- 8) The document 'Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel' (January 2005) mentions the numerous barriers to use of EFB as a renewable fuel and that have prevented its use across the Malaysian palm oil industry. It is an independent report.
- The baseline options 'Waste disposed on a landfill where landfill gas is captured and flared' and Anaerobic lagoons or storage tanks with methane recovery and flaring' have been considered in PDD version 4 dated 29<sup>th</sup> March 2008.
- 9) The remaining credible alternatives to the project activity which did not face any of the barriers were discussed correctly in Step 3b of the PDD version 4 dated 29<sup>th</sup> March 2008. Hence CAR #14 a, CAR #14b and CAR #14c were closed

The project's compliance with local legislations was verified from the letter issued by Department of Environment, Malaysia (Ref. number: 001189, dated June 2007). The baseline emissions are estimated for the methane emission from the anaerobic degradation of EFB and POME that would have occurred in the absence of project activity.

'Methodology AM0039' version 2 and "tool to determine methane emissions avoided from dumping waste at a solid waste disposal site' version 2.1 have been used for establishing the baseline. A total emission of 506834 tCO<sub>2</sub>e is estimated in the baseline. The average quantity of empty fruit bunches generated is 0.23 per tonne of Fresh Fruit Bunches (ref.: pp 23, Industrial Process and Environment, Crude Palm Oil Industry, Dept of Environment, Ministry of Science Technology and The Environment, Malaysia) (December 1999). The amount of FFB being processed in the mill was verified to be 210,000 ton/year. This was checked from the weight bridge records of the plant as every time the trucks bring the FFB bunches into the plant are weighted for the quantity of FFB. The amount of POME generated is 0.70 m<sup>3</sup>/tonne of FFB (ref.: pp 23, Industrial Process and Environment, Crude Palm Oil Industry, Dept of Environment, Ministry of Science Technology and The Environment, Malaysia). The landfill site is a managed site and the depth is more than 7m, this it was checked at the site during the site visit. There are no regulatory requirements for collection and destruction of CH<sub>4</sub> for POME in Malaysia (Law of Malaysia Act 1974,).

NIR #19 was raised to check assumptions used for establishing the baseline as stated above was subsequently closed out in the light of supporting documentation provided by the project proponent. Specific details of the Ex ante data and parameters used are detailed in the subsequent sections of this report.

The tool for demonstration of additionality version 4 and the waste water treatment options as given in chapter 6 of IPCC were not applied correctly in version 1 of PDD so CAR #13 was raised. The baseline was established in accordance with the guidelines of methodology AM0039 version 2. The tool for demonstration of additionality version 4 and different options available for waste water treatment, as per 'Chapter 6, IPCC 2006' have been discussed in the revised PDD version 3 (pp 13-17). Hence CAR #13 was closed out satisfactorily.

CAR #15 was raised because the methodological approach and steps given in the 'Approved baseline and monitoring methodology AM0039 version 2 and 'Tool for the demonstration and assessment of additionality'

version 4 were not followed exactly.. The project proponent was asked to follow the correct steps as prescribed in AM0039 version 2 throughout sections B.4 and B.5 of the PDD version 1 including investment analysis.

The project project proponent revised the sections B4 and B5 of the PDD version 2. Additionality analysis for other alternatives was not further discussed in the PDD version 2 because these scenarios were not applicable in the context of the project. Hence CAR #15 was closed.

NIR #17 was raised to know more about the environmental regulations for the waste water discharge of POM in Malaysia and the purpose of mixing the sludge and boiler ash into the compost. The sludge and boiler ashes will be mixed in the compost to improve the nutrient quality of the compost. The regulatory compliance set for POM has been checked from the provided documents (Law of Malaysia Act 1974, Environmental Quality Act. 1974 and Law of Malaysia 2003, Environmental Quality Act and Regulations Malaysia: MDC Publishers Sdn Bhd) and found that POM is fulfilling the legal requirements for waste water discharge. Further the regulatory requirements for waste water has been checked from the issued licence by Dept of Environment from Govt of Malaysia (Licence number 001189 dated 1<sup>st</sup> July 2007 – 30<sup>th</sup> June 2008 obtained by the Abedon Mill). Hence NIR #17 was closed out.

The baseline determination subjected to residence time of organic matter in open lagoon was not clear so NIR #18 was raised. The PDD version 3 has been revised in accordance with the page 7 of AM0039 version 2 for specifications for carry on calculations. The provided information for residence time of organic waste was verified from the drawing of treatment plant/open lagoon (Drawing number: KP/9306/POM/SL/01, SGT/APOM/ML/01 dated June 2007) and from the name plate of each pond (photo's taken by local assessor dated 7<sup>th</sup> March 2008). Hence NIR #18 was closed out.

As discussed above, Attachment 06B i.e Economic analysis of palm oil activity mentions 15% IRR (pages 8&9) (2004) and the document Abedon Attachment 06C, Malaysia waste CDM report (2005) mentions an IRR benchmark of 15% , all the documents referred to in points 7) and 8) above refer to the same benchmark and are publicly available documents, from a third parties (institution/bilateral funded programme) having no stakes in the proposed project, hence 15% benchmark was accepted. In addition to the validation of benchmark, the details of the estimated Initial Investment needed for the project activity, production costs and cash flows were checked thoroughly as discussed below.

A total estimated cost for the investment RM 10,290,000 has been used to calculate the expected returns from the project activity. The investment cost included the expenses on plant and building construction, process equipment and machinery, working capital and contingencies. The validation report submitted for request for registration also mentions on page 13 that initial investment, production cost and cash flow of the project activity was validated from the agreement but to bring more clarity it is being further explained. The investment costs have been taken from the cost figures provided by the technology supplier. 'EcoRegen Nexus SDN BHD' (Company No. 784928-W, registered under the law of Malaysia). The document provides the complete cost break ups about the estimated order of cost on page 24. The cost has been further substantiated from the agreement between EcoRegen Nexus SDN BHD (technology provider) and Inno Integrasi BHD (project developer) signed on 26<sup>th</sup> December as 'Joined Research and Development Agreement'. The DOE has validated the document and certified that the same cost has been used to calculate the returns from the project activity. The production and operation costs have been fixed, in accordance with the fertilizer off-take agreement, at fixed prices over the next ten years except the management cost which is not contracted hence an annual growth factor of 7% has been considered. The DOE has validated the cost from the 'Supply Cum Lease Agreement' provided by the Project Participant. Cost due to payment of land, biotechnology, power and personnel has been validated from 'EcoRegen Licence Agreement' (Schedule1, 6a and 7a, Page 22).

The total of the generated biofertiliser (compost) from the project activity will be off-taken by the Abedon plantation through its trading entity and this compost will be used in the palm tree fields. The validation report submitted for request for registration on page 13 (para 4) mentions clearly that how the DOE has validated the price of compost but the same has been explained again. The project participant and the buyer of compost have agreed on the price of compost (RM 500/ tone of compost) for next 10 years. The price of compost RM 500 per tonnes has been cross checked from the 'Off-take Agreement' signed between 'Inno Integrasi SDN BHD' and Desa Majujaya SDN BHD on 10<sup>th</sup> December, 2007. Page 3 of the document clearly mentions the 'agreed price' for the compost.



The authorisation (registration/certification) of the financial auditors (Foong Wai Lin, Audit Firm No. 1240, Licence No436/03/09 (J/PH) and 1519/10/09 (J) both dated 19<sup>th</sup> December 2007) were obtained, checked and were found to be in order.

It was thus confirmed that the project activity is additional and is not a common practice. Aerobic co-composting waste treatment and bio-organic fertilizer facility to eliminate methane emissions from the disposal of biomass and organic liquid wastes is not common in the state of Sabah and in Malaysia. There is only one other project in the region using the same technology i.e 'Inno-Malsa - Palm Oil Mill Waste Recycle Scheme, Malaysia' (Project 1359). This was registered with the UNFCCC on 1<sup>st</sup> May 2008. This project (1359) is proposed by the same project participants, similar funding modalities and same technology provider.

#### **4.5 Application of Baseline Methodology and Calculation of Emission Factors**

The baseline methodology selected for this project activity, AM0039 version 2, is applicable for the base line scenario i.e open dumping of the empty fruit bunches (EFB) at the land fill and anaerobic treatment of POME in the open lagoon. Also in the project activity the methane emissions will be achieved by the treatment of waste water and bioorganic solid waste in the co-composting process. The tCO<sub>2</sub>e emissions calculated, as discussed below, for the baseline are in line with the AM0039 version 2. The main assumptions used in the estimation of tCO<sub>2</sub>e emissions from the POME is the COD mg/lit (influent and effluent) which is a conservative figure (50000 mg/lit for influent and 100 mg/lit for effluent) adopted from an independent government report; (ref.: pp 27 and 37 of Industrial Process and Environment, Crude Palm Oil Industry, Dept of Environment, Ministry of Science Technology and The Environment, Malaysia). For the estimation of tCO<sub>2</sub>e emissions from the organic waste (EFB), the main assumption used is the calculation is the quantity of EFB generated in the mill. The average quantity of empty fruit bunches generated is 0.23/ton of Fresh Fruit Bunches (ref.: pp 23, Industrial Process and Environment, Crude Palm Oil Industry, Dept of Environment, Ministry of Science Technology and The Environment, Malaysia). The amount of FFB being processed in the mill is 210,000 ton/year as mill processes this amount of FFB every year; it was checked from the weight bridge records of the plant as every time the trucks bring the FFB bunches into the plant, these are weighted for the quantity of FFB. The tCO<sub>2</sub>e emissions due to the fossil fuel consumption in the transportation of EFB to the land fill site has been accounted and calculated.

NIR #16 was raised to have logistics behind the correct applicability of baseline methodology. It was checked from the site lay out plan (drawing number KP/9306/POM/SL/01, SGT/APOM/ML/01: June 2007) that the resident time of waste water is more than 30 days and it was also checked from the name plate fixed over the anaerobic pond (photos taken by local assessor on 7<sup>th</sup> March 2008). The monthly average temperature of the site area was checked from the web link;

[http://weather.msn.com/monthly\\_averages.aspx?&wealocations=wc%3aMYXX0030&setunit=C](http://weather.msn.com/monthly_averages.aspx?&wealocations=wc%3aMYXX0030&setunit=C) last visited on 8<sup>th</sup> March 2008 and the monthly average data is mentioned as Annex 3 in PDD version 3; showing that the temperature is always higher than 10<sup>0</sup> C in the area (Sabah State). The source of the figure used for Ft monthly (0.823) is now clearly defined on page 36 of the revised PDD version 3 and it is calculated in line with baseline methodology AMS0039. Spread sheet mentioning additional mills 0, 1, 2, 3 was the typo error and has been corrected now. Hence NIR #16 was closed out.

To bring more clarity, in line to the methodology AM0039 version 2, NIR #20 was raised to get information on the values applied (EF<sub>CO2</sub> diesel fuel applies; D<sub>fuel</sub> used value 0.82 kg/l, EF<sub>N20 comp., DOC<sub>f</sub></sub>). The source of the figure (2.672) has been given as it is taken from EPA fuel emission estimate (EPA420-F-05-001, 2005). Page 32 of PDD version 3 mentions the temperature of D<sub>fuel</sub> at 15<sup>0</sup>C and the web link for the source ([http://www.simetric.co.uk/si\\_liquids.htm](http://www.simetric.co.uk/si_liquids.htm)) was verified. Hence NIR #20 was closed.

The technological details provided by technology supplier (EcoRegenNexus-IISB-EcoXellOxygenProcessControl-20080310) mentions that the amount of oxygen will always be maintained more than 10% in the reactor and it will be monitored in by oxygen transmitter in the control panel and data is logged and displayed by the computer.

No project emission were accounted for the transportation in the project activity in PDD version 2, the project proponent argued that there are almost equal emissions in the baseline as well for the transportation of EFB to the land fill so CAR #21 was raised for clarification and evidences. In response, the project emissions have accounted and the monitoring plan also revised accordingly for the monitoring of number of trips by

trucks and the expected trip distance for the transportation of compost out side the mill in PDD version 5, the actual trip distance and the number of trips will be monitored once the project is implemented. Hence CAR #21 was closed out.

The CDM Executive Board, in its 39<sup>th</sup> meeting, reported that the “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site” was revised to reduce the value of the DOCj factor to be used for empty fruit bunches. The PDD version 4 was further revised to version 5 (dated 16<sup>th</sup> June 2008) to incorporate the change in the values of Degradable carbon content in waste (DOCj) and decay rates (kj) as prescribed in the “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site” recommended for empty fruit bunches. A value for DOCj that corresponds with garden waste has been used (0.2). For the decay rate kj, suggested value for garden waste (0.17, IPCC) has been used and validated. The MCF value has been used as 1 which is justified because the landfill site is anaerobic and is well managed and the waste is directed in a controlled placement. Mechanical compacting is also being done regularly and the filled portion is covered by soil to allow the grass on it.

In case of more guidance made available at a later stage or a more appropriate value of decay rate Kj confirmed by the project participant by the appropriate test (As described in Appendix 1, PDD version 5), a prior approval of the request for deviation would be requested by the project participants.

#### **4.6 Application of Monitoring Methodology and Monitoring Plan**

To get more clarity for the applications on monitoring methodology and the sources of few assumptions used, NIR #22 was raised. The EF<sub>CO2</sub> diesel fuel has been taken from EPA fuel emission estimate (EPA420-F-05-001, Feb., 05). Page 32 of PDD version 3 mentions the temperature of D<sub>fuel</sub> at 15°C and the web link for the source is provided [http://www.simetrix.co.uk/si\\_liquids.htm](http://www.simetrix.co.uk/si_liquids.htm) last accessed on 8<sup>th</sup> March 2008 was verified. The reference for figure 0.043 has been taken from the methodology AM0039 version 2 in the revised PDD version 3. Hence NIR #22 was closed out.

Few of the parameters in the monitoring plan were not found in line, with the monitoring methodology, corresponding to the units written in PDD version 1 so CAR #23 was raised. The PDD version 3 has been revised in line to the monitoring methodology correcting the typo errors for writing the units. Hence CAR #23 was closed out.

There was no justification and source given about the value 0.823 considered for CER calculations in CER calculation spreadsheet so CAR #24 was raised. The details of assumptions were included in the spreadsheet and also page 34 of PDD version 2 mentioned that this is the value (F<sub>t, monthly</sub>) derived from average monthly temperature and in line with the formulae given in methodology AM0039 version 2. Hence the CAR #24 was closed out.

NIR #25 was raised to include a schematic diagram detailing respective positions of the monitoring equipments, the monitoring plan diagram dated 8<sup>th</sup> March 2008 was checked against the existing locations and the proposed installations. Hence NIR #25 was closed.

#### **4.7 Choice of the Crediting Period**

The project meets the CDM requirement corresponding to the additionality (investment and prevailing practice barrier), applicability of the approved methodology AM0039 version 2 and starting date of the project activity. This is the future project and would be commissioned in 1<sup>st</sup> October 2008. The crediting period has been fixed for 10 years.

NIR #28 was raised for the clarity on the schedules regarding successful commissioning and start date for the crediting period. It is a future project and expected to be commissioned by 1<sup>st</sup> October 2008. The proposed time table (Abedon Timeline dated 8<sup>th</sup> March 2008) was checked. The crediting period will start on 1<sup>st</sup> October 2008 or upon registration of the project with CDM EB, whichever is later. Hence NIR #28 was closed

#### **4.8 Environmental Impacts**

There are no side effects envisaged from compost production and waste water effluent treatment, The waste used for compost production would have been dumped at open landfill and waste water treated

anaerobically, hence realising the GHGs into the atmosphere and generating leachate spread out on agriculture land. Project proponent has obtained a licence (number -001189, dated 1<sup>st</sup> June 2007) issued by Department of Environment, Govt. of Malaysia, to operate the waste management as a part of operation.

#### **4.9 Stakeholders Comments**

The local stakeholders' consultation meeting was held on 7<sup>th</sup> May 2007 where the persons from government, industry, NGOs, academia, civil society and media were present. There were about 50 persons present in the meeting.

During the local stakeholders' consultation process, a comment (no.5) mentions that the diesel based power might be required as a back up; so CAR #29 was raised for including the same in the monitoring plan. The project participant clarified that the entire power requirement in the palm oil mill is met by the biomass based power. The power requirement of the project activity will also be met by the captive power plant exclusively based on renewable fuel (palm fruit fibers). This was checked from the document 'Statistics for electricity generation and uses' dated 8<sup>th</sup> February 2008 (reference number PJ-T4B-0623-1995), says that the total renewable energy based power capacity is 3.2 MW, this full fill the expected increase in the power requirement of the mill. Moreover, if diesel based power, as a back up fuel, is used in the project activity then it will be monitored. The PDD version 3 has been revised subjected to the monitoring of diesel consumption. Hence CAR #29 was closed.



## **5. Comments by Parties, Stakeholders and NGOs**

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

### **5.1 Description of How and When the PDD was Made Publicly Available**

The Project Design Document for this project was made available on the SGS website <http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/project.php?id=445> and was open for comments from 15<sup>th</sup> March 2008 until 13<sup>th</sup> April 2008. Comments were invited through the UNFCCC CDM homepage.

### **5.2 Compilation of all Comments Received**

No comments were received

### **5.3 Explanation of How Comments Have Been Taken into Account**

No comments were received during the international stakeholder consultation process on the project.

## 6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
06/03/08	Lim, Chen Shen	Director, Inno Int. Sdn Bhd	CDM consideration and Public Funding
06/03/08	Mark Fini	Technical Engg	In vessel composting technology specifications and operations and associated problems
06/03/08	Khai Yip Mun	Chairman, Eco Regen	Baseline scenario and possible alternatives for waste management
07/03/08	Javier Rojo	Vice President, Climate Change Capita	CDM project activity and monitoring plan
07/03/08	Lara Naqushbandi	Consultant, CCC	Additionality and baseline selection
07/03/08	David Stafford	Expert, Microbiologist, ECL	Microbial technology description in composting process and aerobic degradation

## 7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/ PDD version 1 dated 19/12/2007
- /2/ PDD version 2 dated 19/12/2007
- /3/ PDD version 3 dated 08/03/2008
- /4/ PDD version 4 dated 29/03/2008
- /5/ PDD version 5 dated 16/06/2008
- /6/ Malaysian DNA Letter of Approval dated 21<sup>st</sup> May 2008
- /7/ UK DNA Letter of Approval dated 6<sup>th</sup> June 2008

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

#	Title	Date	From/Author	Comments
1	CER Calculation Model	08/03/08	JR/LN	
2	IRR Calculations	08/03/08	JR/LN	
3	Statement of Modalities for Communicating with the Exec Board & UNFCCC Secretariat	01/03/08	C4F2 and Inno Integrasi	Hard copy provided, soft copy signed by both parties to come later
4	Letter to certify project is not receiving public funding	03/03/08	Mr. Shen Lim, Inno Integrasi Director	
5	Abedon Timeline	08/03/08	JR/LN	Expected project construction and operation dates
6A	Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (EFB) as Renewable Fuel	January 2005	Report prepared under Malaysian - Danish Environmental Cooperation Programme	Pg 40 provides evidence of 15% benchmark; Pg 22 provides evidence that electricity grid infrastructure in Sabah is lacking Also details problems with use of EFBs as renewable fuel
6B	Economic Feasibility of Organic Palm Oil Production in Malaysia	2004	Ahmad Borhan Nordin; Mohd Arif Simeh; Mohd Nasir Amiruddin; ChanKookWeng and BurhanuddinAbdulS al - Malaysian Palm Oil Board	Pgs 7-8 demonstrate that expected IRR from conventional palm oil farming is > 15% benchmark; Pg 34 Figure 1 shows that expected yield of FFB per hectare is 25-30 tonnes
6C	CDM Potential in Malaysia - A Preliminary Assessment	23/02/05	Soon Hun Yang – Eco-Ideal Consulting	Pg 23 provides evidence of 15% benchmark
7A	Letter of support stating technology is innovative	01/06/07	Ensearch	
7B	Letter of support stating technology is innovative	07/06/07	East Malaysian Planters Association	
8A	Immigration and activity of	Decembe	Norman Kamarudin	

	Oryctes rhinoceros within a small oil palm replanting area	r 2004	and Mohd Basri Wahid	
8B	Empty Fruit Bunches Evaluation: Mulch in Plantation vs. Fuel for Electricity Generation	2003	N Ravi Menon; Zulkifli Ab Rahman and Nasrin Abu Bakar (Malaysian Palm Oil Board)	Details problems with mulching
9	Average Carbon Dioxide Emissions Resulting from Gasoline and Diesel Fuel	02/2005	US EPA	See pg 2 for CO <sub>2</sub> emissions from a gallon of diesel
10	Letter of Submission for Inno-Abedon CDM project approval from Malaysian DNA and confirmation of receipt	15/02/08	Mr. Shen Lim, Inno Integrasi Director	
11	Ecoregen In-Vessel Process Technology (CONFIDENTIAL)	26/02/07	Ecoregen	Details engineering design for the technology. See pgs 6, 8, 9, 12 for evidence that the technology recycles all of the leachate.
12A	Letter confirming that no EIA is required to conduct project (pg1)	September 2007	Alam Sekitar	
12B	Letter confirming that no EIA is required to conduct project (pg2)	September 2007	Alam Sekitar	
13	Industrial Processes & The Environment (Crude Palm Oil Industry Handbook no. 3)	December 1999	Malaysian Dept of Environment	
14	Ecoregen License Agreement (CONFIDENTIAL)	10/12/2007	Ecoregen and Inno Integrasi	Commits Ecoregen to provide training for staff involved in the project (see schedule 5, pg26)
15	Letter from Malaysian DNA approving Inno Malsa project	11/09/07	Malaysian DNA	To be used as evidence that the proposed project at Abedon is environmentally safe, sustainable, highly likely to be supported by Malaysian Dept of Environment
16	Stakeholder / Public Forum Invitation Letter	25/04/07	Environet (consulting company who organized Stakeholder Forum on behalf of Project Participants)	
17	Stakeholder Comments / Public Forum Documents	April/May 2007	Numerous	Information on attendees, organization, newspaper article, comments made
18	Joint Research & Development Agreement between Ecoregen and Inno Integrasi	26/12/07	Ecoregen and Inno Integrasi	Evidence that Inno Integrasi is funding Ecoregen's R&D – shows that CDM funding is behind R&D for this technology

19A	Signed list of attendees at Stakeholder Forum pg 1	09/05/07	Numerous	
19B	Signed list of attendees at Stakeholder Forum pg2	09/05/07	Numerous	
20A	Fertilizer lab test results pg 1 (CONFIDENTIAL)	28/02/08	Ecoregen	
20B	Fertilizer lab test results pg 2 (CONFIDENTIAL)	28/02/08	Ecoregen	
21	Biodegradation of oil and grease in upflow anaerobic sludge blanket reactor for palm oil mill effluent treatment	May 2006	Lee Chee Siang	Details legal requirements in Malaysia for wastewater treatment to low BOD/COD levels (Table 2.3 pg 38)
22	Laws of Malaysia – Act 127 Environmental Quality Act 1974	1974	Malaysian Government	Details prohibition on open burning of EFB waste
23	Monitoring Plan Diagram	08/03/08	JR/LN	
24	High Rate Anaerobic Treatment of Industrial Wastewater in Tropics	January 1998	Deepak L. Joshi	Problems with aerobic treatment of waste water
25	Abedon Operating License	2007-2008	Abedon Mill	Provides evidence that mill is complying with all regulations – last inspection by the Malaysian authorities was 22 <sup>nd</sup> January 2008. Gives the mill authority to operate.
26	Baseline Declaration from Abedon Mill	15/07/2007	Abedon mill	Provides evidence that the mill does not mulch.
27	Historical Production Data for Abedon Mill	2005-2007	Abedon mill	Production figures
28	Accountant Signed off Copy-Financials (Audited)	March 2008	Inno Abedon Integrasi	Audited financial analysis
29	Audit Firm No. 1240, Licence No436/03/09 (J/PH) and 1519/10/09 (J) both dated 19 <sup>th</sup> December 2007	2007	Inno Abedon Integrasi	Registration/certification details of the Auditing Firm
30	Agreement between the project proponent (Inno Integrasi, Company Number 620514-X) and the purchaser of the compost (Desa Majujaya, Company number 795077-A)	10/12/2007	Inno Abedon Integrasi & Climate Change Capital	Agreed price of compost

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## A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Inno- Abedon Palm Oil Mill Waste Recycle Scheme, Malaysia.

It serves as a “**reality check**” on the project that is completed by a local assessor from SGS UKL

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
1. Letter of Approval from Malaysian DNA, check dates, project name, DNA name, authorisation  2. Ratification, sustainable development, voluntary participation - CAR2	The indicative letter to the Malaysian DNA dated 15 <sup>th</sup> February 2008 was checked.  Application for approval from Malaysian DNA can only be submitted upon obtaining the draft validation report.	Indicative letter for Malaysian DNA  LoA provided later	Y
3. Letter of Approval from UK DNA authorising project participants, name of project, dates - CAR1	Letter to be submitted upon approval by the Malaysian DNA	Pending	Y
4. Check whether the Location/address is in accordance with section A.4.1.4 NIR-5	The location and address was verified through the site visit	Site visit	Y
5. Check Ownership/ Licences authorizing Inno Integrasi Sdn Bhd/	Licence number 001189 dated 1 July 2007 – 30 Jun 2008 obtained by the Abedon mill issued by Department of Environment. Gives mill authority to operate – waste	Copy of licence	Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
Climate Change Capital Carbon Fund II S.a.r.l to operate NIR6	management is part of operations.		
6. Check whether the implementation of the project activity is likely to provide a boost to composting and wastewater treatment technologies in palm oil mill sector in Malaysia.	The technology is new , yet customised to meet the solid and waste disposal requirements of the palm oil mill sector	Technology specifications and interviewing the technology experts	Y
7. Check whether the technology is environmentally safe whether the implementation of the proposed technology might lead to any side effects	There are no side effects envisaged from compost production and waste water effluent, The project already meets the regulatory requirements as evidenced by the fact that a Letter of no Objection has been obtained already for Inno Malsa project from Malaysian Dept of Environment which uses same technology. Intend to apply for same letter for Abedon shortly.	Copy of the license issued by Dept of environment, Govt of Malaysia. Licence number 001189 dated 1 July 2007 – 30 Jun 2008 obtained by the Abedon mill issued by Department of Environment.	Y
8. Check whether the planning and other permits are available	No further planning permissions required - Licence number 001189 dated 1 July 2007 – 30 Jun 2008 obtained by the Abedon mill issued by Department of Environment. Gives mill authority to operate – waste management is part of operations.	Copy of the license issued by Dept of environment, Govt of Malaysia. Licence number 001189 dated 1 July 2007 – 30 Jun 2008 obtained by the Abedon mill issued by Department of Environment.	Y
9. Check whether the biomass is currently piled up and left to	Checked on site, pictures taken on March 6 and 7, 2008	Site visit	Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
<p>decay in the areas surrounding the palm oil mills or left to decay in the landfills</p> <p>10 POME is treated in upon anaerobic lagoons</p> <p>11. There is no mechanism for avoiding GHG emissions in the current scenario (baseline)</p>	<p>Checked on site, pictures taken on March 6, 7, 2008</p> <p>Malaysian requirements for treating the solid wastes and waste water checked. These are documented in Attachment 13 – Crude Palm Oil Handbook issued by Malaysian Dept of Environment. (see pg 21 and 35 in particular)</p> <p>The requirements have been met by the plant operators by virtue of Abedon's receipt of the operating license dated June 2007- Licence number 001189 dated 1 July 2007 – 30 Jun 2008 obtained by the Abedon mill issued by Department of Environment. License is issued only after inspection of the mill by the Dept of Environment and verification that it is compliant with regulatory requirements. Last inspection occurred on 22<sup>nd</sup> January 2008.</p>	<p>Copy of license (Licence number 001189 dated 1 July 2007 – 30 Jun 2008 obtained by the Abedon mill issued by Department of Environment)</p>	
<p>12 Tbc whether the proposed technology is outdated; and,</p> <p>13 What are the other options/technologies available in the market!</p>	<p>The technology has not yet been used in the palm oil waste in Malaysia. The pilot scale production prototype for composting is in established at Inno Abedon .</p> <p>Ecoregen is the technology supplier The invessel composting technology is mature and has been used in parts of Europe and Australia for about 20 years</p> <p>There are not many suppliers and specifically no other invessel technology suppliers for composting palm oil mill waste in Malaysia</p>	<p>Site visit</p> <p>Interviewing the expert (technology supplier)</p>	Y
<p>14 Check the training plan including training schedules, personnel</p>	<p>The training plan is not fully formalised at present, as the final process needs to be determined once the test trials have been completed at the pilot plant. However, technology supplier</p>	<p>Document review (spread sheet for timetable for commissioning of project)</p>	Y



Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
required, costs involved, tech suppliers to be checked during the SV 15 training and maintenance needs of the technology employed	Ecoregen is committed to providing technical assistance and training throughout the project under the terms of its supply agreement with Inno Integrasi (Attachment 14 - see Schedule 5)		
16 Check whether there is any public funding for the project/ Financial data for the project funding	Attachment 04 dated March 2008 is a statement from Inno Integrasi confirming no public funding is involved in the project.  Shareholder's agreements were checked (Attachment 11). The Agreement details the parties' commitment to procuring external debt financing for the project, as well as providing equity share capital.	Document reviewed	Y
17 Check the current usage of the bioorganic	Checked on site, that all the empty fruit bunches are transferred to the land fill site letter issued from	Site visit	Y
18. Check whether the organic wastewater undergoes anaerobic degradation in open lagoons 19 Check the composition of the waste (is it only EFB) 20 Check whether the proportion and characteristics of the bioorganic waste are determined to apply a	The waste dumped on –site is 100% EFB  Document for proportion and characteristics of the bioorganic waste  Co- composting process is not used under the baseline scenario  Temperature tables were checked for the last 3 years for Sandakn	Site visit and document reviewed	

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
<p>multiphase landfill gas generation</p> <p>21 Co –composting process is used for treatment of organic wastewater and bioorganic waste</p> <p>22 Check whether the following conditions are met on site?</p> <p>The monthly ambient average temperature is greater than 10°C and in case the monthly average ambient temperature is less than 10°C, those months are excluded in the methane estimation</p>	<p>Checked on site (reference photograph.....)</p> <p>The residence time of the organic matter is 40 days (photographs)</p>		
<p>Depth of the wastewater anaerobic lagoon or storage tank is greater than 1m</p> <p>Residence time of the organic matter is 30 days or more</p>	<p>See pg 35 of CPO Handbook (Attachment 13), Attachment 13 - Handbook no. 3 from the Malaysian Dept of Environment provides information on palm oil mill waste management requirements in order to secure an operating license. The mill is compliant with these requirements, as evidenced by the latest inspection of their premises, on 22<sup>nd</sup> January 2008.</p>	<p>Drawing of anaerobic lagoon and site visit snaps of name plates of each ponds for residence time</p>	Y
<p>23 Check that there is no methane emission from</p>	<p>There will be no waste water leaked from the process. It was checked from the technology specifications as it said that the</p>	<p>Flow diagram of In vessel composting unit</p>	Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
anaerobic process of wastewater collected after the project activity as all the water is pre-treated and managed aerobically or used for irrigation -NIR 10	total leachate will be recycled into the reactor.		
24 References/legislation regarding illegal burning of the bioorganic solid waste to be checked- Local Assessor	See pg 21 of CPO Handbook (Attachment 13)	Documents review	Y
			Y
25 For organic waste water, relevant legislation/notification banning the direct release into nearby waterway to be checked- Local Assessor	See pg 35 of CPO Handbook (Attachment 13) Attachment 13 - Handbook no. 3 from the Malaysian Dept of Environment provides information on palm oil mill waste management requirements in order to secure an operating license. The mill is compliant with these requirements, as evidenced by the latest inspection of their premises, on 22 <sup>nd</sup> January 2008.	Document review	Y
26 No of mills /the actual situation onsite needs to be checked- NIR16	Checked that there is only one mill on site, the numbers mentioned in the PDD was a copy/paste error	PDD version 03	Y
27 Please check on site the composition, source and	Mix for loading :	Document review (CPO hand book)	Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
<p>quantity of sludge and boiler ashes</p> <p>28 Check regulations regarding capture/destruction or any other regulatory/contractual regulations, for safety/odor concerns</p>	<p>EFB: 114 tonnes</p> <p>Decanter sludge: 17 tonnes/day</p> <p>Boiler ash : 3 tonnes/day</p> <p>POME : 16 tonnes/day</p>		
<p>29 . The value applied for fd is 70% as PDD says that the depth of the anaerobic pond in Abedon is greater than 5 meters, the depth of pond on-site to be checked</p> <p>30. MCF of 01 has been used , PDD (pg.33) mentions Abedon landfill site is unmanaged with leveling of waste and some compaction and 7 m depth- tbc on site</p>	<p>Checked on site and through the layout drawings checked on site depths of the 8 ponds are (4 aerobic and 4 anaerobic) are 5.5 metres each (photographs and layout drawing number SGT/APOM/ML/01 dated June 2007 issued by SGT KONSULT SDN.BHD.</p> <p>The landfill sites are anaerobic managed solid waste disposal sites. The waste is directed in a controlled placement and mechanical compacting is being done regularly. The filled portion is covered by soil to allow the grass on it. This has been checked on site by validation team. Therefore, the MCF 01 for the baseline calculation is justified.</p>	Drawings of treatment plant	Y
<p>31 Check on site for evidence of the monthly POME produced and whether it supports the information on estimates and assumptions (including that the</p>	<p>Daily production report for period March 2007-February 2008 checked – shows annual volume of FFB received was 200,840 tonnes for this period. This equates to 140,588 tonnes of POME based on factor of 0.7.</p>	Document review (production records)	Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
production of POME is constant throughout the year).			
32 Check for evidence on parameters used on estimate of CO2 emissions from transportation of WW and SW. More specifically the number of vehicles, number of trips carried out in a year, round trip distances, average fuel consumption/Km.- NIR19	The distance from mill to the land fill site is about 6 km as it was checked by local assessor during the travel to the land fill site.	Site visit	Y
33 Check evidence (manufacturer reports, manuals, communications) on the estimation of the capacity of compost generation/year and on the capacity of the composting process in maintaining high concentrations of O2 levels throughout the system.	The letter provided by technology supplier (EcoRegenNexus-IISB-EcoXellOxygenProcessControl-20080310) says that the amount of oxygen will always be maintained more than 10% in the reactor and it will be monitored in by oxygen transmitter in the control panel and data is logged and displayed by the computer	Document from technology supplier	Y
34 Check for evidence that		Site visit, ref doc.	Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
estimates made for the amount of front end loaders required, yearly operating hours of the front end loaders, diesel fuel use per operating hour of the front end loaders, average distance that would be traveled by trucks transporting compost and fuel consumption of trucks transporting compost/Km.			
35 Check that the EFB landfills are uncovered	Checked on site that the EFB landfills are uncovered (photograph dated 7 <sup>th</sup> March 2008...)	Site visit	Y
36 Please check whether the start date is 01/09/2008	Project schedules checked	Site visit, ref. doc.	Y
37 Authority and responsibility for registration, monitoring, measurement and reporting is not clear- contents of CDM operations and monitoring manual to be checked on site	Clear responsibilities defined for CDM operations	Site visit, ref. doc.	Y
38 Training procedures for monitoring personnel are	The training plan is not fully formalised at present, as the final process needs to be determined once the test trials have been completed at the pilot plant. However, technology supplier		Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
not clearly defined	Ecoregen is committed to providing technical assistance and training throughout the project under the terms of its supply agreement with Inno Integrasi (Attachment 14 - see Schedule 5)		
39 The projects life time (10 years) should be checked from comparable projects or project technologies or feasibility studies	Technology supplier	Site visit, interview	Y
40 Check whether the length of the crediting period is reasonable in relation to the additionality analysis and any expected legislation	Legislations/regulations	Document review	Y
41 Check whether an EIA is required for setting up the project activity	No EIA is required – Attachments 12A and B contain a letter from the Malaysian Dept of Environment stating that the project does not require an EIA	Document review	Y
42 Environmental effects to be checked through clearances, press reports, interviews	The project activity is the waste to compost production and does not posses any adverse environmental effect.	Site visit, document review	Y
43 Adverse impacts from the project activity- air pollution, surface water bodies, coast, underground aquifers to be checked	There are no adverse environmental impacts from the project activity – leachate produced is recycled back through the process. In addition, a Letter of no Objection has been obtained already for Inno Malsa project from Malaysian Dept of Environment which uses same technology. Intend to apply for	Site visit, document review	Y

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
	same letter for Abedon shortly.		
44 Please obtain the list containing the names, agencies, contact numbers for people which participated in the meeting held on 9 <sup>th</sup> May 2007	The meeting was organized by enviroNet on 09 <sup>th</sup> May., 2007 at Sabah hotel, Jalan, Utara, Sandakan. The invitation letter about the information of consultation meeting has been send to the potential stakeholders. One sample copy dated 25 <sup>th</sup> April has been checked. The information about the meeting was also published in news paper Daily Express, Friday 04 <sup>th</sup> May, 2007. The list of persons present in the meeting has been checked	Document review	Y
45 PDD mentions Invitations were sent to 50 potential stakeholders 3 weeks before the meeting- please check the content etc	The sample copy of invitation letter, sent to Faculty of Applied Sciences of University Teknologi Mara Cawangan Sabah was obtained.	Document review	Y
46 Please check if stakeholder consultation required as per the host country regulations?	No stakeholders' consultation for this is required as per the host country regulation. More over the project activity does not required EIA as per the letter issued by Malysian Department of Environment.	Document review	Y



## A.2 Annex 2: Validation Protocol

**Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)**

Requirement	Reference	Comments	Conclusion
1. All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	Marrakech Accords, CDM Modalities §30	Malaysia is the host 'Party' and has ratified the Kyoto protocol of 4 <sup>th</sup> September 2002 <a href="http://maindb.unfccc.int/public/country.pl?country=MY">http://maindb.unfccc.int/public/country.pl?country=MY</a> last accessed on 20/02/2008  United Kingdom has ratified the Kyoto protocol on 31 <sup>st</sup> May 2002 and has been listed as 'Annexure- I' Party <a href="http://maindb.unfccc.int/public/country.pl?country=GB">http://maindb.unfccc.int/public/country.pl?country=GB</a> last accessed on 20/02/2008	OK
2. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	Marrakech Accords, CDM Modalities §29 and §30	The letter of Approval from the UK DNA has not yet been obtained  Please provide LOA  LoA from UK DNA Ref. no. C4F2/06/2008 dated 6 <sup>th</sup> June 2008 was provided and checked (refer Annexure 3 for details)	<del>CAR #1</del>  OK
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	Marrakech Accords, CDM Modalities §29 and §30  Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	The letter of approval from the Malaysian DNA is not yet available. Please provide the host country LOA  LoA from Malaysian DNA was provided and checked (refer Annexure 3 for details) Letter Ref. No. NRE(S)62.120.010.001. 002/012 Jld.5(14) dated 21 May 2008	<del>CAR #2</del>  OK

Requirement	Reference	Comments	Conclusion
4. 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	Marrakech Accords, CDM Modalities, §40	No comments were received	OK
5. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	CDM PDD version 03.1 has been used the logo, format or fonts in accordance with the above format	OK
6. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	The letter confirming the modalities of communication with the UNFCCC was not provided  The letter conveying modalities of communicated dated 01 march 2008 was provided and checked	<b>CAR #3</b> OK
7. For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?	Not applicable	<i>Not applicable</i>	<b>Not Applicable</b>

**Table 2PDD**

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
<b>A. General Description of Project Activity</b>					
<b>A.1. Project Title</b>					
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	PDD Sec A.1	DR/ Interne t	Yes, the title ' Inno Abedon- Palm Oil Mill Waste Recycle Scheme , Malaysia is clear and unique	OK	OK
A.1.2. Is there an indication of a revision number and the date of the revision?	PDD Sec A.1	DR	Yes,  The PDD mentions Version number:1.0 but since the methodology AM0039 (version 1) was revised before the project was posted on the UNFCCC website for public comments, the PDD was revised accordingly.  Please revise the date and version number of the PDD	CAR #4	OK
A.1.3. Is this in consistency with the time line of the project's history?	PDD Sec A.1	DR	Yes, the date is before the PDD was web hosted for public comments	OK	OK

<b>A.2. Description of the Project Activity</b>					
A.2.1. Is the description delivering a transparent overview of the project activities?	PDD Sec A.2	DR	<p>The project activity involves utilization of wastes from the palm oil mills (solid and liquid) through composting and wastewater treatment technology thereby avoiding methane emissions due to anaerobic decomposition of wastes.</p> <p>The description of the technology and its contribution to sustainable development is clearly described.</p> <p>The assessment of the text provided in section A.2 of the PDD is detailed in subsequent sections</p>	OK	OK
A.2.2. Is all information provided in compliance with actual situation or planning?			<p>In particular this is addressing assumptions and figures with relevance on the baseline, monitoring and projections (e.g. design capacity, historic production etc.) List the evidences received under references</p> <p>Pending site visit (checked during the site visit)</p>	Pending	OK
A.2.3. Is all information provided consistent with details provided in further chapters of the PDD?			Pending site visit (checked during the site visit)	Pending	OK
<b>A.3. Project Participants</b>					
A.3.1. Is the table required for the indication of project participants correctly applied?	PDD Sec. A.3	DR	<p>Yes, the table has been correctly completed</p> <p>Section A.3 mentions the following project participants:</p> <p>Inno Integrasi Sdn Bhd (Pvt. Entity)Malaysia</p> <p>Climate Change Capital Carbon Fund II S.a.r.l (Pvt. entity)</p> <p>The LoA from Malaysian and the UK DNA's are pending</p> <p>(Closed later)</p>	<p>Pending closure of CAR #1, CAR #2 and CAR #3 above</p>	OK

A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?					
<b>A.4. Technical Description of the Project Activity</b>					
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	PDD Sec.A. 4.1	DR/ Site Visit	The project is at Abedon Palm oil mill which is located near the town of Sandakan, Sabah  Location/address to be confirmed during the site visit  Please provide site specific lat-longs of the site in decimal points	<del>NIR #5</del>	OK
A.4.2. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	PDD	DR/Sit e visit	Ownership/ Licences authorizing Inno Integrasi Sdn Bhd/ Climate Change Capital Carbon Fund II S.a.r.l to operate on the site need to be verified	<del>NIR #6</del>	OK
A.4.3. Is the category(ies) of the project activity correctly identified?	Sec.A. 4.2 PDD	PDD UNFC CC websit e	The project falls under scope 13 'Waste Handling and Disposal' the approved methodology AM0039 version 2 has been used <a href="http://cdm.unfccc.int/DOE/scopes.html">http://cdm.unfccc.int/DOE/scopes.html</a> last accessed on 20/02/08	OK	OK
A.4.4. Does the project design engineering reflect current good practices?	Sec.A. 4.3 PDD	PDD Site visit	The implementation of the project activity is likely to provide a boost to composting and wastewater treatment technologies in palm oil mill sector in Malaysia.  To be confirmed during the site visit whether the technology is environmentally safe whether the implementation of the proposed technology might lead to any side effects  The process is completely biological and it was checked that no chemicals are used in the entire process involved (CDM project)	<del>To be confirmed</del>	OK

A.4.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance and is the explanation how the project will reduce greenhouse gas emission transparent and suitable?			<p>The technology involves</p> <ol style="list-style-type: none"> <li>1. pre-composting/Composting</li> <li>2. Suspended solid separation from the waste water</li> </ol> <p>The sources included in the project boundary clearly indicate that the methane emission is substantially reduced through the implementation of the project</p>	<del>To be confirmed</del>	OK
A.4.6. Is all information provided in compliance with actual situation or planning as available by the project participants?			To be checked during the site visit. If applicable check planning and other permits	<del>To be confirmed</del>	OK
A.4.7. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?		DR SV	<p>Currently biomass is piled up and left to decay in the areas surrounding the palm oil mills or left to decay in the landfills</p> <p>POME is treated in upon anaerobic lagoons</p> <p>There is no mechanism for avoiding GHG emissions in the current scenario (baseline)</p>	<del>To be confirmed during the site visit/interviews/ internet</del>	OK
A.4.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?		DR SV	<p>Not expected in the immediate future</p> <p>Tbc whether the proposed technology is outdated; and,</p> <p>what are the other options/technologies available in the market!</p>	OK	OK

A.4.9. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?		DR SV	The project design entails high, medium/low skill personnel in its operations mechanical engineers manage site operations and bio technology experts supervise the application of bio-formulations Consultants/servicing contractors are required to ensure optimal operation of the plan Training Plan which entails information/evidence on training schedules, personnel required, costs involved, tech suppliers to be checked during the SV	tbe	OK
A.4.10. Does the project make provisions for meeting training and maintenance needs?	Sec. A.4.3	DR SV	The PDD outlines the training and maintenance needs Confirmed during the site visit	tbe	OK
A.4.11. Is a schedule available on the implementation of the project and are there any risks for delays?	PDD Sec. A.4.3 and Sec.A. 4.4		Project implementation schedules to be checked. Impacts on emission reduction projections by reasonably changed time lines to be assessed	<del>NIR #7</del>	OK
A.4.12. Is the table required for the indication of projected emission reductions correctly applied?	PDD Section A.4.4	PDD	Table for estimated amount of emission reductions is correctly filled The calculations to be checked from the spreadsheets	<del>Pending</del>	OK
<b>A.5. Public Funding</b>					
A.5.1. Does the information on public funding provided conform with the actual situation or planning as presented by the project participants?	PDD Sec. A.4.5		Financial data for the project funding to be checked To be checked - donor funding (confirmed later, see Annexure 3)	<del>NIR #8</del>	OK
A.5.2. Is all information provided consist with details provided by further chapters of the PDD (in particular annex 2)?	PDD Section A.4.5		Pending closure of NIR 8 above	<del>Pending</del>	OK

A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD Section A.4.5 Annexure 2 PDD		To be confirmed Pending closure of NIR 8 above (Confirmed)	Pending	OK
<b>B. Baseline and Monitoring Methodology</b>					
<b>B.1. Choice and Applicability</b>					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	PDD Sec.B.1 Unfccc.int Guidance sec. B.1	DR Internet	The PDD uses AM0039, version 2, dated 2 Nov 2007, "Methane emissions reduction from organic waste water and bioorganic solid waste using co-composting" is applied to this project activity. <a href="http://cdm.unfccc.int/methodologies/DB/VYLVMEVLH8QDL95P7KBOEDF6DH1AVD/view.html">http://cdm.unfccc.int/methodologies/DB/VYLVMEVLH8QDL95P7KBOEDF6DH1AVD/view.html</a> The methodology or tools which AM0039 draws upon; and their versions have not been indicated in section B.1	NIR #9	OK
B.1.2. Is the baseline methodology the one deemed most applicable for this project?	PDD Section B.2	DR internet	The other meths falling under scope 13 are AM25, AM57, ACM1, ACM10 and ACM14; the project does not fit into any of the approved meths under scope 13	OK	OK



<p>B.1.3. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology?</p>	<p>PDD Sec.B. 2 AM39 applic ability (pg.1/2 2)</p>	<p>Site Visit</p>	<p>Check the current usage of the bioorganic waste (whether left to natural decay in the landfills)</p> <p>Check whether the organic wastewater undergoes anaerobic degradation in open lagoons</p> <p>Check the composition of the waste (is it only EFB)</p> <p>Check whether the proportion and characteristics of the bioorganic waste are determined to apply a multiphase landfill gas generation</p> <p>Co –composting process is used for treatment of organic wastewater and bioorganic waste</p> <p>Check whether the following conditions are met on site?</p> <ol style="list-style-type: none"> <li>1. The monthly ambient average temperature is greater than 10°C and in case the monthly average ambient temperature is less than 10°C, those months are excluded in the methane estimation</li> <li>2. Depth of the wastewater anaerobic lagoon or storage tank is greater than 1m</li> <li>3. Residence time of the organic matter is 30 days or more</li> </ol>		<p>OK</p>
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## **B.2. Project Boundary**

<p>B.2.1. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete manner?</p>	<p>PDD section B.3 &amp; sec.B.6.3. Sec.II AM39</p>	<p>The following sources of gases are contravening the approved methodology:</p> <p><b>Baseline</b></p> <p>1. Transportation- Gas CO<sub>2</sub>- not included Methodology says 'Yes' (to be included) Justification/explanation: Emission from combustion of fossil fuel in transport vehicles. Not significant. Excluded for simplification and conservativeness</p> <p>2. Auxiliary- Gas CO<sub>2</sub>- not included Methodology says 'Yes' (to be included) Justification/explanation: Baseline includes the use of renewable energy sources (biomass) for electricity production Section B.6.3 of the PDD mentions that all the electricity energy use in the baseline and in the project activity is from renewable resources (fibre and husks produced in the processing of fresh fruit bunches) hence, can be neglected. No use of fossil fuel on plant site for</p> <p>a. Heating purposes b. Pumping of waste water</p> <p><b>Project Activity</b></p> <p>3. Leaked waste water- Gas - CH<sub>4</sub> -Not included Methodology says 'Yes' (to be included) Justification / Explanation There is no methane emission from anaerobic process of wastewater collected after the project activity as all the water is pre-treated and managed aerobically or used for irrigation Please provide supporting documentation to establish the above argument (studies, technology supplier's reports on similar projects etc.) Obs.: Also to be confirmed during verification</p>	<p>1. OK</p> <p>2.OK</p> <p>3.NIR #10/To be confirmed during the site visit</p> <p>4.CAR #11</p>	<p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p>
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B.2.2.	In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?			Not applicable as the project is not using electricity from the grid Confirmed on the site	<del>To be verified</del>	OK
B.2.3.	Are the project's spatial boundaries (geographical) and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?			Please provide more information on the spatial boundary of the project  Why is the transport of bio-organic fertilizer outside the project boundary?	<del>CAR #12</del>	OK
<b>B.3. Identification of the Baseline Scenario</b>						
B.3.1.	Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	PDD Section B.4 AM39 page 4/22	DR SV	The tool for demonstration and assessment of additionality (version 4) should be used as per AM39 ver2  The options identified for bioorganic solid waste are in accordance with AM39 sec.2 page 4/22  For organic wastewater, all the treatment options as provided in table 6.3, vol 5, Chapter 6 IPCC 2006 have not been listed/discussed	<del>CAR #13</del>	OK
B.3.2.	Does the application consider all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations??	PDD section B.4 step 1b	DR SV	References/legislation regarding illegal burning of the bioorganic solid waste to be checked- Local Assessor  For organic waste water, relevant legislation/notification banning the direct release into nearby waterway to be checked- Local Assessor  Assessment of other potential scenarios table 6.3, vol 5, Chapter 6 IPCC 2006 to be checked (Confirmed)	<del>To be confirmed</del>	OK

B.3.3. Does the application consider all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations??	PDD sectionB.4 step 1b	DR SV	<p>References/legislation regarding illegal burning of the bioorganic solid waste to be checked- Local Assessor</p> <p>For organic waste water, relevant legislation/notification banning the direct release into nearby waterway to be checked- Local Assessor</p> <p>Assessment of other potential scenarios table 6.3, vol 5, Chapter 6 IPCC 2006 to be checked (confirmed)</p>	<del>To be confirmed</del>	OK
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<p>B.3.4. (Contd. From pre-page) Is the choice of the baseline compatible with the available data?</p>	<p>PDD sec B4 step 2</p>	<p>DR Intervi ews SV</p>	<p>To be confirmed (for solid waste):</p> <ol style="list-style-type: none"> <li>1. Profitability of palm oil mills, incentives to change the current practice of waste disposal</li> <li>2. Level of penetration of the technology comprising solid and liquid waste streams (as used in this project) and risks involved</li> <li>3. Prevailing business practice</li> <li>4. check whether Abedon plantations use EFB's for mulching (currently and also in the past)</li> <li>5. evidence that EFB has limited fertilizer value, removes nitrogen from the soil</li> <li>6. historical use of biomass use in Boilers (in Abedon mill and other factories)</li> <li>7. is energy generation from EFB not possible? (ref option 3-incineration and power generation). Also, it check this in the light of the statement that Abedon is already using mesocarp fibre and shells for energy generation</li> <li>8. check the quantity of waste dumped, waste composition, location, area, depth, spread, mode of transportation, costs involved in dumping the waste at the existing landfillsite</li> <li>9. possibility/potential of electricity generation, transfer, capture and use of landfill gas</li> <li>10. why has landfill gas flare not been considered as an option?</li> </ol>	<p><b>CAR #14a</b></p>	<p>OK</p>
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B.3.4 contd			<p>To be confirmed (for waste water)</p> <ol style="list-style-type: none"> <li>1. Is waste treatment system in an open pond of depth (5m) a current practice?</li> <li>2. allowable discharge levels of 5000mg/l for land application and 100g/l for water way discharge not being met (regulatory)</li> <li>3. Any recent stricter regulatory requirement forcing the palm oil mill owners to adhere to the permissible discharge levels</li> <li>4. anaerobic lagoons with or w/o methane recovery and flaring – agreed that there is no market for electricity generation but methane recovery and flare is an option!! Why has this not been further analyzed??</li> </ol>	<del>CAR #14b</del>	OK
B.3.5. Is conservativeness addressed in the way of identifying the baseline?			The data available is interpreted in such a way that the baseline selected provides for a conservative determination of the emission reductions	OK	OK
B.3.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?			<p>The summary (section B4) mentions that the most plausible baseline scenario is the continuation of the use of anaerobic lagoons and storage tanks throughout the crediting period- to be rechecked in the light of above observations</p> <p>If there are several possible credible baseline scenarios, the most conservative one (in terms of emission reductions) should be selected</p>	<del>CAR #14c</del>	OK

<b>B.4. Additionality</b>					
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as given by the methodology and by following all the required steps?			<p>PDD should use the approach given in the 'Approved baseline and monitoring methodology AM0039' Version 02 and 'Tool for the demonstration and assessment of additionality' Version 04 as and when required. This has not been done.</p> <p>For example, Step 2 of the AM0039 (pg.4/22) of the procedure for the selection of the baseline scenario has been called Step 1.b in the PDD (pg.13).</p> <p>Step 3 of the AM 0039 (pg. 5/22) has been called Step 2 in the PDD (pg.13). Furthermore, the approach used to examine the prohibitive barriers does not follow Step 3 of the latest version of the 'Tool for assessment of additionality' Version4 as requested by the AM0039. The PDD actually sites Step 2 of the 'Combined Tool to demonstrate the baseline scenarios and demonstrate additionality'.</p> <p>The correct procedures should be followed throughout sections B.4 and B.5 of the PDD (please apply that to the investment analysis too).</p>	<del>CAR #15</del>	OK
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?			Pending closure of CAR13 above (closed)	Pending	OK



B.4.3. Is the discussion on additionality and the evidence provided consistent with the starting date of the project If the project has started before the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	PDD Sec. B.5 & SecC.1.1	DR Site visit	Check evidence regarding the additionality (financial logs, purchase orders etc ) should be in accordance with the start dates i.e section C.1.1 September 2008 Evidence for consideration of CDM in the decision to go ahead with the project. (preferably official, legal and/or other corporate) available at, or prior to, the start of the project activity should be checked (checked)	<del>the</del>	OK
B.4.4. Is the discussion on additionality consistent with the identification all potential realistic and credible baseline scenarios	PDD section B.4	DR Site Visit	Pending closure of CAR 15 above (Closed)	<del>pending</del>	OK
B.4.5. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?			Pending closure of CAR 15 above (Closed)	<del>pending</del>	OK
B.4.6. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?			Pending closure of CAR 15 above (Closed)	<del>Pending</del>	OK
B.4.7. Has it been shown that the project is not common practice?			Pending closure of CAR 15 above (Closed)	<del>Pending</del>	OK

B.4.8. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario			Pending closure of CAR 15 above (Closed)	Pending	OK
<b>B.5. Application of the Baseline Methodology</b>					
B.5.1. Has the approved methodology been applied correctly for determining <b>baseline emissions</b> ?	PDD Section B.6.1	DR SV	<p><b>Wastewater in open storage systems (BE<sub>CH4, ww, y</sub>:</b></p> <p>Equation 3 AM39 has not been used as the residence time of waste water in the lagoons is more than 30 days (tbc./evidence on site pls, refer to B.1.3. above)</p> <p>Gather evidence on the date of construction of existing lagoons/newly added units</p> <p>Page 20, please provide weblink/evidence for the monthly average temperature of the area</p> <p>Check <math>f_{t, monthly}</math> value (does not exceed unity)</p> <p>A value of 0.823 has been used in the cell F72 of spreadsheet- 'Abedon Annexure-I CER calculation model', the cell does not contain the active cell formula including references.</p> <p>Spreadsheet- 'Abedon Annexure-I CER calculation model' - Pome methane correction factor mentions 'additional mills, 0,1,2,3' please provide detailed calculations on each mill ,the actual situation onsite needs to be checked</p> <p>Please provide calculation details (monthly), equation 2. page 6/22 AM39 says calculation on a monthly basis (also specified in section B.6.1 a).</p>	NIR #16	OK

B.5.1 contd.	PDD page 20  PDD Page 21		<p><b>Bio organic solid waste</b></p> <p>PDD mentions that only EFB is used as a waste stream, but sludge and boiler ashes are included as well, the impact of mixing sludge and boiler ashes is not clear</p> <p>Please check on site the composition, source and quantity of sludge and boiler ashes</p> <p>Check regulations regarding capture/destruction or any other regulatory/ contractual regulations, for safety/odor concerns</p> <p>The formulae for calculation of emissions from organic wastewater, fossil fuels for meeting energy requirements/grid electricity are listed correctly (application checked later)</p>	NIR #17	OK
B.5.2. Has the approved methodology been applied correctly for determining <b>project emissions</b> ?	PDD page 23 AM39 page 11-15	DR SV	The methodology is applied exactly as defined for determining the project emissions. The PDD states clearly the equations used in calculating project emission. All the required steps/calculations have been followed exactly	OK	OK
B.5.3. Has the approved methodology been applied correctly for determining <b>leakage</b> ?	PDD Pg. 26 AM39 pg.15/22		No leakage is accounted under this methodology	OK	OK
B.5.4. Where applicable, has the approved methodology been applied correctly for the <b>direct calculation of emission reductions</b>			The methodology is applied exactly as defined for determining the emission reductions. The PDD states clearly the equations used in calculating project emission.	OK	OK

B.5.5. Have all the methodological choices been explained, have they been properly justified and are they correct			<p>The PDD omitted the section from the AM0039 (p.7 penultimate paragraph), with specifications relating to carry on calculations, without justification. Provide evidence of the residence time of the organic matter in the anaerobic lagoon or storage tank – residence time less than or more than one year</p> <p>The section of the AM0039, with specifications to do with newly built lagoons or tanks, was also omitted (last paragraph p.7 and first, penultimate and last paragraphs of p.8) without justification.</p> <p>Section of the AM0039, with specifications about the anaerobic degradation factor (paragraph 4 of page 9), has been omitted without explanation</p>	<del>NIR #18</del>	OK
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD	DR SV	<p>The uncertainties in the calculations, data sources or assumptions have been discussed and it is clear how they will impact on the calculations</p> <p>e.g IPCC value for <math>B_0</math> is 0.25Kg CH<sub>4</sub>/kg COD , but meth allows a value of 0.21 to be used as a conservative figure</p> <p>Uncertainties in data collection to be checked on site</p> <p>(Checked on site)</p>	<del>the</del>	Ok

B.6. Ex-ante Data and Parameters Used					
B.6.1. Are the data provided in compliance with the methodology?	PDD sec.B. 6.2 and B.6.3	DV and SV	<p>Section B.6.2 of PDD:</p> <p>The value applied for fd is 70% as PDD says that the depth of the anaerobic pond in Abedon is greater than 5 meters, the depth of pond on-site to be checked</p> <p>MCF of 01 has been used , PDD (pg.33) mentions Abedon landfill site is unmanaged with leveling of waste and some compaction and 7 m depth- tbc on site</p> <p>Section B.6.3 of PDD:</p> <p>AF factor applied is 0. Check that there is no local regulatory or contractual requirement for the collection and destruction of CH<sub>4</sub>.</p> <p>Check that Baseline Assumptions (page 32 onwards of the PDD) are correct. More specifically check that:</p> <ol style="list-style-type: none"> <li>1. Raw POME concentrations (before the POME sludge decanter) = 50,000 mg/l tbc</li> <li>2. POME concentrations after anaerobic/aerobic treatment is &lt;100 mg/l tbc</li> <li>3. Check in logs and calculations that the amount of FFB production in Abedon palm oil mil is on average 210,000 t/year.</li> <li>4. Check from the reference given in the PDD (Malaysian Department of Environment. Industrial Processes and the environment. Handbook number 3. Crude Palm Oil Industry) that the estimated average amount of POME generated from FFB is 0.70m<sup>3</sup>/t FFB.</li> </ol>	<del>NIR #19</del>	OK

B.6.1. (Continued)		<p>5. Check on site for evidence of the monthly POME produced and whether it supports the information estimates and assumptions (including that the production of POME is constant throughout the year).</p> <p>6. Please also see NIR14 (information on monthly calculations of waste water emissions in order to comply with AM0039) in section B.5.1. of this Protocol .</p> <p>7. Please provide reference which cites that the average amount of EFB generated per tone of FFB is 23%</p> <p>8. Please check the reference mentioned in item 7 above.</p> <p>9. Please also see NIR14 (provide weblink/evidence for the monthly average temperature of the area).</p> <p>10. Please see NIR14 (for information requested on calculation of <math>f_t</math>, monthly).</p> <p>11. Check for evidence on parameters used on estimate of CO2 emissions from transportation of WW and SW. More specifically the number of vehicles, number of trips carried out in a year, round trip distances, average fuel consumption/Km.</p> <p>12. Items (d) and (e) of page 35 of PDD state that energy requirements and electricity on site are provided by renewable biomass sources (this has been addressed in section B.2.1 of this protocol)</p> <p>Project Emissions from fossil fuels have to be monitored</p>	NIR-9 (contd)	OK
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B.6.1. (Continued)			<p>Check Project emissions assumptions:</p> <p>13. Check evidence (manufacturer reports, manuals, communications) on the estimation of the capacity of compost generation/year and on the capacity of the composting process in maintaining high concentrations of O<sub>2</sub> levels throughout the system.</p> <p>14. The PDD states that there will be no leaked waste water during the project activity (this has also been addressed in section B.2.1 of this protocol).</p> <p>15. Check assumptions for the calculation of the emissions from transportation of the project activities. Check for evidence that estimates made for the amount of front end loaders required, yearly operating hours of the front end loaders, diesel fuel use per operating hour of the front end loaders, average distance that would be traveled by trucks transporting compost and fuel consumption of trucks transporting compost/Km.</p>	The	OK
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<p>B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?</p>	<p>PDD sec. B.6.2</p>	<p>EF<sub>CO2</sub> diesel fuel applies a value of 2.672, justification says 'normal practice', IPCC figure? Also please provide web link to the site</p> <p>D<sub>fuel</sub> uses 0.82kg/l at 20°C, the weblink provided mentions at 15°C</p> <p>AM39 also mentions a value of 0.043 (note) as EF<sub>N2O, Comp-</sub></p> <p>Parameters checked against the Emissions Factor Data Base (EFDB) in the IPCC web site <a href="http://www.ipcc-nggip.iges.or.jp/EFDB/find_ef_main.php">http://www.ipcc-nggip.iges.or.jp/EFDB/find_ef_main.php</a> :</p> <p>B<sub>0</sub> for waste water treatment and discharge = 0.25 Kg CH<sub>4</sub> per Kg Cod (AM0039 recommends a value of 0.21 Kg CH<sub>4</sub> per Kg COD and that is used in the PDD);</p> <p>MCF, for the calculation of emissions from unmanaged landfill sites with at least 7m of waste, is 01;</p> <p>F or fraction of methane in the generated landfill gas is 0.5;</p> <p>Parameters checked against IPCC 2006 Guidelines for National Greenhouse Gas Inventories <a href="http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm">http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm</a> :</p> <p>DOC<sub>j</sub> of 43%;</p> <p>DOC<sub>f</sub> of 0.5 (check whether this still applies)</p> <p>OX factor 0.1 for managed solid waste disposal sites and 0 for managed and uncovered, unmanaged and uncategorised. PDD states that the value applied in the project is 0 because EFB landfills are uncovered. Check that the EFB landfills are uncovered.</p> <p>:</p>	<p>NIR #20</p>	<p>OK</p>
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<p>Parameters used from AM0039 <a href="http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html">http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html</a> :</p> <p><math>f_d</math> for the calculation of MCF (there was no reference in AM0039 for this parameter and the methodology advises to use the value in the PDD – 70%)</p> <p>Parameters used from the 'Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site' <a href="http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html">http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html</a></p> <p>Model correction factor for the calculation of CH<sub>4</sub> (Oonk et al. (1994)) of 0.9 is advised in the tool.</p> <p>B.6.3. AF factor covered on sections B.6.1. above</p>			Data sources were checked – references to documents would be made publicly available and cited fully in the PDD wherever applicable		OK
B.6.4. Is the vintage of the baseline data correct?			Most recent data has been used	OK	OK
<b>B.7. Calculation of Emissions Reductions</b>					
B.7.1. Has the approved methodology been applied correctly for determining <b>emission reductions</b> ?	Section B.6.3	DR spread sheets	All the required steps are followed	<del>the</del>	OK
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	Section B.6.3, sec.B.6.4	DR spread sheets	The formulae used for determining emission reductions cannot be checked (files missing)	<del>the</del>	OK

B.7.3. Have conservative assumptions been used to calculate emission reductions?	Section B.6.3, sec.B.6.4	DR spread sheets	The assumptions used are not always in accordance with the methodology Section B.6.3 BE CO2 transport are compensated by PE transport (Zero) This is a deviation from AM39, Approval for deviation from the methodology would be required in this case	<del>CAR #21</del>	OK
B.7.4. Is the projection based on provable input parameter?	Section B.6.3, sec.B.6.4	DR spread sheets	All the input factors have been reviewed in section B6.	OK	OK
B.7.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	Section B.6.3, sec.B.6.4	DR spread sheets	The procedures are consistently followed	OK	OK
B.7.6. Is the calculation of the emission reduction correct?	PDD, Section B.6.3, sec.B.6.4	DR spread sheets	Revised calculation spreadsheets to be checked	<del>pending</del>	OK
<b>B.8. Emission Reductions</b>					
B.8.1. Will the project result in fewer GHG emissions than the baseline scenario?	PDD SecB.6.4	DR	The project if implemented as envisaged in the PDD will result in ERs	OK	OK
B.8.2. Is the form/table required for the indication of projected emission reductions correctly applied?	PDD SecB.6.4	DR	The table for calculation of ERs is correctly applied Cal. To be re-checked	OK	OK
B.8.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	PDD Sec. B.6.4	DR	Please check whether the start date is 01/09/2008 The year should be mentioned in yyyy format	<del>the</del>	OK

### B.9. Monitoring Methodology

<p>B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameter to be monitored and further information provided by the PDD?</p> <p>Are all parameters and data that is available at validation consistent with the approved methodology</p>	<p>PDD Sec.B. 7</p>		<p>Weblink for the NCV and EF<sub>CO2i</sub> for Diesel is not mentioned (link to the USEPA website)</p> <p>The link provided in the PDD for the Density of Diesel fuel is listed as 15°C and not 20°C</p> <p>Emission factors for N2O emissions is listed on page 12/22 of AM39 (AM25 reference is not needed)</p> <p>Tbc - (MCF) that Abedon landfill is anaerobic managed with leveling of waste with some compaction and is 7 m depth (so as to use IPCC MCF of 1)</p> <p>Tbc -AF (adjustment factor) is not applied (zero)- please check local or national regulations for capture and flare of methane of LFG/EFB in Malaysia</p> <p>Tbc - A value of 'zero' has been used for assessing oxidation factor because EFB landfills are not covered with any type of oxidizing material (Confirmed)</p>	<p><del>NIR</del> #22</p>	<p>OK</p>
<p>B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?</p>			<p>The choice of option is justified and is in compliance with AM39</p>	<p>OK</p>	<p>OK</p>

<b>B.10. Data and Parameters Monitored</b>					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?			<p>The monitoring plan provides information on collection and archiving of all the data</p> <p>Following data and parameters listed on page 41, 42, of the PDD are not exactly in accordance with the methodology:</p> <ul style="list-style-type: none"> <li>– <math>V_{POME, y}</math></li> <li>– COD influent</li> <li>– COD effluent</li> <li>– <math>A_{j,x}</math></li> <li>– <math>F_{cons}</math></li> <li>– <math>Q_{compost}</math></li> <li>– <math>SOD_y</math></li> <li>– Check MAT and MAP for the project site-Sandakan</li> </ul>	CAR #23	OK
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?			The choice of GHG indicators is in compliance with AM39 except for above	Pending closure of CAR above	OK
B.10.3. Will it be possible to determine the specified project GHG indicators?			The verifiability of a correct implementation of the monitoring concept as well as the verifiability of monitoring data and its accuracy was checked.	Pending closure of CAR above	OK
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?			The information describing the intentions of the project participants is detailed enough to assess the appropriateness (e.g. includes types of metering equipment or analyzing methods).	Pending closure of CAR above	OK

B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	PDD Section B.7	DR	The variables are discussed	<del>Pending closure of CAR above</del>	OK
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD Section B.7	DR	The monitoring plan (including assessment of annex 4) ensures the delivery of high quality data.	<del>Pending closure of CAR above</del>	OK
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Sec.B	DR	A value of 0.823 has been used in the cell F72 of spreadsheet- 'Abedon Annexure-I CER calculation model', the cell does not contain the active cell formula including references.  Links to several other cells are missing (checked)	CAR #24	OK
<b>B.11. Quality Control (QC) and Quality Assurance (QA) Procedures</b>					
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	PDD Annex 4	DR	Yes, QA/QC procedures for all the data are complete	OK	OK
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	PDD Annex 4	DR	Yes, the determination of uncertainty levels is done correctly for each id	OK	OK
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	PDD Annex 4	DR	The monitoring plan (including assessment of annex 4) safeguards the proper operations of all data capture, data analysis and data compilation systems to be employed by the project participants.	OK	OK
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	PDD Sec4	DR	The monitoring data will not be dependent on site-specific adjustments.	OK	OK
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	PDD Annex 4	DR	The data would be subjected to secondary checks and third party verification	OK	OK

<b>B.12. Operational and Management Structure</b>					
B.12.1. Is the authority and responsibility of project management clearly described?	PDD Sec.B. 7.2	DR	The management and operational systems are clearly defined (defined)	OK	OK
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Sec.B. 7.2	DR	authority and responsibility for registration, monitoring, measurement and reporting is not clear- contents of CDM operations and monitoring manual to be checked on site (Checked)	the	OK
B.12.3. Are procedures identified for training of monitoring personnel?	PDD Sec.B. 7.2	DR	Training procedures for monitoring personnel are not clearly defined (defined)	the	OK
<b>B.13. Monitoring Plan (Annex 4)</b>					
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	PDD Annex 4	DR	The monitoring plan discusses specifically project specific parameters described in the methodology	OK	OK
B.13.2. Does the monitoring plan completely describes all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	PDD Annex 4	DR	The data quality for all parameters is discussed and assured	OK	OK
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	PDD Annex ure 4	DR	A schematic diagram detaing respective positions of the monitoring equipments is needed	NIR #25	OK
B.13.4. Are procedures identified for calibration of monitoring equipment?	PDD Annex 4	DR	Yes, the calibration procedures are clearly identified	OK	OK
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	PDD Annex 4	DR	Yes, the procedures for maintenance of monitoring equipment are sufficiently clear	OK	OK

B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	PDD Annex 4	DR	Yes, the procedures for data handling are clearly mentioned	OK	Ok
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems??	PDD Annex 4	DR	Missing, tbc (Confirmed)	OK	OK
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	PDD Annex 4	DR	Missing, tbc (Confirmed)	OK	OK
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	PDD Annex 4	DR	Missing, tbc (Confirmed)	OK	OK
<b>B.14. Baseline Details</b>					
B.14.1. Is there any indication of a date when determine the baseline?	PDD Sec. A.1 and Sec. B.8	DR	PDD version 1 dated 19 <sup>th</sup> December 2007 mentions 08/06/2007 as the date of baseline determination, only some changes arising due to the meth revision on EB35 are reflected (corrected)	<del>NIR #26</del>	OK
B.14.2. Is this in consistency with the time line of the PDD history?	PDD Section A.1 and Sec.B. 8	DR	The revision version of the PDD is not in accordance with the date of baseline determination (corrected)	<del>NIR #27</del>	OK
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex ure 3	DR	Pending closure of issues earlier	<del>Pending</del>	OK

### C. Duration of the Project / Crediting Period

C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	PDD Sec.C. 1.1	DR	The starting date is clearly mentioned  From the discussion it appears that 01/09/2008 is the start date, please confirm on site and check if that is clearly indicated  The projects life time (10 years) should be checked from comparable projects or project technologies or feasibility studies	<del>NIR #28</del>	OK
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	PDD Sec. C.2.2. 2	DR	Check whether the length of the crediting period is reasonable in relation to the additionality analysis and any expected legislation (Confirmed)	<del>the</del>	OK
C.1.3. Does the project's operational lifetime exceed the crediting period	PDD Sec.2. 2.2	DR	Check the project's lifetime, as per NIR raised in section C.1.1above (closed)	<del>pending</del>	OK

### D. Environmental Impacts

D.1.1. Does the project comply with environmental legislation in the host country?	PDD Sec.D. 1	DR SV	Check whether the necessary clearances from the regulatory agencies have been obtained (Confirmed)	<del>The</del>	OK
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	PDD Sec.D. 1	DR SV	The analysis has been sufficiently described. (Confirmed)	<del>The</del>	OK
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	PDD SecD. 1 and D.2	DR SV	Check whether an EIA is required for setting up the project activity (Confirmed)	<del>The</del>	OK
D.1.4. Will the project create any adverse environmental effects?	PDD Sec D.1	DR SV	Environmental effects to be checked through clearances, press reports, interviews (Confirmed)	<del>The</del>	OK



D.1.5. Are transboundary environmental impacts considered in the analysis?	PDD Sec.D. 1	DR	Please discuss the Tran boundary impacts in the PDD  Adverse impacts from the project activity- air pollution, surface water bodies, coast, underground aquifers to be checked  (Confirmed)	<del>Tbc</del>	OK
D.1.6. Have identified environmental impacts been addressed in the project design?	PDD Sec.D. 1	DR	Yes  No negative environmental impacts are envisaged, tbc on site  (Confirmed)	<del>Tbc</del>	OK
<b>E. Stakeholder Comments</b>					
E.1.1. Have relevant stakeholders been consulted?	PDD Sec.E. 1	DR	Please obtain the list containing the names, agencies, contact numbers for people which participated in the meeting held on 9 <sup>th</sup> May 2007  (oBtained)	pending	OK
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	PDD Sec.E. 1	DR	PDD mentions Invitations were sent to 50 potential stakeholders 3 weeks before the meeting- please check the content etc  (Checked)	pending	OK
E.1.3. 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?	PDD Sec.E. 1	DR	Please check if stakeholder consultation required as per the host country regulations?  (Checked)	pending	OK
E.1.4. Is the undertaken stakeholder process described in a complete and transparent manner?	PDD Sec.E. 2 and E.3	DR	The description is transparent and complete.	OK	Ok

E.1.5. Is a summary of the stakeholder comments received provided?	PDD Section E.2	DR	The summary mentions that the PDD would be posted on validator/UNFCCC's website for comments. The issues raised (if any) need to be addressed (Confirmed)	<del>pending</del>	OK
E.1.6. Has due account been taken of any stakeholder comments received?	PDD Section E.3	DR	Response on comment 5 mentions that power packup from Diesel might be required as a back up, tbc if this is reflected in the monitoring plan	<del>NIR #29</del>	OK

### A.3 Annex 3: Overview of Findings

Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.

Description of Table:

Type	Findings are either New Information Requests (NIR) or Corrective Action Requests (CAR). CARs are items that must be addressed before a project can receive a recommendation for registration. NIRs may lead to the raising of CARs. Observations are included at the end and may or may not be addressed. They are primarily to act as signposts for the verifying DOE.
Issue	Details the content of the finding
Ref	Refers to the item number in the Validation Protocol
Response	Please insert response to finding, starting with the date of entry.

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	1	Type:	CAR	Issue :	DNA LoA	Ref.:	Table 1
Lead Assessor Comment					Date: 25/02/2008		
The letter of Approval from the UK DNA has not yet been obtained Please provide LOA							
Project Participant Response:					Date: 29/02/2008		
Date: 29th February 2008 The UK DNA requires a provisional validation report before a request for approval can be filed. We would be grateful if you could consider our request to issue a provisional validation report, subject to the fulfilment of this requirement.							
Acceptance and Close out by Lead Assessor:					Date: 08/04/2008		
Information Provided: LoA from UK DNA was provided					Verified Document Reference: Ref. no. C4F2/06/2008 dated 6 <sup>th</sup> June 2008		
Reasoning for not acceptance or acceptance and close out: CAR #1 was closed							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	2	Type:	CAR	Issue :	Host Country LoA	Ref.:	Table 1
Lead Assessor Comment					Date: 25/02/2008		
The letter of approval from the Malaysian DNA is not yet available. Please provide the host country LOA							
Project Participant Response:					Date: 29/02/2008		
Date: 29 <sup>th</sup> February 2008 Like the UK DNA, the Malaysian DNA requires a provisional validation report before a request for approval can be filed. Please consider our request to issue a provisional validation report subject to the fulfilment of this requirement.							
Acceptance and Close out by Lead Assessor:					Date: 08/04/2008		
Information Provided: LoA from malaysian DNA was provided by the project proponent					Verified Document Reference: Letter Ref. No. NRE(S)62.120.010.001. 002/012 Jld.5(14) dated 21 May 2008		

Reasoning for not acceptance or acceptance and close out: CAR #2 was closed because:
<ul style="list-style-type: none"> <li>The letter of approval confirms ratification of Kyoto protocol by Malaysia on 4<sup>th</sup> September, 2002</li> <li>Voluntary participation in the proposed CDM project activity</li> <li>Confirmation on the project activity;s contribution to sustainable development</li> </ul>
The PP obtained the LoA from UK DNA w.r.t point 4 of the Malaysian DNA's letter of approval (ref above) The LoA is valid if the project is requested registration within 6 months from the date of issuance (i.e 21 May 2008)

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	3	Type:	CAR	Issue :	Letter Confirming the MoC	Ref.:	Table 1
Lead Assessor Comment					Date: 25/02/2008		
Please provide the letter confirming the modalities of communication with the UNFCCC							
Ensure that all project participants mentioned in section A3 of the PDD have signed the MoC							
Ensure that the letter contains details of the people signing it if not contained in Annex1 of the PDD, project name should be the same as that in the LoA and the PDD							
Project Participant Response:					Date: 29/02/2008		
Date: 29 <sup>th</sup> February 2008							
Please see Attachment 3 with the Statement of Modalities for Communications signed by the project participants. Hard copy of the Statement has been provided by Mr. Shen Lim and Mr. Javier Rojo							
Acceptance and Close out by Lead Assessor:					Date: DD/MM/YYYY		
Information Provided: Letter containing the statement of modalities of communication dated 1 <sup>st</sup> March 2008, the project participant's names and contacts match with those contained in Annexure –I of the PDD Information Verified: Names and contacts of the project participants					Verified Document Reference: Statement of modalities of communication dated 1 <sup>st</sup> March 2008		
Reasoning for not acceptance or acceptance and close out: The letter containing the modalities of communication is complete, hence CAR #3 closed.							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	4	Type:	CAR	Issue :	PDD Date and Version number	Ref.:	A.1.2
Lead Assessor Comment					Date: 25/02/2008		
The PDD mentions Version number:1.0 but since the methodology AM0039 (version 1) was revised before the project was posted on the unfccc website for public comments, the PDD was revised accordingly. Please revise the date and version number of the PDD 'Dated : December 19, 2007'							
Project Participant Response:					Date: 29/02/2008		
Date: 29 <sup>th</sup> February 2008 The PDD date and version number have been updated, on pg2. The date is now consistent with AM0039 version 2.							
Acceptance and Close out by Lead Assessor:					Date: 29/02/2008		
Information Provided: PDD has been revised, the revision is consistent with the date of revision of the methodology					Verified Document Reference: Revised PDD version 2 (further revised later)		
Reasoning for not acceptance or acceptance and close out: CAR #4 Closed							

Date:	25/02/2008	Raised by:	Siddharth Yadav
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No.:	5	Type:	NIR	Issue :	Project Location	Ref.:	A.4
Lead Assessor Comment					Date: 25/02/2008		
<p>The project is at Abedon Palm oil mill which is located near the town of Sandakan, Sabah</p> <p>Location/address to be confirmed during the site visit</p> <p>Please provide site specific lat-long of the site in decimal points</p>							
Project Participant Response:					Date: 29/02/2008		
<p>Date: 29<sup>th</sup> February 2008</p> <p>This information has been included in the PDD on pg 5. Coordinates are; 5° 18' 57.20" N, 117° 58' 10.18"</p>							
Acceptance and Close out by Lead Assessor:					Date: 10/03/2008		
<p>Information Provided: Revised PDD version 3, section 4.1.4 contains the geographical coordinates of the site</p> <p>Information Verified: Geographical coordinates of the site</p>					<p>Verified Document Reference: PDD Version 3 dated 08/03/2008</p>		
<p>Reasoning for not acceptance or acceptance and close out: OK, NIR #5 Closed</p>							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	6	Type:	NIR	Issue :	Project Ownership	Ref.:	A.4.2
Lead Assessor Comment					Date: 25/02/2008		
<p>Ownership/ Licences authorizing Inno Integrasi Sdn Bhd/ Climate Change Capital Carbon Fund II S.a.r.l to operate on the site need to be verified</p>							
Project Participant Response:					Date:		
<p>Date: 29<sup>th</sup> February 2008</p> <p>Please see Attachment 25 containing a copy of the Abedon Operating Licence. The proposed project involves an improved waste management of the waste produced by the daily operations of the Abedon palm oil mill. According to the Malaysian regulations, the proposed project operating licence will be covered by the existing Abedon operating licence as waste management is a requirement for the operation on the mill.</p>							
Acceptance and Close out by Lead Assessor:					Date: 10/03/2008		
<p>Information Provided: Abedon Attachment 25 - Mill Licenses and Data Licence to operate the power plant (Licence no. SSD 149/07, February 2008)) Licence to operate the mill (Licence no 001189 issued on 15/06/2005</p> <p>Information Verified: The above licences numbers and the authorisations were verified during the site visit and the copies of the same were obtained for records</p>					<p>Verified Document Reference: Abedon Attachment 25 - Mill Licenses and Data Licence to operate the power plant (Licence no. SSD 149/07, February 2008)) Licence to operate the mill (Licence no 001189 issued on 15/06/2005 and summary for renewals for 2006, 2007 and 2008</p>		
<p>Reasoning for not acceptance or acceptance and close out: NIR #6 closed as it was established that Inno Abedon Palm Oil Mill Sdn. Bhd is authorised to operate the project activity</p>							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	7	Type:	NIR	Issue :	Project Implementation Schedules	Ref.:	A.4.11
Lead Assessor Comment					Date: 25/02/2008		
<p>Project implementation schedules to be checked.</p> <p>Impacts on emission reduction projections by reasonably changed time lines to be assessed</p>							
Project Participant Response:					Date: 25/02/2007		

Date: 29 <sup>th</sup> February 2008 Please see Attachment 05 which shows a detailed description of the timing expected for the project implementation. Main risk of delay for the project is a delay of the construction works, this risk will be mitigated aligning construction payments with timely delivery of the works. The Project participants will employ best endeavours to achieve the timely completion of the project according to the planned schedule.	
Acceptance and Close out by Lead Assessor:	
Information Provided: Abedon Attachment 5 - Abedon timeline Information Verified: The project schedules were checked. The management staff and Technology providers were interviewed	Verified Document Reference: Abedon Attachment 5 - Abedon timeline (spreadsheet)
Reasoning for not acceptance or acceptance and close out: The timelines are not likely to be changed because the project is running as per the schedules, NIR #7 Closed out.	

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	8	Type:	NIR	Issue :	Public Funding	Ref.:	A.5.1
Lead Assessor Comment					Date: 25/02/2008		
Financial data for the project funding to be checked To be checked - donor funding							
Project Participant Response:					Date:10/03/2008		
Date: 29 <sup>th</sup> February 2008 Please see Attachment 04 with a statement from the Project Developer stating that no public funding is being received to fund the project. Source of funding has been discussed with the DOE during validation.							
Acceptance and Close out by Lead Assessor:							
Information Provided: Abedon Attachment 4 - Inno-public funding_abedon A signed letter from the project participants confirming no Public Funding for Inno-ABEDON Files containing financials detailing financial details for the project Information Verified: The sources of finance for the total costs of the project were checked						Verified Document Reference: Letter dated 3 <sup>rd</sup> march 2008 confirming no public funding for the CDM project	
Reasoning for not acceptance or acceptance and close out: No public funding is used in the project. NIR #8 Closed							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	9	Type:	NIR	Issue :	Tools used for the AM39	Ref.:	B.1.1
Lead Assessor Comment					Date: 25/02/2008		
The PDD uses AM0039, version 2, dated 2 Nov 2007, “Methane emissions reduction from organic waste water and bioorganic solid waste using co-composting” is applied to this project activity. <a href="http://cdm.unfccc.int/methodologies/DB/VYLVMEVLH8QDL95P7KBOEDF6DH1AVD/view.html">http://cdm.unfccc.int/methodologies/DB/VYLVMEVLH8QDL95P7KBOEDF6DH1AVD/view.html</a> The methodology or tools which AM0039 draws upon; and their versions have not been indicated in section B.1							
Project Participant Response:					Date: 29/02/2008		
Date: 29 <sup>th</sup> February 2008 Please see pg 10 of the PDD which now indicates that the PDD also uses both the “ <u>Tool for the demonstration and assessment of additionality (ver 4)</u> ” as well as the “ <u>Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site</u> ”							
Acceptance and Close out by Lead Assessor:					Date:13/03/2008		

<p>Information Provided: The correct versions of the <u>"Tool for the demonstration and assessment of additionality (ver 4)"</u> as well as the <u>"Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site"</u> have been used in the PDD version 3 dated 8<sup>th</sup> March 2008</p> <p>Information Verified: PDD version 3 dated 8<sup>th</sup> March 2008 contains the corrected information on the tools referred in AM0039 version 2</p>	<p>Verified Document Reference: PDD version 3 dated 8<sup>th</sup> March 2008</p>
<p>Reasoning for not acceptance or acceptance and close out: The correct versions of the tools as available at the time of validation assessment have been used. NIR #9 closed</p>	

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	10	Type:	NIR	Issue :	Project Boundary	Ref.:	B.2.1
Lead Assessor Comment					Date: 25/02/2008		
<b>Project Activity</b>							
4. Leaked waste water- Gas - CH4 -Not included							
Methodology says 'Yes' (to be included)							
Justification / Explanation							
There is no methane emission from anaerobic process of wastewater collected after the project activity as all the water is pre-treated and managed aerobically or used for irrigation							
Please provide supporting documentation to establish the above argument (studies, technology supplier's reports on similar projects etc.)							
Obs.: Also to be confirmed during verification							
Project Participant Response:					Date:10/03/2008		
Date: 29 <sup>th</sup> February 2008							
As shown in Attachment 11 ( Ecoregen In-Vessel process technology, pages 6,8, 9 & 12) the proposed tunnel composting process collects all leachate and recycles it back to the process. This leachate is valuable for the process given its nutrient content and high microbial count.							
Acceptance and Close out by Lead Assessor:					Date:13/03/2008		
Information Provided: Abedon Attachment 11 - EcoRegen-Invessel Process Technology Information Verified: Abedon Attachment 11 - EcoRegen-Invessel Process Technology details the in-vessel composting technology and its benefits. It mentions that the system design ensures 'Zero' emissions and leachate						Verified Document Reference: EcoRegen-Invessel Process Technology.pdf	
Reasoning for not acceptance or acceptance and close out: PDD mentions that 60% of the pre-treated organic wastewater POME will be used through In-Vessel co-composting facility. The remaining 40% of the pre-treated POME will pass through an aerobic pond system to achieve a final discharge with a BOD and COD level meeting the regulatory requirement. Please provide evidence to support the argument that there would be no methane emissions from the discharge of this 40% pre-treated POME. NIR10 Open							
Project Participant Response:					Date: 29/03/2008		
Date: 29th March 2008: Due to the low volume of POME and low COD the remaining effluent will be treated in the aerobic lagoons under aerobic conditions and/or used for irrigation (see PDD pg2) (hence no methane will be produced The monitoring plant states that output COD will be measured and that aerobic conditions of the lagoons will be verified (the parameter is CODoutlet,total,y, see PDD pg45). (the parameter is CODoutlet,total,y, see PDD pg45).							
Acceptance and Close out by Lead Assessor:					Date:13/03/2008		



Information Provided: PDD Version 4 dated 29 <sup>th</sup> March 2008 (Revised) Information Verified: As stated in the PDD Version 4 dated 29 <sup>th</sup> March 2008, the output COD will be measured and that aerobic conditions of the lagoons will be verified (the parameter is CODoutlet,total,y, see PDD pg46).	Verified Document Reference: PDD Version 4 dated 29 <sup>th</sup> March 2008 (page 46)
Reasoning for not acceptance or acceptance and close out: OK, NIR #10 closed	

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	11	Type:	CAR	Issue :	Project Boundary	Ref.:	B.2.1
Lead Assessor Comment					Date: 25/02/2008		
<p>5. Additional transportation due to project activity – Gas- CO2- Not included Methodology says ‘Yes’ (to be included) Justification/explanation Emission from combustion of fossil fuel in transport vehicles. Not significant, excluded for simplification The PDD mentions in section B.6.3 page 39 that the PE CO2 from transportation is calculated as 26 tonnes, but it is proposed to consider these as ‘zero’ for reasons specified in the preceding section. This is not in accordance with the approved methodology and thus the clarification/deviation would need prior approval of the EB.</p>							
Project Participant Response:					Date: 29/02/2008		
<p>Date: 29<sup>th</sup> February 2008 PDD has been modified (pages 12 &amp; 43) to clarify that emissions from combustion of fossil fuel in handling and transportation vehicles have been considered.</p>							
Acceptance and Close out by Lead Assessor:					Date: 10/03/2008		
<p>Information Provided: PDD version 03 dated 08/03/2008 considered the project emissions and spread sheet also revised. Information Verified: The project emissions because of the transportation (PE<sub>CO2, trans,y</sub>) have been calculated on page 43 on the revised version 03 of PDD and the monitoring plan has also been revised for monitoring the numbers of vehicle trips on page 50 of the PDD.</p>					<p>Verified Document Reference: PDD version 03 dated 08/03/2008</p>		
<p>Reasoning for not acceptance or acceptance and close out: The project activity emissions due to the transportation of compost have been considered in the revised PDD version 03 dated 08/03/2008 and the spread sheet for emission reduction calculations has also been revised accordingly. After checking the revised PDD and spread sheet for calculations the CAR #11 was closed out.</p>							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	12	Type:	CAR	Issue :	Project Boundary	Ref.:	B.2.3
Lead Assessor Comment					Date: 25/02/2008		
Please provide more information on the spatial boundary of the project							
Why is the transport of bio-organic fertilizer outside the project boundary?							
Project Participant Response:					Date: DD/MM/YYYY		
Date: 29 <sup>th</sup> February 2008							
Please see pg 11 of the updated PDD which clarifies the project's spatial boundary. Please note that the project boundary diagram on pg 11 has also been updated to include the lagoons.							
Bio-organic fertilizers are used in the plantations to feed the palm trees. Plantation land is outside the project boundaries given that there are no baseline emissions arising from the plantation.							
Acceptance and Close out by Lead Assessor:					Date: 10/03/2008		



<p>Information Provided: The end use of compost at plantation land is out side the project boundary and whereas the emissions due to transportation of compost to the plantation land has been considered as project emissions in the project activity.</p> <p>Information Verified: The PDD version 03 dated 08/03/2008 (page 50, 43) included the project emissions due to the transportation of compost from project site to the plantation land.</p>	<p>Verified Document Reference: Revised PDD version 03 dated 08/03/2008</p>
<p>Reasoning for not acceptance or acceptance and close out: The project boundary defined in PDD version 03 is in line with the applicable methodology AM0039 as the end use of compost at plantation site is kept out side the project boundary but the project activity emissions due to transportation of compost have been included in the revised PDD version 03. The CAR #12 was closed out.</p>	

Date:	25/02/2008			Raised by:		Siddharth Yadav			
No.:	13	Type:	CAR	Issue :	Identification of Baselieline Scenario			Ref.:	B.3.1
Lead Assessor Comment						Date: 25/02/2008			
<p>The tool for demonstration and assessment of additionality (version 4) should be used as per AM39 ver2</p> <p>The options identified for bioorganic solid waste are in accordance with AM39 sec.2 page 4/22</p> <p>For organic wastewater, all the treatment options as provided in table 6.3, vol 5, Chapter 6 IPCC 2006 have not been listed/discussed</p>									
Project Participant Response:						Date: 29/02/2008			
<p>Date: 29<sup>th</sup> February</p> <p>The PDD has been updated and now uses the tool for demonstration and assessment of additionality (v4) as specified.</p> <p>Other treatment options for waste water as provided in Ch6 IPCC have also been added on pg13 and are discussed in the following paragraphs on pg 13-17</p>									
Acceptance and Close out by Lead Assessor:						Date: 10/03/2008			
<p>Information Provided:</p> <p>The tool for demonstration of additionality version 04 has been applied correctly in the revised version 03 of PDD. The waste water treatment options as provided in ch6 IPCC have now been discussed in the PDD version 03.</p> <p>Information Verified:</p> <p>The revised PDD version 03 was checked for the correct applicability of tool of additionality version 04 and for using the chapter 6 of IPCC for discussing the available options for waste water treatment.</p>						<p>Verified Document Reference:</p> <p>PDD version 03 dated 08/03/08, page 13-17.</p>			
<p>Reasoning for not acceptance or acceptance and close out:</p> <p>The revised PDD version 03 has correctly applied the tool for demonstrate additionality version 04 and IPCC options for treatment of waste water in the different sections (page 13-17) of the PDD version 03. SO CAR #13 was closed out. .</p>									

Date:				Raised by:	Siddharth Yadav		
No.:	14a, 14b 14c	Type:	CAR	Issue:	Identification of Baseline Scenario	Ref.:	B.3.4, B.3.6, B.4.1
Lead Assessor Comment						Date: 25/02/2008	
<p>Solid Waste (14a): To be checked</p> <ol style="list-style-type: none"> <li>1. Profitability of palm oil mills, incentives to change the current practice of waste disposal</li> <li>2. Level of penetration of the technology comprising solid and liquid waste streams (as used in this project) and risks involved</li> <li>3. Prevailing business practice</li> <li>4. check whether Abedon plantations use EFB's for mulching (currently and also in the past)</li> <li>5. evidence that EFB has limited fertilizer value, removes nitrogen from the soil</li> <li>6. historical use of biomass use in Boilers (in Abedon mill and other factories)</li> <li>7. is energy generation from EFB not possible? (ref option 3-incineration and power generation). Also, check this in the light of the statement that Abedon is already using mesocarp fibre and shells for energy generation</li> <li>8. check the quantity of waste dumped, waste composition, location, area, depth, spread, mode of transportation, costs involved in dumping the waste at the existing landfill site</li> <li>9. possibility/potential of electricity generation, transfer, capture and use of landfill gas</li> <li>10. why has landfill gas flare not been considered as an option?</li> </ol> <p>Liquid waste (14b)</p> <ol style="list-style-type: none"> <li>1. Is waste treatment system in an open pond of depth (5m) a current practice?</li> <li>2. allowable discharge levels of 5000mg/l for land application and 100g/l for water way discharge (regulatory)</li> <li>3. Any recent stricter regulatory requirement forcing the palm oil mill owners to adhere to the permissible discharge levels</li> <li>4. anaerobic lagoons with or w/o methane recovery and flaring – agreed that there is no market for electricity generation but methane recovery and flare is an option!! Why has this not been further analyzed??</li> </ol> <p>(14c)</p> <p>The summary (section B4) mentions that the most plausible baseline scenario is the continuation of the use of anaerobic lagoons and storage tanks throughout the crediting period- to be rechecked in the light of above observations</p>							
Project Participant Response:						Date: 29/02/2008	

Date: 29<sup>th</sup> February 2008

With reference to the numbers above, please see:

1. Attachments 06A, 06B and 06C which provide an economic analysis overview of the palm oil industry and contain information that justifies the utilization of the 15% IRR investment benchmark. CDM is the major incentive to change the current practice of waste disposal, as shown in Attachment 06C.
2. Attachment 7A which contains a letter from ENSEARCH (Environmental Management and Research Association of Malaysia) acknowledging that the proposed technology will in fact be an innovation for the palm oil industry.
3. Please see also Attachment 7B which contains a letter from the East Malaysian planters association confirming that the technology is innovative and not the prevailing business practice.
4. Attachment 26 which contains the baseline declaration from Abedon mill stating that they do not use EFBs for mulching.
5. Attachments 8A and 8B which detail the problems with mulching and the limited fertilizer value from applying EFBs straight to the soil.
6. Attachment 06A pgs 8 and 20 which show that non-ECB biomass is commonly used as a fuel by palm oil mills in Malaysia
7. Attachment 06A which details the numerous barriers to use of ECB as a renewable fuel and that have prevented its use across the Malaysian palm oil industry.
8. Checked during site visit
9. Attachment 6C pg23 which shows that without CDM, POME biogas to energy projects are not economically viable. PDD has been modified on pages 15 & 16 to clarify this issue. A biomass thermal energy plant (Hartalega Sdn.Bhd, Malaysia) has been registered recently (Dec 07) under CDM that confirms the baseline would not be electricity generation or use of landfill gas without CDM support.
10. PDD has been modified on pages 15 to clarify this issue

Liquid waste (14b)

11. Checked during visit
12. Attachment 25 contains a copy of the Abedon operating licence issued after verification by the relevant authorities that the mill is compliant with relevant regulations. The last inspection took place on 28<sup>th</sup> of January 2008
13. There have not been not more recent regulations. This can be verified at [www.DOE.gov.my](http://www.DOE.gov.my)
14. Please see pg16 of the updated PDD where this issue has been clarified

(14c)

Checked during site visit. Please also note that the baseline scenario at Abedon is the continued use of anaerobic lagoons – there are no storage tanks in operation. This has now been clarified in the PDD as well.

Acceptance and Close out by Lead Assessor:

Date: 13/03/2008

<p>Information Provided:</p> <ol style="list-style-type: none"> <li>1. Abedon Attachment 06A. DANIDA Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel</li> <li>2. Abedon Attachment 06B. Economic analysis of palm oil activity (pages 8&amp;9 15% IRR)</li> <li>3. Abedon Attachment 06C. Malaysia waste CDM report - IRR benchmark 15%</li> <li>4. Abedon Attachment 7A - Ensearch Letter support innovative technology</li> <li>5. Abedon Attachment 7B – East Malaysian Planter's association</li> <li>6. Abedon Attachment 26 - Baseline Declaration from Abedon Mill 20070715</li> <li>7. Abedon Attachment 8A - Problems associated with Rhino beetles</li> <li>8. Abedon Attachment 8B Problems associated with mulching</li> <li>9. Abedon Attachment 06A. DANIDA Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel</li> <li>10. Abedon Attachment 06A. DANIDA Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel</li> <li>11. Abedon Attachment 06C. Malaysia waste CDM report - IRR benchmark 15%</li> <li>12. Abedon Attachment 06C. Malaysia waste CDM report - IRR benchmark 15%</li> <li>13. PDD version 3 dated 8<sup>th</sup> March 2008</li> <li>14. On site photographs</li> <li>15. palm oil mill operating licence including waste treatment process (no. 001189 valid from 1<sup>st</sup> July 2007 to 30 th June 2008)</li> <li>16. www.DOE.gov.my</li> <li>17. PDD version 3 dated 8<sup>th</sup> March 2008</li> </ol> <p>Information Verified: (Explain how the information was verified)</p>	<p>Verified Document Reference: (Document reference name and number/date must comply with reference list in AR6)</p>
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Reasoning for not acceptance or acceptance and close out:

CAR #14a

1. The attachment 6 A is a paper from consultants Eco-Ideal Consulting Sdn. Bhd., Mensilin Holdings Sdn Bhd, the document mentions that EFB is currently a waste problem. This document however does not provide enough information to demonstrate that there are no incentives to change the current practice of waste disposal in Palm oil sector in Malaysia (besides CDM). Please provide further evidence to demonstrate that there are no direct quantifiable incentives for EFB utilisation. CAR OPEN

2. Ensearch Letter (70/84 WP dated 01 June 2007) mentions about the new and innovative technology, but there is no mention of the risks involved with the use of the technology in the palm oil industry in Malaysia CAR OPEN

3. Letter from East Malaysia Planter's association dated 7<sup>th</sup> June 2007 substantiates that the invessel process technology is not a common practice in Sabah region. The representative of the technology providers (Mark Fini, Engineer, Ecoregion Nexus, Australia) was interviewed during the site visit, and he confirmed that the the project participant Inno Integrasi are the first ones to use invessel process technology that converts palm oil mill wastes into bioorganic fertilizer in Malaysia. OK

4. Attachment 26 is the Abedon' mill's pre-qualification data sheet, this mentions clearly that mulching is not practiced at Abedon mill, this document is however an unsigned copy and there is no date on the document CAR OPEN

5. Please provide specific reference to the text which details that EFB has limited fertilizer value, removes nitrogen from the soil. Abedon Attachment 8A is a paper titled 'Immigration and activity of Oryctes Rhinoceros within a small oil plam replanting area' please specifically mention the section providing above information

Abedon Attachment 8B is a paper from 'OIL PALM INDUSTRY ECONOMIC JOURNAL (VOL. 3(2)/2003)' titled Empty Fruit Bunches Evaluation: Mulch in Plantation vs. Fuel for Electricity Generation it mentions clearly that apart from providing nutrients to the palms through slow release process, EFB as an organic mulch is known to improve the structure and moisture retention ability of the soil as well as stimulate root growth for better exploitation of nutrients and water. Its mulching effect would minimize leaching and soil erosion problems especially on steep lands under intense rainfall – please clarify. CAR OPEN

6. Abedon Attachment 06A. DANIDA Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel mentions that use of EFB for energy generation is not common in Malaysia. It was also checked on site that Abedon Plam oil mill uses only mesocarp fibre and palm kernel shell (and not EFB) as a fuel for boilers.

7. Abedon Attachment 06A. DANIDA Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel mentions the numerous barriers to use of EFB as a renewable fuel and that have prevented its use across the Malaysian palm oil industry

8. Please provide specific figures on the quantity of waste dumped, waste composition, area, depth, spread, mode of transportation, costs involved in dumping the waste at the existing landfill site CAR OPEN

9. Abedon Attachment 06C. Malaysia waste CDM report - IRR benchmark 15% is a Powerpoint presentation, the credibility of the evidence cannot be assured, please provide a credible source.

Similarly, barriers/additionality of an earlier registered CDM project cannot be accepted as such in the absence of the sources of evidences used to substantiate the arguments. Please provide specific evidences( quoting source) in the context of the PDD. CAR OPEN

10. PDD has been rephrased to include discussion on 'Waste disposed on a landfill where landfill gas is captured and flared, however this is a option to be considered further because CER revenues can be earned from the landfill gas flare. CAR OPEN

#### **Liquid waste (14b)**

11. It was checked that the depth of lagoons is more than 5 metres (refer photograph)

12 palm oil mill operating licence including waste treatment process, page clause 2, subclause 1 mentions that the compliance of the mill with the standards.

13. Checked that there are no recent stricter regulatory requirement forcing the palm oil mill owners to adhere to the permissible discharge levels

14. PDD has been rephrased to include discussion on 'Anaerobic lagoons or storage tanks with methane recovery and flaring' however this is a option to be considered further because of potential CER revenues.

(14c) The discussion on barriers PDD needs to be rephrased to reflect credibility of barriers CAR OPEN

Project Participant Response:	Date: 29/03/2008
<p>Date: 29<sup>th</sup> March 2008 CAR #14a</p> <p>1. Incentives to change the current practice of waste disposal in Palm oil sector in Malaysia – please see the attached letter from the project developers Climate Change Capital, dated 29<sup>th</sup> March 2008, stating that as project developers we are not receiving any other incentives for the project other than CDM</p> <p>2. Ensearch Letter - The risks are those involved in using a new technology that the mills have not used before. We believe that the technology will work but there is always uncertainty associated to change.</p> <p>4. Mulching at Abedon Mill – please see attachment entitled “Abedon Waste Disposal Letter”, letter dated 26<sup>th</sup> March 2008, from Abedon Oil Mill, which states that no mulching is practiced.</p> <p>5. Clarification on EFB as organic mulch: As discussed during the site visit, mulching may have some long term benefits for the plantations. The comparison to be made is the benefits from mulching vs. the cost of doing so. Attachment 8B mentions some benefits from mulching but also says: “However, there are innumerable problems associated with the EFB application as a mulch in the estates. They are:</p> <ul style="list-style-type: none"> <li>• distance of the field from the mill;</li> <li>• unfavourable field conditions like hilly areas, steep terrain, soft ground etc., which hinder deployment of vehicles;</li> <li>• heavy traffic causing damage to field roads and harvesting paths requiring frequent upgrading which can be costly;</li> <li>• field inaccessibility to light vehicles during rainy months;</li> <li>• mulching field close to worker’s quarters can encourage breeding of flies. When placed in heaps at road sides besides causing breeding of rhinoceros beetle, there is leaching of potassium returned from the heaps;</li> <li>• insufficient vehicles during peak cropping months due to vehicle breakdowns causes total neglect of EFB evacuation as the vehicles are given priority for FFB evacuation from the field; and</li> <li>• in the case of government land schemes, the settlers are not given the benefit to mulch their field.”</li> </ul> <p>When transporting EFB’s you are transporting mostly water (please note that composting produces a 75% volume reduction due to CO2 and Water evaporation) which adds to the cost and makes it very difficult to handle. In addition, as discussed with you together with Dr. David Stafford, mulching initially reduces Nitrogen levels from the land which has an initial negative effect on the yield of the plantation.</p> <p>8. Please provide specific figures on the quantity of waste dumped, waste composition, area, depth, spread, mode of transportation, costs involved in dumping the waste at the existing landfill site</p> <p>Please see the attached Mill Prequalification Sheet which has now been signed and dated by the Abedon mill. In addition, please note that the cost involved in dumping the waste at the existing land fill site is negligible. The only cost involved is the cost of fuel for transport of the waste. As per the PDD, 9,660 truck trips are made per year, each of 6km round trip. This equates to a total distance travelled of 57,960km per year, which requires 28,980 litres of fuel per year (see PDD for assumptions). At a cost of MYR 1.584 / litre of fuel (<a href="http://www.neac.gov.my">http://www.neac.gov.my</a>), the total cost of waste disposal at the landfill per year is negligible, at only MYR 45,904 (c. €9,000) per year.</p> <p>9. Financial benchmark - Please review all 3 documents providing evidence of this figure (Attachments 06A, 06B and 06C). While similar CDM projects may not be evidence they should serve as guidance of what is recognized to be baseline. Please note that without CDM the return of the project (3.8%) which is lower than the yield offered by government bonds hence a much better risk/reward option.</p> <p>Attachment 6A is an independent report from a bilateral institution and clearly references the 15% benchmark. Attachment 6B is from a published journal.</p> <p>10. ‘Waste disposed on a landfill where landfill gas is captured and flared.– Please see the updated sections B4 and B5 of the revised PDD</p> <p>CAR #14b. ‘Anaerobic lagoons or storage tanks with methane recovery and flaring’ - Please see the updated sections B4 and B5 of the revised PDD</p> <p>CAR #14c.</p> <p>The discussion on barriers PDD needs to be rephrased to reflect credibility of barriers - Please see the updated sections B4 and B5 of the revised PDD</p>	
Acceptance and Close out by Lead Assessor:	Date: 03/04/2008



<p>Information Provided:</p> <p>CAR #14a</p> <ol style="list-style-type: none"> <li>1. Project Proponent's letter dated 29<sup>th</sup> March 2008, Climate Change Capital, signed by Mr. Javier Rojo</li> <li>2. Ensearch Letter (70/84 WP dated 01 June 2007)</li> <li>4. 'Abedon Waste Disposal Letter', letter dated 26<sup>th</sup> March 2008 from Abedon Oil Mill Sdn.</li> <li>5. Attachment 8A Norman Kamarudin, N. , Bashiri, W, 'Immigration and activity of Oryctes Rhinoceros within a small oil palm replanting area' Journal of Oil Palm Research Vol. 16 No. 2, December 2004, p. 64-77 paper titled ' - Discussion with Dr. Dr. David Stafford, Expert</li> <li>8. Abedon Attachment 26 B - Signed Baseline Declaration from Abedon</li> <li>9. Abedon Attachment 06A. DANIDA Barrier Analysis for the Supply Chain of Palm Oil Processing Biomass (Empty Fruit Bunch) as Renewable Fuel</li> <li>10, 14a , 14b, 14c - PDD Version 4 dated 29<sup>th</sup> March 2008</li> </ol> <p>Information Verified:</p> <ol style="list-style-type: none"> <li>1. Letter states that Inno Abedon scheme will not receive any incentives to utilise the empty fruit bunches. As stated in the PDD, these are revenues generated from CDM and from the production of organic fertilizer only.</li> <li>2. Ensearch letter confirms that In vassel Composting technology is innovative and new in the palm oil mill sector in Malaysia. It was also confirmed through an interview with the technology supplier (Mr. Mark Fini ) on 07 March 2008 that the technology has been widely used in Europe and Australia in other sectors (e.g Landfill waste), but it is the first time that it is being used in Palm oil mill sector (EFB waste), hence there is a risk During the site visit it was seen that a research centre was established on project site (prototype) for conducting tests regarding composition of compost</li> <li>4. Signed and dated letter received from Abedon Oil Mill Sdn. The letter states that the EFB's are disposed to a single landfill site</li> <li>5. During the site visits, it was found that Mulching is not an option to the project developer because the following conditions are applicable to the project: unfavourable field conditions- undulated ground, steep terrain, soft ground etc., which hinder deployment of vehicles; heavy traffic causing damage to field roads and harvesting paths requiring frequent upgrading ; field inaccessibility to light vehicles during rainy months; Improper management is likely to encourage breeding of flies, breeding of rhinoceros beetle, insufficient vehicles during peak cropping months due to vehicle breakdowns causes total neglect of EFB evacuation as the vehicles are given priority for FFB evacuation from the field Dr. David Safford, Expert confirmed that there can be leaching of potassium returned from the heaps and mulching initially reduces Nitrogen levels from the land which has an initial negative effect on the yield of the plantation</li> <li>8. Quantity of waste dumped, waste composition, area, depth, spread, mode of transportation, costs involved in dumping the waste at the existing landfill site were checked</li> <li>9. Attachment 6A is an independent report, The three documents refer to the same benchmark, this can be accepted.</li> <li>10. The baseline options 'Waste disposed on a landfill where landfill gas is captured and flared' and Anaerobic lagoons or storage tanks with methane recovery and flaring' have been considered in PDD version 4 dated 29<sup>th</sup> March 2008 14c- The credible alternatives remaining which do not face any of the barriers have been discussed correctly in Step 3b of the PDD Version 4 dated 29 March 2008 CAR 14 a, 14b and 14c closed</li> </ol>	<p>Verified Document Reference:</p> <p>Letter dated 29<sup>th</sup> March 2008, Climate Change Capital, signed by Mr. Javier Rojo</p>
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Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	15	Type:	CAR	Issue :	Additionality	Ref.:	B.4.1
Lead Assessor Comment					Date: 25/02/2008		
<p>PDD should use the approach given in the 'Approved baseline and monitoring methodology AM0039' Version 02 and 'Tool for the demonstration and assessment of additionality' Version 04 as and when required. This has not been done.</p> <p>For example, Step 2 of the AM0039 (pg.4/22) of the procedure for the selection of the baseline scenario has been called Step 1.b in the PDD (pg.13).</p> <p>Step 3 of the AM 0039 (pg. 5/22) has been called Step 2 in the PDD (pg.13). Furthermore, the approach used to examine the prohibitive barriers does not follow Step 3 of the latest version of the 'Tool for assessment of additionality' Version4 as requested by the AM0039. The PDD actually sites Step 2 of the 'Combined Tool to demonstrate the baseline scenarios and demonstrate additionality'.</p> <p>The correct procedures should be followed throughout sections B.4 and B.5 of the PDD (please apply that to the investment analysis too).</p>							
Project Participant Response:					Date:		
<p>Date: 29<sup>th</sup> February 2008</p> <p>Pgs 13-19 of the PDD have been updated to be consistent with the steps outlined in the 'Approved baseline and monitoring methodology AM0039' Version 02 and 'Tool for the demonstration and assessment of additionality' Version 04.</p>							
Acceptance and Close out by Lead Assessor:					Date:13/03/2008		
<p>Information Provided:</p> <p>Information Verified:</p> <ol style="list-style-type: none"> <li>1. <a href="http://www.bronzeoak.com/paper2.htm">http://www.bronzeoak.com/paper2.htm</a></li> <li>2. <a href="http://www.e-msss.com/mjss/abs04.htm">http://www.e-msss.com/mjss/abs04.htm</a></li> </ol>							



Reasoning for not acceptance or acceptance and close out:	
Other alternatives considered:	
<p>Mulching: Reference above mentions that empty fruit bunches are a good sources of organic matter and plant nutrients. It has been calculated that EFB mulching at 27 tonnes per hectare is equivalent to the current fertiliser practice involving inorganic fertilisers. It is claimed that using the EFB as mulch has several advantages for the nutritional sustainability of the plantation. Mulch benefits crop production because it releases nutrients slowly to the soil via microorganisms therefore effectively recycling the plant nutrients. It improves the soil structure due to better aeration, increases the water holding capacity and increases the soil pH. It is claimed that this also increases the FFB yield over and above the increase due solely to the fertiliser value.</p> <p>Other websites also indicate that the soil chemical characteristics like pH, organic C and exchangeable K significantly improve with EFB application, making EFB a suitable ameliorant in improving soil quality for sustainable oil palm production. Please clarify.</p> <p><u>Waste disposed on a landfill where landfill gas is captured and flared:</u></p> <p>PDD Version 3 dated 8<sup>th</sup> March 2008 mentions that landfill gas capture and flaring of gas is not practiced, as it would require the mill to purchase additional equipment and infrastructure, as well as change their existing practice without gaining any benefit from such an action (barrier five).</p> <p>In the light of the above arguments, the option of waste disposal where landfill gas is captured and flared would need investment, but there are no barriers to its implementation. This option should be further analysed</p> <p><u>Waste disposed on a landfill where landfill gas is captured and electricity generated:</u></p> <p>PDD version 3 dated 13<sup>th</sup> March 2008 mentions that there is no incentive for the mills to capture the landfill gas and use it to generate electricity for use on-site, as the Abedon mill already has excess power capacity from in-mill boilers using mesocarp fibres and shells as fuels. How far are the electricity distribution lines/infrastructure from the site?</p> <p><u>Anaerobic lagoons or storage tanks with methane recovery and flaring</u></p> <p>PDD Version 3 dated 13<sup>th</sup> March 2008 mentions that capture and flaring of gas of gas from anaerobic lagoons is not practiced, as it would require the mill to purchase additional equipment and infrastructure, as well as change their existing practice without gaining any benefit from such an action (barrier five). this is a option to be considered further because CER revenues can be earned from the landfill gas flare.</p> <p>CAR OPEN</p> <p><b>Waste water</b></p> <p><u>Anaerobic lagoons or storage tanks with methane recovery and utilization for electricity or heat generation:</u> What is the infrastructure barrier? How far are the electricity distribution lines/infrastructure from the site?</p> <p><u>Building of a new anaerobic lagoon or open storage tanks with methane recovery and flaring:</u> this would need investment, but there are no barriers to its implementation. This option should be further analysed</p> <p><u>Anaerobic reactor:</u> this would need investment, but there are no barriers to its implementation. This option should be further analysed</p> <p>CAR OPEN</p>	
Project Participant Response:	Date: 29/03/2008

Date: 29<sup>th</sup> March 2008

Mulching: Clarification on EFB as organic mulch: As discussed during the site visit, mulching may have some long term benefits for the plantations. The comparison to be made is the benefits from mulching vs. the cost of doing so. Attachment 8B mentions some benefits from mulching but also says: "However, there are innumerable problems associated with the EFB application as a mulch in the estates. They are:

- distance of the field from the mill;
- unfavourable field conditions like hilly areas, steep terrain, soft ground etc., which hinder deployment of vehicles;
- heavy traffic causing damage to field roads and harvesting paths requiring frequent upgrading which can be costly;
- field inaccessibility to light vehicles during rainy months;
- mulching field close to worker's quarters can encourage breeding of flies. When placed in heaps at road sides besides causing breeding of rhinoceros beetle, there is leaching of potassium returned from the heaps;
- insufficient vehicles during peak cropping months due to vehicle breakdowns causes total neglect of EFB evacuation as the vehicles are given priority for FFB evacuation from the field; and
- in the case of government land schemes, the settlers are not given the benefit to mulch their field."

When transporting EFB's you are transporting mostly water (please note that composting produces a 75% volume reduction due to CO<sub>2</sub> and Water evaporation) which adds to the cost and makes it very difficult to handle. In addition, as discussed with you together with Dr. David Stafford, mulching initially reduces Nitrogen levels from the land which has an initial negative effect on the yield of the plantation.

Additionality Analysis on Various Alternatives:

Waste disposed on a landfill where landfill gas is captured and electricity generated;

Anaerobic lagoons or storage tanks with methane recovery and utilization for electricity or heat generation;

As you had the opportunity to check there is an energy surplus in the mill hence there is no value in generating more electricity. The recently registered DNV report "Biomass thermal energy plant –

- Hartalega Sdn Bhd, Malaysia", 2007 (attached) states: "Palm oil mills utilize mainly fibers and shells for their own energy needs (steam and electricity production). Based on the average energy balance of a mill, the internal consumption of shells is estimated to 51.4% of the total resources 4 see points 2.2.5.3 Alternate use and 2.2.6.1: Present fuel oil in palm oil mills. The remaining quantity (48.6%) is sold to the industry as boiler fuel (3.6%) or used for other industrial applications (< 20%), the rest being unused

Waste disposed on a landfill where landfill gas is captured and flared;

Anaerobic lagoons or storage tanks with methane recovery and flaring

Building of a new anaerobic lagoon or open storage tanks with methane recovery and flaring;

Anaerobic reactor;

- Please see the updated sections B4 and B5 of the revised PDD

Acceptance and Close out by Lead Assessor:

Date: 18/04/2008

Reasoning for not acceptance or acceptance and close	
OK Mulching is not an option because of site specific conditions as described above, Closed	
Additionality analysis for other alternatives:	
AM39 version 2 step 4, page 5/22 mentions- 'Compare the IRR of the different alternatives and select the most cost-effective alternative (i.e. with the highest IRR) as the baseline scenario. Include a sensitivity analysis applying Sub-step 2d of the latest version of the "Tool for demonstration assessment and of additionality" agreed by the CDM Executive Board. The investment analysis provides a valid argument that the most cost-effective scenario is the baseline scenario if it consistently supports (for a realistic range of assumptions) this conclusion. In case the sensitivity analysis is not fully conclusive, select the baseline scenario alternative with least emissions among the alternatives that are the most economically attractive according to the investment analysis and the sensitivity analysis', however the PDD is still missing the discussion in accordance with the text above for the selected alternatives.	
CAR15 OPEN	
Project Participant Response:	Date: 26/04/2008
Date: 26 <sup>th</sup> April 2008	
The alternatives remaining, other than continuation of current practice, which do not face any of the barriers are:	
<ol style="list-style-type: none"> <li>1. Solid waste - Waste disposed on a landfill where landfill gas is captured and flared;</li> <li>2. Waste water - Anaerobic reactor</li> <li>3. Waste water - Anaerobic lagoons or storage tanks with methane recovery and flaring</li> <li>4. Waste water - Building of a new anaerobic lagoon or open storage tanks without methane recovery and flaring;</li> <li>5. Waste water - Building of a new anaerobic lagoon or open storage tanks with methane recovery and flaring;</li> </ol>	
As discussed in the PDD, none of these alternatives generate revenue. Please note that it is impossible to conduct an IRR analysis of activities which do not generate revenue (IRR calculations require both positive and negative values, by definition) – so in this case, the only financial analysis that can be conducted is a simple cost analysis (this approach is also advocated by the Additionality Tool for activities that do not generate revenue).	
In terms of methane recovery, with or without flaring (alternatives 1, 2, 3, 5 above), please note that no treatment system of this type with methane recovery followed by flaring is known to be in existence among the palm oil mills in Malaysia (according to PDD for registered CDM project: "Methane recovery and utilisation project at TSH Kunak Oil Palm Mill, Sabah, Malaysia". <a href="http://cdm.unfccc.int/UserManagement/FileStorage/FGQTOLNHSL7NBARYG8G7Z4IPX7GC13">http://cdm.unfccc.int/UserManagement/FileStorage/FGQTOLNHSL7NBARYG8G7Z4IPX7GC13</a> ) This same project also estimates that even for a biogas reactor alone, the cost is still MYR 8 million.	
In addition, according to the PDD for validated CDM project "Methane Recovery in wastewater treatment project AMA07-W-01, Perak, Malaysia" (Pg 12) ( <a href="http://cdm.unfccc.int/UserManagement/FileStorage/P1UJS9KPOHAA9VUZSNMV1817AIGM3J">http://cdm.unfccc.int/UserManagement/FileStorage/P1UJS9KPOHAA9VUZSNMV1817AIGM3J</a> ) such a treatment approach (anaerobic reactor for methane recovery) is "one of the most advanced systems in the world. In only a few countries have producers implemented such technology on a widespread basis because of high associated materials and ongoing maintenance costs compared to other types of systems. Though costs vary according to required lagoon size and other factors, initial costs to install an anaerobic digester system can run in the tens of thousands of US dollars, while total system costs can exceed \$1 million."	
The "Methane Recovery from Animal Manures The Current Opportunities Casebook" ( <a href="http://www.mrec.org/pubs/25145.pdf">http://www.mrec.org/pubs/25145.pdf</a> ) provides further detail on the cost of these systems, and shows that the costs to install an anaerobic digester system range between the tens of thousands of dollars up to over \$1 million. Please see sections 3 and 4 of the report for costing details)	
With regards to Alternative 4, the cost of building a new anaerobic lagoon without methane recovery and flaring is unnecessary given that the mill is already meeting all its regulatory obligations with its existing lagoons and would not need to build an additional one.	
Acceptance and Close out by Lead Assessor:	Date: 30/04/2008

Reasoning for not acceptance or acceptance and close
OK Mulching is not an option because of site specific conditions as described above, Closed
Additionality analysis for other alternatives:
The arguments from the project proponent regarding the comparison of IRR for other alternatives were accepted given the fact that these are not realistic in the specific context EFB waste treatment of palm oil mill. Hence CAR #15 was closed.

Date:	25/02/2008		Raised by:	Siddharth Yadav	
No.:	16	Type:	NIR	Issue:	Baseline Methodology Application
Lead Assessor Comment					Date: 25/02/2008
<b>Wastewater in open storage systems (BE<sub>CH4, WW, Y</sub>:</b>					
Equation 3 AM39 has not been used as the residence time of waste water in the lagoons is more than 30 days (tbc./evidence on site pls, refer to B.1.3. above)					
Gather evidence on the date of construction of existing lagoons/newly added units					
Page 20, please provide weblink/evidence for the monthly average temperature of the area					
Check $f_{t\text{ monthly}}$ value (does not exceed unity)					
A value of 0.823 has been used in the cell F72 of spreadsheet- 'Abedon Annexure-I CER calculation model', the cell does not contain the active cell formula including references.					
Spreadsheet- 'Abedon Annexure-I CER calculation model' - Pome methane correction factor mentions 'additional mills, 0,1,2,3' please provide detailed calculations on each mill ,the actual situation onsite needs to be checked					
Please provide calculation details (monthly), equation 2. page 6/22 AM39 says calculation on a monthly basis (also specified in section B.6.1 a).					
The methodology must be applied exactly as defined. The PDD should clearly state which equations will be used in calculating baseline emission. Check that all the required steps/calculations have been followed					
Project Participant Response:					Date :29/02/2008
Date: 29 <sup>th</sup> February 2008:					
Please see pg 36 of PDD which includes monthly calculation details.					
0.823 refers to $F_{t\text{,monthly}}$ average as per pg36 of the PDD. Please see updated Abedon Attachment 1 which includes increased detail behind the calculation of cell F72 and also of cells F61 (cod mg/l) and F81 (project emissions).					
Annex 3 of the PDD includes the weblink to the monthly average temperature and precipitation data.					
Attachment 27 provides historical operation data from 2005 to 2007					
Please note that there are also no additional mills – this was an error on the spreadsheet. Abedon Attachment 1, and has now been amended.					
Acceptance and Close out by Lead Assessor:					Date: 10/03/2008

<p>Information Provided:</p> <p>Site drawing number KP/9306/POM/SL/01, SGT/APOM/ML/01: June 2007 was provided for the proof of residence time. The web link (<a href="http://weather.msn.com/monthly_averages.aspx?&amp;wealocations=wc%3aMYXX0030&amp;setunit=C">http://weather.msn.com/monthly_averages.aspx?&amp;wealocations=wc%3aMYXX0030&amp;setunit=C</a>) was given as a proof of monthly average temperature. The source of the figure used for Ft monthly (0.823) is now clearly defined on page 36 of the revised PDD version 03 and it is calculated in line with baseline methodology AMS0039. Spread sheet mentioning additional mills 0,1,2,3 was the typo error and has been corrected now.</p> <p>Information Verified:</p> <p>It was checked from the site lay out plan (drawing number KP/9306/POM/SL/01, SGT/APOM/ML/01: June 2007) that the resident time of waste water is more than 30 days and it was also checked from the name plate fixed over the anaerobic pond (on site snaps taken by local assessor). The monthly average temperature of the site area was checked from the web link; <a href="http://weather.msn.com/monthly_averages.aspx?&amp;wealocations=wc%3aMYXX0030&amp;setunit=C">http://weather.msn.com/monthly_averages.aspx?&amp;wealocations=wc%3aMYXX0030&amp;setunit=C</a> lastly visited on 08/03/08 and the monthly average data is mentioned as Annex 3 in PDD and shows that the temperature is always higher than 10<sup>0</sup> C in the area. The source of the figure used for Ft monthly (0.823) is now clearly defined on page 36 of the revised PDD version 03 and it is calculated in line with baseline methodology AMS0039. Spread sheet mentioning additional mills 0,1,2,3 was the typo error and has been corrected now. So NIR #16 was closed out.</p>	<p>Verified Document Reference: Drawing number: KP/9306/POM/SL/01, SGT/APOM/ML/01 dated June 2007 Web link for temperature (average)</p>
<p>Reasoning for not acceptance or acceptance and close out: The drawing of waste water plant shows that the resident time for water is more than 30 days. The temperature of the region is always more than 10 degree. The source of the figure has been corrected in the revised PDD so NIR #16 was closed out.</p>	

Date:	28/03/2008			Raised by:		Kaviraj Pradhan			
No.:	17	Type:	NIR	Issue :	Application of Baseline Methodology			Ref.:	B.5.1
Lead Assessor Comment						Date: 25/02/2008			
<b>Bio organic solid waste</b>									
<p>PDD mentions that only EFB is used as a waste stream, but sludge and boiler ashes are included as well, the impact of mixing sludge and boiler ashes is not clear</p> <p>Please check on site the composition, source and quantity of sludge and boiler ashes</p> <p>Check regulations regarding capture/destruction or any other regulatory/ contractual regulations, for safety/odor concerns</p> <p>The formulae for calculation of emissions from organic wastewater , fossil fuels for meeting energy requirements/grid electricity are listed correctly (application checked later)</p>									
Project Participant Response:						Date: 28/02/2008			
<p>Attachment 22, page 29 which details Malaysian environmental laws prohibiting uncontrolled burning.</p> <p>Attachment 21, table 2.3, page 38 which details the legal requirements in Malaysia for waste water treatment</p>									
Acceptance and Close out by Lead Assessor:						Date: 12/03/2008			

<p><b>Information Provided:</b> The sludge and boiler ashes will be mixed in the compost to improve the nutrient quality of the compost and this will not make any effect on the GHG emissions of the project activity. The environment compliance of the industry is already being fulfilled and the consent to operate certificates issued by Malaysian Government has been provided.</p> <p><b>Information Verified:</b> The regulatory compliance set for POM has been checked from the provided documents and found that POM is fulfilling the legal requirements for waste water discharge.</p>	<p><b>Verified Document Reference:</b> Page 29 of Attachment 22 (Law of Malaysia Act 1974, Environmental Quality Act. 1974) Page 38 of Attachment 21 (Law of Malaysia 2003, Environmental Quality Act and Regulations Malaysia: MDC Publishers Sdn Bhd)</p>
<p><b>Reasoning for not acceptance or acceptance and close out:</b> The regulatory requirements for waste water has been checked from the provided documents (Attachemtn 21 and 22) and industry have the licence from Dept of Environment from Govt of Malaysia (Licence number 001189 dated 1 July 2007 – 30 Jun 2008 obtained by the Abedon mill) so raised NIR #17 was closed out.</p>	

Date:	28/02/2008			Raised by:	Kaviraj Pradhan		
No.:	18	Type:	NIR	Issue :	Application of Baseline Methodolog	Ref.:	B.5.5
Lead Assessor Comment					Date: 25/02/2008		
<p>The PDD omitted the section from the AM0039 (p.7 penultimate paragraph), with specifications relating to carry on calculations, without justification. Provide evidence of the residence time of the organic matter in the anaerobic lagoon or storage tank – residence time less than or more than one year</p> <p>The section of the AM0039, with specifications to do with newly built lagoons or tanks, was also omitted (last paragraph p.7 and first, penultimate and last paragraphs of p.8) without justification.</p> <p>Section of the AM0039, with specifications about the anaerobic degradation factor (paragraph 4 of page 9), has been omitted without explanation</p>							
Project Participant Response:					Date: 29/02/2008		
<p>Date: 29<sup>th</sup> February 2008</p> <p>Pgs 21-23 of the PDD have been modified to include the above referenced sections.</p> <p>The 4 anaerobic lagoons have a total capacity of 44,000 cbm (100x20x5.5m each) which is 3.6 times bigger than the required volume to provide 30 days of residence time for the 12,250cbm per month produced by the mill. As As shown in attachment 27 the mill has been already operating for several years.</p>							
Acceptance and Close out by Lead Assessor:					Date: 13/03/2008		
<p>Information Provided:</p> <p>The page 21 an 23 of PDD have been modified and provide the information about the residence time of organic matter in open lagoon system.</p> <p>Information Verified:</p> <p>Revised PDD version 03 provides the information about the dimensions and resident time of the open lagoon. The dimensions of anaerobic pond and open lagoon residence time was also verified from the drawing for treatment system taking snaps of the name plate fixed at every pond, during the site visit.</p>					<p>Verified Document Reference:</p> <p>Reference:</p> <p>Drawing number:</p> <p>KP/9306/POM/SL/01,</p> <p>SGT/APOM/ML/01</p>		
<p>Reasoning for not acceptance or acceptance and close out:</p> <p>The PDD version 03 has been revised in accordance with the page 7 of AM0039 for specifications for carry on calculations. The provided information for residence time of organic waste was verified from the drawing of treatment plant (open lagoon) and from the name plate of each pond (snaps taken). Hence NIR #18 was closed out.</p>							

Date:	25/02/2008				Raised by:	Siddharth Yadav		
No.:	19	Type:	NIR	Issue :	Ex ante data and parameters used		Ref.:	B.6.1
Lead Assessor Comment						Date: 25/02/2008		



Section B.6.2 of PDD:

The value applied for  $f_d$  is 70% as PDD says that the depth of the anaerobic pond in Abedon is greater than 5 meters, the depth of pond on-site to be checked

MCF of 01 has been used, PDD (pg.33) mentions Abedon landfill site is anaerobic managed with leveling of waste and some compaction and 7 m depth- tbc on site

Section B.6.3 of PDD:

AF factor applied is 0. Check that there is no local regulatory or contractual requirement for the collection and destruction of  $CH_4$ .

Check that Baseline Assumptions (page 32 onwards of the PDD) are correct. More specifically check that:

1. Raw POME concentrations (before the POME sludge decanter) = 50,000 mg/l tbc
  2. POME concentrations after anaerobic/aerobic treatment is <100 mg/l tbc
  3. Check in logs and calculations that the amount of FFB production in Abedon palm oil mil is on average 210,000 t/year.
  4. Check from the reference given in the PDD (Malaysian Department of Environment. Industrial Processes and the environment. Handbook number 3. Crude Palm Oil Industry) that the estimated average amount of POME generated from FFB is 0.70m<sup>3</sup>/t FFB.
- Ensure that the ex-ante parameters that are mentioned in the methodology are included. Verify that there is a correct understanding of all parameter required (e.g. generation vs. capacity).
5. Check on site for evidence of the monthly POME produced and whether it supports the information estimates and assumptions (including that the production of POME is constant throughout the year).
  6. Please also see NIR14 (information on monthly calculations of waste water emissions in order to comply with AM0039) in section B.5.1. of this Protocol .
  7. Please provide reference which cites that the average amount of EFB generated per tone of FFB is 23%
  8. Please check the reference mentioned in item 7 above.
  9. Please also see NIR14 (provide weblink/evidence for the monthly average temperature of the area).
  10. Please see NIR14 (for information requested on calculation of  $f_t$ , monthly).
  11. Check for evidence on parameters used on estimate of CO<sub>2</sub> emissions from transportation of WW and SW. More specifically the number of vehicles, number of trips carried out in a year, round trip distances, average fuel consumption/Km.
  12. Items (d) and (e) of page 35 of PDD state that energy requirements and electricity on site are provided by renewable biomass sources (this has been addressed in section B.2.1 of this protocol)

Project Emissions from fossil fuels have to be monitored

Check Project emissions assumptions:

13. Check evidence (manufacturer reports, manuals, communications) on the estimation of the capacity of compost generation/year and on the capacity of the composting process in maintaining high concentrations of O<sub>2</sub> levels throughout the system.
14. The PDD states that there will be no leaked waste water during the project activity (this has also been addressed in section B.2.1 of this protocol).
15. Check assumptions for the calculation of the emissions from transportation of the project activities. Check for evidence that estimates made for the amount of front end loaders required, yearly operating hours of the front end loaders, diesel fuel use per operating hour of the front end loaders, average distance that would be traveled by trucks transporting compost and fuel consumption of trucks transporting compost/Km.

Project Participant Response:

Date: 29/02/2008

Date: 29 <sup>th</sup> February 2008							
Please note that the Abedon landfill site is managed, not unmanaged. This error has been corrected on pg32							
The Malaysian Department of Environment has published a process mass balance for Oil Palm mills in Malaysia which also applies to the Abedon mill. The reference is included in Annex 3 and shows that 0.23 tonne of EFB is produced for every tonne of FFB.							
With regards to monitoring of project emissions from fossil fuels – it is unlikely that power from fossil fuels will be required to operate the composting facility, as the mills have a plentiful supply of biomass for power generation. In addition, in cases where there is insufficient supply of biomass, the project participants would adjust operation of the composting facility until such time as supply has once more been attained. These periods are not expected to last for a long time, so will not have a material impact on the project. In emergency cases where renewable power is not available for a sufficiently long period of time, diesel will be used as a back up fuel. The PDD has been modified to reflect this.							
The PDD has also been modified in page 42 to clarify ex-ante calculations and from page 46 onwards to provide detail on the monitoring plan for the project transportation emissions							
(Please note that references to NIR #14 above should be references to NIR #16).							
Acceptance and Close out by Lead Assessor:				Date: 08/03/2008			
Information Provided: The depth of anaerobic pond is more than 5 m it was checked from the drawing of anaerobic pond (KP/9306/POM/SL/01, SGT/APOM/ML/01). The landfill site is a managed site and the depth is more than 7 m and it was checked at the site. There are no regulatory requirements for collection and destruction of CH4 for POM in Malaysia. All the baseline assumptions (raw POME, POME after treatment, FFB productions, average amount of POME generate and calculations) was checked from the provided document: Industrial Process and Environment, Crude Palm Oil Industry, Dept of Environment, Ministry of Science Technology and The Environment, Malaysia. For the higher amount of O2 maintained in the composting process the letter from technology supplier (EcoRegenNexus-IISB-EcoXellOxygenProcessControl-20080310) was provided.				Verified Document Reference: KP/9306/POM/SL/01, SGT/APOM/ML/01 Law of Malaysia Act 1974, Environmental Quality Act. 1974 and Law of Malaysia 2003, Environmental Quality Act and Regulations Malaysia: MDC Publishers Sdn Bhd. EcoRegenNexus-IISB- EcoXellOxygenProcessControl- 20080310			
Information Verified: All the baseline assumptions was checked from the Industrial Process and Environment, Crude Palm Oil Industry, Dept of Environment, Ministry of Science Technology and The Environment, Malaysia. The letter provided by technology supplier (EcoRegenNexus-IISB-EcoXellOxygenProcessControl-20080310) says that the amount of oxygen will always be maintained more than 10% in the reactor and it will be monitored in by oxygen transmitter in the control panel and data is logged and displayed by the computer.							
Reasoning for not acceptance or acceptance and close out: All the baseline assumptions used for baseline determination was found correct and the proof for maintaining the level of oxygen was found okay. The project emission because of the compost transportation has been included in the revised PDD version 03 so raised NIR #19 was closed out.							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	20	Type:	NIR	Issue :	Ex ante data and parametrs used	Ref.:	B.6.2
Lead Assessor Comment					Date: 25/02/2008		



Please check:	
EF <sub>CO2</sub> diesel fuel applies a value of 2.672, justification says 'normal practice', IPCC figure? Also please provide web link to the site	
D <sub>fuel</sub> uses 0.82kg/l at 20°C, the weblink provided mentions at 15°C	
AM39 also mentions a value of 0.043 (note) as EF <sub>N2O, Comp-</sub>	
DOC <sub>f</sub> of 0.5 (check whether this still applies)	
Check that the EFB landfills are uncovered.	
Project Participant Response:	Date: 29/02/2008
Date: 29 <sup>th</sup> February 2008	
EF <sub>CO2</sub> diesel fuel value of 2.672 is based on EPS fuel emissions estimate. Please see Attachment 09, which lists CO <sub>2</sub> emissions from a gallon of diesel as 22.2 pounds/gallon (equating to 2.672 kg/litre)	
D <sub>fuel</sub> is now indicated for a temperature of 15°C	
The reference to AM0025 has been removed with regards to the value of 0.043 (note) as EF <sub>N2O, Comp</sub>	
Acceptance and Close out by Lead Assessor:	Date: 08/03/2008
Information Provided: The emission factor of diesel 2.672 is taken from the EPA fuel emission estimate (EPA420-F-05-001, Feb., 05) The PDD version 03 revised and now indicates temperature 15°C. The value for EF <sub>N2O</sub> has been taken from AM0039 in revised PDD version 03. Local assessor has checked the land fill and it is not covered. Information Verified: The values are taken from EPA and page 32 of PDD version 03 mentions the temperature of D <sub>fuel</sub> at 15°C and the land fill site is uncovered.	Verified Document Reference: EPA420-F-05-001, Feb., 05 Revised PDD version 03 <a href="http://www.simetric.co.uk/si_liquids.htm">http://www.simetric.co.uk/si_liquids.htm</a>
Reasoning for not acceptance or acceptance and close out: The source of the figure (2.672) has been given as it is taken from EPA fuel emission estimate (EPA420-F-05-001, Feb., 05). Page 32 of PDD version 03 mentions the temperature of D <sub>fuel</sub> at 15°C and the web link for the source is provided ( <a href="http://www.simetric.co.uk/si_liquids.htm">http://www.simetric.co.uk/si_liquids.htm</a> was verified). Local assessor checks the site and found it uncovered and also taken the snaps. Hence NIR #20 was closed out.	

Date:	25/02/2008	Raised by:	Siddharth Yadav
No.:	21	Type:	CAR
Issue :	Calculation of Emission Reductions	Ref.:	B.7.3
Lead Assessor Comment		Date: 25/02/2008	
The assumptions used are not always in accordance with the methodology Section B.6.3 BE CO2 transport are compensated by PE transport (Zero) This is a deviation from AM39, Approval for deviation from the methodology would be required in this case			
Project Participant Response:		Date: 29/02/2008	
Date: 29 <sup>th</sup> February 2008 PDD has been modified to clarify that all transport emissions are being considered as part of the project emissions from page 43 onwards. The PDD includes details on the ex-ante calculations and monitoring plan.			
Acceptance and Close out by Lead Assessor:		Date: 13/03/2008	

<p>Information Provided: The project emissions because of the transportation of compost from the project activity to the end use (plantation land) revised version 03 of PDD.</p> <p>Information Verified: The PDD version 03 considered the project emissions and the monitoring of number of trips of trucks has also been included in the monitoring plan.</p>	<p>Verified Document Reference: Revised PDD version 03</p>
<p>Reasoning for not acceptance or acceptance and close out: The project activity emissions due to the transportation of compost have been considered in the revised PDD version 03 dated 08/03/2008 and the spread sheet for emission reduction calculations has also been revised accordingly. The monitoring plan has also been revised for monitoring the numbers of vehicle trips used for compost transportation on page 50 of the revised PDD version 03. Hence CAR #21 was closed out.</p>	

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	22	Type:	NIR	Issue :	Monitoring Methodology	Ref.:	B.9.1
Lead Assessor Comment					Date: 25/02/2008		
<p>Weblink for the NCV and EF<sub>CO2i</sub> for Diesel is not mentioned (link to the USEPA website)</p> <p>The link provided in the PDD for the Density of Diesel fuel is listed as 15°C and not 20°C</p> <p>Emission factors for N2O emissions is listed on page 12/22 of AM39 (AM25 reference is not needed)</p> <p>Tbc - (MCF) that Abedon landfill is anaerobic managed with leveling of waste with some compaction and is 7 m depth (so as to use IPCC MCF of 01)</p> <p>Tbc -AF (adjustment factor) is not applied (zero)- please check local or national regulations for capture and flare of methane of LFG/EFB in Malaysia</p> <p>Tbc - A value of 'zero' has been used for assessing oxidation factor because EFB landfills are not covered with any type of oxidizing material.</p>							
Project Participant Response:					Date: 29/02/2008		
<p>Date: 29<sup>th</sup> February 2008</p> <p>Reference to AM0025 removed with regards to the value of 0.043 (note) as EF<sub>N2O, Comp</sub></p> <p>EF<sub>CO2</sub> diesel fuel value of 2.672 is based on EPS fuel emissions estimate. Please see Attachment 09, which lists CO<sub>2</sub> emissions from a gallon of diesel as 10.1 kg/gallon (equating to 2.672 kg/litre) (3.78 liters/gallon)</p>							
Acceptance and Close out by Lead Assessor:					Date: 13/03/2008		
<p>Information Provided:</p> <p>The figure (0.043) is taken from AM0039.</p> <p>The emission factor of diesel 2.672 is taken from the EPA fuel emission estimate (EPA420-F-05-001, Feb., 05) has been given in the PDD version 03 (page 38).</p> <p>The PDD version 03 revised and now indicates temperature 15°C.</p> <p>The value for EF<sub>N2O</sub> has been taken from AM0039 in revised PDD version 03.</p> <p>Information Verified:</p> <p>The reference for figure 0.043 has been taken from the methodology AM0039 and the references for calculating the EF of diesel fuel are given as supportive documents. The PDD version 03 revised and now indicates temperature 15°C.</p>					<p>Verified Document Reference:</p> <p>EPA420-F-05-001, Feb., 05</p> <p>Revised PDD version 03</p> <p><a href="http://www.simetric.co.uk/si_liquids.htm">http://www.simetric.co.uk/si_liquids.htm</a></p>		

Reasoning for not acceptance or acceptance and close out:  
The EF<sub>CO2</sub> diesel fuel has been taken from EPA fuel emission estimate (EPA420-F-05-001, Feb., 05). Page 32 of PDD version 03 mentions the temperature of D<sub>fuel</sub> at 15°C and the web link for the source is provided ([http://www.simetric.co.uk/si\\_liquids.htm](http://www.simetric.co.uk/si_liquids.htm) was verified. The reference for figure 0.043 has been taken from the methodology AM0039 in the revised PDD version 03. Hence NIR #22 was closed out.

Date:	DD/MM/YYYY			Raised by:		Siddharth Yadav	
No.:	23	Type:	CAR	Issue :	Data and parameters monitored	Ref.:	B.10.1
Lead Assessor Comment					Date: 25/02/2008		
<p>The monitoring plan provides information on collection and archiving of all the data</p> <p>Following data and parameters listed on page 41, 42, of the PDD are not exactly in accordance with the methodology:</p> <ul style="list-style-type: none"><li>- <math>V_{POME, y}</math></li><li>- COD influent</li><li>- COD effluent</li><li>- <math>A_{j,x}</math></li><li>- <math>F_{cons}</math></li><li>- <math>Q_{compost}</math></li><li>- <math>SOD_y</math></li><li>- Check MAT and MAP for the project site-Sandakan</li></ul>							
Project Participant Response:					Date: 29/02/2008		
<p>Date 29<sup>th</sup> February 2008:</p> <p>PDD has been modified accordingly to reflect the structure proposed in the methodology.</p> <p>Please see Annex 3 for the link to the MAT and MAP data for Sandakan.</p> <p>(<a href="http://weather.msn.com/monthly_averages.aspx?&amp;wealocations=wc%3aMYXX0030&amp;setunit=C">http://weather.msn.com/monthly_averages.aspx?&amp;wealocations=wc%3aMYXX0030&amp;setunit=C</a>)</p>							
Acceptance and Close out by Lead Assessor:					Date: DD/MM/YYYY		
<p>Information Provided:</p> <p>The typo errors for units of few parameters have been corrected in revised PDD version 03.</p> <p>Information Verified:</p> <p>Page 45 and 46 of PDD has been amended for correct units of parameters.</p>						<p>Verified Document Reference:</p> <p>PDD version 03.</p>	
<p>Reasoning for not acceptance or acceptance and close out:</p> <p>Few of the parameters in the monitoring plan were not found in line, with the monitoring methodology, corresponding to the units written in PDD version 01 so CAR #23 was raised. The PDD version 03 has been revised in line to the monitoring methodology as the typo errors for writing the unit has been corrected so CAR #23 was closed out.</p>							

Date:	25/02/2008				Raised by:	Siddharth Yadav		
No.:	24	Type:	CAR	Issue :	Data and Parameters Monitored	Ref.:	B.10.7	
Lead Assessor Comment					Date: 25/02/2008			
A value of 0.823 has been used in the cell F72 of spreadsheet- 'Abedon Annexure-I CER calculation model', the cell does not contain the active cell formula including references.								
Links to several other cells are missing								
Project Participant Response:					Date: 29/02/2008			

Date: 29 <sup>th</sup> February 2008		
0.823 refers to $F_{t,monthly}$ average as per pg36 of the PDD. Please see updated Abedon Attachment 1 which includes increased detail behind the calculation of cell F72 and also contains extra details for calculations behind cells F61 (cod mg/l) and F81 (project emissions).		
Acceptance and Close out by Lead Assessor:	Date:	
Information Provided: Page 36 of PDD version 03 and spread sheet for emission reduction calculations	Verified Document Reference: Page 36 of PDD version 03	Information Verified: The figure 0.823 ( $F_{t,monthly}$ ) is the average of monthly temperature and explained on page 36 of PDD version 03 and emission reduction spread sheet.
Reasoning for not acceptance or acceptance and close out: The details of assumptions have been included in the spread sheet and also page 34 of PDD version 02 mentioned that this is the value ( $F_{t,monthly}$ ) derived from average monthly temperature and in line with the formulae given in methodology AM0039. Hence the CAR #24 was closed out.		

Date:	25/02/2008				Raised by:	Siddharth Yadav		
No.:	25	Type:	NIR	Issue :	Monitoring Plan		Ref.:	B.13.3
Lead Assessor Comment						Date: 25/02/2008		
A schematic diagram detailing respective positions of the monitoring equipments is needed								
Project Participant Response:						Date: 29/02/2008		
Date: 29 <sup>th</sup> February 2008								
Please see Attachment 23 which contains a diagram detailing the positions of the monitoring equipment.								
Acceptance and Close out by Lead Assessor:						Date: 29/03/2008		
Information Provided: Schematic diagram of project boundary has been provided . Attachment 23 which contains a diagram detailing the positions of the monitoring equipment. . Information Verified: Position of equipment (meters) is clearly indicated . NIR #25 Closed						Verified Document Reference: Schematic diagram		

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	26	Type:	NIR	Issue :	Baseline Details	Ref.:	B.14.1
Lead Assessor Comment					Date: 25/02/2008		
PDD version 1 dated 19 <sup>th</sup> December 2007 mentions 08/06/2007 as the date of baseline determination, only some changes arising due to the meth revision on EB35 are reflected							
Project Participant Response:					Date: 29/02/2008		
Date: 29 <sup>th</sup> February 2008 We have updated the date of the PDD on pg 2 and page 51, in order to ensure that our baseline determination date is consistent with the revised version of the AM0039 meth.							
Acceptance and Close out by Lead Assessor:					Date: 10/03/2008		
Information Provided: PDD version 03 revised the dates and now consistent with baseline determination Information Verified: PDD version 03 page 2 and 51 revised the date					Verified Document Reference: PDD version 03, page 2 and page 51		
Reasoning for not acceptance or acceptance and close out: As above. NIR #26 Closed							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
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No.:	27	Type:	NIR	Issue :	Baseline Details	Ref.:	B.14.2
Lead Assessor Comment					Date: 25/02/2008		
The revised version of the PDD is not in accordance with the date of baseline determination							
Project Participant Response:					Date: DD/MM/YYYY		
Date: 29 <sup>th</sup> February 2008 We have updated the date of the PDD on pg 2 and 51, in order to ensure that our baseline determination date is consistent with the revised version of the AM0039 meth.							
Acceptance and Close out by Lead Assessor:					Date: 08/03/2008		
Information Provided: The PDD version 03 dated 08/03/2008 revised the date of baseline determination. Information Verified: The PDD version 03 has changed the date on page 2 and page 51 and it is accordance with baseline determination.					Verified Document Reference: (Document reference name and number/date must comply with reference list in AR6)		
Reasoning for not acceptance or acceptance and close out: The revised PDD version 03 dated 08/03/2008 mentions is in line with the date of baseline determination so NIR #27 was closed out.							

Date:	25/02/2008			Raised by:	Siddharth Yadav		
No.:	28	Type:	NIR	Issue :	Project Duration/crediting period	Ref.:	C.1.1
Lead Assessor Comment					Date: 25/02/2008		
From the discussion it appears that 01/09/2008 is the start date, please confirm on site and check if that is clearly indicated							
The projects life time (10 years) should be checked from comparable projects or project technologies or feasibility studies							
Project Participant Response:					Date: 29/02/2008		
Date: 29 <sup>th</sup> February 2008							
We expect to complete construction in September 2008, and the project is due to start operations as of 01/10/2008 – please see Attachment 05 for the expected implementation timeline. We depreciate the project capex over 10 years, as we expect that it will take this length of time for the ongoing yearly maintenance expenditures on the project to equate to the total cost of the upfront capital expenditure. Please note that depreciation figures are not included in IRR calculations as they are not a cash flow item.							
Acceptance and Close out by Lead Assessor:					Date: 08/03/2008		
Information Provided: Project proponent has provided the spread sheet for timetable for project activity execution. With reference to this sheet the project activity will commissioned by 01/10/2008. Information Verified: Attachment 5 defines the execution time scale of the project and mentions that the project will be commissioned by 01/10/2008.						Verified Document Reference: Spread sheet for time table (Attachment 5)	
Reasoning for not acceptance or acceptance and close out: It is a future project and expected to be commissioned by 01/10/2008. The spread sheet for project time table prepared by project proponent has been checked and it mentions that project activity will be commissioned by 01/10/2008 and crediting period will start only after the successful registration of the project with CDM EB. NIR #28 closed out.							

Date:	25/02/2008			Raised by:	Kaviraj Pradhan
No.:	29	Type:	CAR	Issue :	Stakeholder comments
Lead Assessor Comment					Date: 25/02/2008
Response on comment 5 mentions that power backup from Diesel might be required as a back up, tbc if this is reflected in the monitoring plan					

Project Participant Response:		Date: 28/02/2008
<p>Date: 29<sup>th</sup> February 2008</p> <p>It is unlikely that power from fossil fuels will be required to operate the composting facility, as the mills have a plentiful supply of biomass for power generation. In addition, in cases where there is insufficient supply of biomass, the project participants would adjust operation of the composting facility until such time as supply has once more been attained. These periods are not expected to last for a long time, so will not have a material impact on the project. In emergency cases where renewable power is not available for a sufficiently long period of time, diesel will be used as a back up fuel. The PDD has been modified to reflect this.</p>		
Acceptance and Close out by Lead Assessor:		Date: 10/03/2008
<p>Information Provided: Installed capacity of biomass based power plant in the industry Revised PDD version 03 for monitoring of diesel</p> <p>Information Verified: The capacity of biomass based captive power plant (3.2 MW) was checked from the provided document and by verifying the same at the site visit. The PDD version 03 page 31 mentioned the monitoring of diesel emissions.</p>		<p>Verified Document Reference: Feb., 08, reference number PJ-T4B-0623-1995</p>
<p>Reasoning for not acceptance or acceptance and close out: The entire power requirement in the palm oil mill is met by the biomass based power. The power requirement of the project activity will also be met by the captive power plant exclusively based on renewable fuel (palm fruit fibers). This was checked from the document 'Statistics for electricity generation and uses' Feb., 08 (reference number PJ-T4B-0623-1995), says that the total renewable energy based power capacity is 3.2 MW and successfully full fill the power requirement of the mill. Moreover, if diesel based power, as a back up fuel, is used in the project activity then it will be monitored. The PDD version 03 has been revised subjected to the monitoring of diesel consumption hence CAR #29 was resolved successfully</p>		

## A.4 Annex 4: Statement of Competence of Team Members

### Statement of Competence

Name: Siddharth Yadav

SGS Affiliate: SGS United Kingdom Ltd.

#### Status

- |                           |                                     |
|---------------------------|-------------------------------------|
| - Product Co-ordinator    | <input checked="" type="checkbox"/> |
| - Operations Co-ordinator | <input type="checkbox"/>            |
| - Technical Reviewer      | <input checked="" type="checkbox"/> |
| - Expert                  | <input checked="" type="checkbox"/> |

#### Validation

#### Verification

- |                         |                                     |                                     |
|-------------------------|-------------------------------------|-------------------------------------|
| - Local Assessor        | <input type="checkbox"/>            | <input type="checkbox"/>            |
| - Lead Assessor         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| - Assessor              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| / Trainee Lead Assessor |                                     |                                     |

#### Scopes of Expertise

- |  |                                     |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable)   | <input checked="" type="checkbox"/> |
| 2. Energy Distribution   | <input type="checkbox"/>            |
| 3. Energy Demand   | <input type="checkbox"/>            |
| 4. Manufacturing   | <input checked="" type="checkbox"/> |
| 5. Chemical Industry   | <input type="checkbox"/>            |
| 6. Construction  | <input type="checkbox"/>            |
| 7. Transport   | <input checked="" type="checkbox"/> |
| 8. Mining/Mineral Production   | <input checked="" type="checkbox"/> |
| 9. Metal Production  | <input type="checkbox"/>            |
| 10. Fugitive Emissions from Fuels (solid,oil and gas)  | <input type="checkbox"/>            |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/>            |
| 12. Solvent Use  | <input type="checkbox"/>            |
| 13. Waste Handling and Disposal  | <input checked="" type="checkbox"/> |
| 14. Afforestation and Reforestation  | <input type="checkbox"/>            |
| 15. Agriculture  | <input type="checkbox"/>            |

Approved Member of Staff by: Sergey Putintsev

Date: 23-04-2008

## Statement of Competence

Name: Kaviraj Singh Pradhan

SGS Affiliate: SGS India Pvt. Ltd.

### Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

### Validation

### Verification

- Local Assessor ☒
- Lead Assessor ☐
- Assessor ☐
- /Trainee Lead Assessor

### Scopes of Expertise

- |  |                                     |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable)   | <input checked="" type="checkbox"/> |
| 2. Energy Distribution   | <input type="checkbox"/>            |
| 3. Energy Demand   | <input type="checkbox"/>            |
| 4. Manufacturing   | <input type="checkbox"/>            |
| 5. Chemical Industry   | <input type="checkbox"/>            |
| 6. Construction  | <input type="checkbox"/>            |
| 7. Transport   | <input type="checkbox"/>            |
| 8. Mining/Mineral Production   | <input type="checkbox"/>            |
| 9. Metal Production  | <input type="checkbox"/>            |
| 10. Fugitive Emissions from Fuels (solid,oil and gas)  | <input type="checkbox"/>            |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/>            |
| 12. Solvent Use  | <input type="checkbox"/>            |
| 13. Waste Handling and Disposal  | <input checked="" type="checkbox"/> |
| 14. Afforestation and Reforestation  | <input type="checkbox"/>            |
| 15. Agriculture  | <input type="checkbox"/>            |

Approved Member of Staff by: Siddharth Yadav

Date: 8<sup>th</sup> October 2007