



CDM Executive Board  
UNFCCC Secretariat  
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30<sup>th</sup> June 2009

**RE: Request for review to the request for registration of the project activity "Inno-Abedon - Palm Oil Mill Waste Recycle Scheme. Malaysia" (UNFCCC Ref. no. 2270)**

Dear CDM Executive Board Members,

SGS has been informed that the request for registration for the proposed CDM project activity "Inno-Abedon - Palm Oil Mill Waste Recycle Scheme. Malaysia" is under consideration for review because three requests for reviews have been received from members of the Board.

The requests for review are based on the reasons outlined below in italics and underlined. SGS would like to provide the initial responses to the issues raised for the request for review:

**Request for review Issues 1-3:**

**Request for Review, Issue 1:**

*The DOE should clarify how it has validated the investment analysis in line with EB 41, Annex 45, in particular: a) the 10-year period assessed; b) the total investment cost; c) production and operating costs; and d) compost revenues. The validation of the compost price should be further substantiated.*

**SGS' and PP Response to Issue 1:**

Inno Integrasi intends to facilitate the transformation of the Malaysian palm oil industry into a Zero Emissions operation by converting all waste streams (empty fruit bunches, mill effluent, boiler ashes, decanter sludge, etc...) into economically valuable organic fertilizer. Recycling mill waste on the plantations' land will contribute to increasing the sustainability of the palm oil industry. The treatment plants will prevent methane release through co-composting empty fruit bunches (EFBs) and palm oil mill effluent (POME). Revenues will come from fertilizer sales to Palm Oil Plantations and sales of CERs.

**a) the 10-year period assessed:**

For the execution and implementation of this project, the project participant has signed a number of agreements with the palm oil mill as described in later sections of this document. During the conceptualization of the project, life time has been considered as ten years which is very well reflected in the signed agreements. The project participant has signed the land lease for the duration of 10 years and the duration of the agreement for the supply and off-take is valid for only 10 years. In other words the financial model of the project has been designed for the project life time of 10 years and no operation of the project activity is envisaged after 10 years. Hence the crediting period was also kept fixed for 10 years. This is in line with para 3, EB41, Annexure 45.

The project developer 'Inno Integrasi SDN BHD' (Company No. 620514-X, under the law of Malaysia) has signed the 'off-take agreement' dated 10<sup>th</sup> December 2007 with Desa Majujaya SDN BHD (Company No. 795077-A, under the law of Malaysia). This agreement is a fixed term fertiliser purchase agreement for 100% off take of the

fertiliser produced by the project activity. This agreement is signed for a term of 5 years plus an optional 5 years, adding up to a 10 years in total. The information about the 'Extended Term' and 'Term' is mentioned clearly on page 4 & 5 of the off-take agreement.

The second agreement 'Supply cum Lease Agreement' was signed between 'Inno Integrasi SDN BHD' and Desa Majujaya SDN BHD dated 10<sup>th</sup> December 2007. The mill operator (where project activity will be implemented) will provide the entire waste stream (empty fruit bunches, mill effluent, boiler ash, decenter sludge etc), workforce, land power and other services to the project activity (co-composting plant). The agreement provided by the project participant clearly defines 'Term' and 'Extended Term' totalling to 10 years on pages 4 & 7, respectively.

Given the fact that the agreements to purchase input (waste), to sell output (biofertiliser) and also for infrastructure (land lease) has been signed only for 10 years, this period was considered by SGS. The referred documents have been validated and can be submitted if asked by the EB (as confidential).

### **b) the total investment cost**

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 cost has 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 the 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. Table 1 below gives the cost wise break up of total investment costs as checked from the supportive documents.

**Table 1: Cost wise break up of total investment for the project activity**

Item	Description	Estimated Capacity	Budget*	Unit	Total Budget*
PlantBuild	Civil&Structure Pre&PostCompostingBuilding In-VesselCompostingCells Utilities&Infrastructure	200MT-EFB/day	3,900,000	1	3,900,000
Process Equipment &Machinery	In-VesselProcessTechnology	200MT-EFB/day	3,200,000	1	3,200,000
	HydrocyclonePOMESeparator	650MT-POME/day	25,000	2	50,000
	SludgeHopper&Feeder		80,000	1	80,000
	EFBShredder	200MT-EFB/day	550,000	1	550,000
	AugerMixer	200MT-EFB/day	380,000	1	380,000
	FrontEndLoader		175,000	2	350,000
	Screener	50MT/day	45,000	1	45,000
	Bagger	50MT/day	180,000	1	180,000
Fees	LocalConsultants,BioWorks,Autho ritySubmissions		1,050,000	1	1,050,000
			505,000		505,000
Working Capital & Contingency					
<b>Total Budget</b>					<b>10,290,000</b>

\*All figures are given in RM (Ringgit Malaysian)

In view of the above budget breakdown, where most of the investments are either fungible (i.e. fees, licences) or not recoverable (Civil works and structures will be left on site once the leasehold and contractual arrangements have expired) no terminal value has been considered in the financial model. This is inline to the investment analysis.

### **c) production and operating costs**

The production and operating cost considered is RM 4,359,664 for 2009 and RM 4,467,740 for 2010. The considered figures and assumptions are reasonable and validated from the original sources documented by the DOE. The cost break ups for the production and maintenance cost is summarized in table 2.

**Table 2: Production and operating cost for co-composting plant (project activity)**

Item	Description	Price per unit	Number of Units	Total 2009*	Total 2010*
Production Costs (as per Attachments 2 & 6)	Biotechnology cost	RM50/tonne fertilizer	12,075 Tns	603,750	603,750
	Palm waste	RM3/tonne EFB plus RM3/yr	48,300 Tns	144,903	144,903
	Performance bonus	RM10/tonne fertilizer	12,075 Tns	120,750	120,750
	Fuel, Power & Packaging	RM82.5/tonne fertilizer	12,075 Tns	996,188	996,188
	Lease of factory land	RM28,125/plant	1	28,125	28,125
	Labour per plant	RM387,000/plant	1	387,000	387,000
	Plant & equipment maintenance	RM400,000/plant	1	400,000	400,000
				<b>2,680,716</b>	<b>2,680,716</b>
Management Costs (Not contracted hence estimated 7% annual growth)	Total HQ operating costs (management & office rent)	RM120,245/month	12	1,543,948	1,652,024
	Other operating costs	RM135,000/plant	1	135,000	135,000
				<b>1,678,948</b>	<b>1,787,024</b>
<b>Total Budget</b>				<b>4,359,664</b>	<b>4,467,740</b>

\* All figures are given in RM

These 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. DOE has validated the cost from the 'Supply Cum Lease Agreement' provided by the project

participant. Costs due to payment of land, biotechnology, power and personnel has been validated from 'EcoRegen Licence Agreement' (Schedule1, 6a and 7a, Page 22).

#### **d) compost revenues**

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 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/ tonnes 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.

#### **Request for Review, Issue 2:**

The PP/DOE should further confirm the value used for the "Methane Correction Factor", as it shows a value of "1" in the spreadsheet used for the emission reductions calculations, whereas in the PDD and the validation report the value is stated as "0.8"

#### **SGS' and PP Response to Issue 2:**

The project has anaerobic lagoon for waste water treatment and anaerobic managed solid waste disposal sites without methane collection as the baseline. The anaerobic lagoons depths were checked on site by putting the scale inside the pond and also through the layout drawings which mentions the depths of the ponds as 5.5 metres each. The landfill site is anaerobic and well managed and the waste is directed in a controlled placement and mechanical compacting is being done regularly. This has been checked on site by the SGS validation team and photographs were taken. Therefore, the Methane Correction Factor (MCF) 01 for the baseline calculation is correctly used in the spread sheet for ER calculation but was mentioned incorrectly (0.8) in the PDD (page 33) and also in the validation report. Following this question from the CDM Executive Board we have corrected the typographical error in the PDD and also in validation report. The table on page 33 of the revised PDD defines the value of the "Methane Correction Factor" as "1" rather than "0.8". The description contained in the same table clearly describes that "The Abedon landfill is managed with levelling of waste and some compaction and is 7 meters in depth" and hence a MCF for managed landfill (1) is appropriate. This was a typographical error which does not change the calculations of baseline emissions and financial model as a factor of 1 has been used throughout the calculations. The PDD (Annex 1) and validation report (Annex 2) has been changed accordingly and the MCF is kept as 1 throughout the documentation.

#### **Request for Review, Issue 3:**

*The PP/DOE should clarify how the parameter "A<sub>j,x</sub>" will be monitored in line with the requirement of the methodology (i.e., measured by weight bridge on-site)*

#### **SGS' and PP Response to Issue 3:**

Page 47 of the revised PDD (Annex 1) contains a description of how the A<sub>j,x</sub> (Amount of organic waste type j disposed of in landfill in the year x) variable will be monitored. In the project activity the waste type is Empty Fruit Bunches (EFB) which is a residue portion out of the Fresh Fruit Bunches (FFB) after the oil extraction process. The EFB (waste type) before going to the co-composting facility will be monitored monthly at the weight bridge installed at the site and the values (tonnes) will be recorded in the data sheets. The weight bridge will be subjected to calibration as per the applicable industry standard or in accordance with the stipulations of the weighbridge supplier. This is inline with the applied methodology AM0039 version 02 which mentioned that A<sub>j,x</sub> should be monitored regularly once every month..

There is also a secondary check for the measurement of this parameter. Palm oil mills measure carefully the amount of Fresh Fruit Bunches (FFBs) that enter their facilities as their whole financial margin is dependent on the difference between the revenue from the palm oil produced and the expense of acquiring FFBs from

plantations and operating costs. There is a fixed ratio between FFB and EFB and every tonne of FFB generates 0.23 tonnes of FFB, on a fixed average. This was checked from one of the most popular and referred to books in the palm oil mil sector. The book edited by the Malaysian Department of Environment entitled 'Industrial Process and the Environment: Crude Palm Oil Industry' (Annex 3), mentions on page 21 that one tonne of FFB translates into two hundred and thirty (230) Kilograms (or 23% by weight) EFBs. So the amount of EFBs going to project activity can also be doubled checked with a continuous monitoring system which will improve the transparency and accuracy in the monitoring system.

Yours sincerely

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**Annexures :**

Annex 1: PDD version 05 (revised)

Annex 2: Validation report (revised)

Annex 3: Copy of the book 'Industrial Process and the Environment: Crude Palm Oil Industry'