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	IS-CMS-MUC/Bb	+49 89 5791-2170	+49 89 5791-2756	2008-05-29	1 of 4
	Werner Betzenbichler	Werner.Betzenbichler@tuev-sued.de			

Request for Review

Dear Sirs,

Please find below the response to the request for review formulated for the CDM project with the registration number 1616. In case you have any further inquiries please let us know as we kindly assist you.

Yours sincerely,

Werner Betzenbichler
Carbon Management Service

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Response to the CDM Executive Board

Issue 1

Further clarification is required on how the DOE has validated the additionality of the project activity in particular:

how it has been determined that the IRR without CDM benefits is insufficient to allow the project to proceed without CDM;

Response by PP

The PDD has been adjusted to clarify that implementing this project without the assistance of CDM does not provide the positive economic returns to justify or even partially offset the expenses. Even the use of biogas produced as a source of renewable energy does not provide a sufficient savings to justify its implementation.

In addition, AES AgriVerde is not only a project participant but is also the owner of all project activity equipment. Any renewable energy activity, such as heat or electricity generation, does not benefit or provide any revenue to AES AgriVerde. Therefore, this has no impact on any IRR calculation. The estimated IRR with and without CDM has been added to the PDD for clarification. Sources of costs in the IRR are included in the IRR calculation file.

Response by TÜV SÜD

As stated in the PDD and demonstrated in the IRR spreadsheet AES AgriVerde (AES AgriVerde Services (Malaysia) Sdn Bhd, AES AgriVerde Ltd.) is the only project participant and also the owner of the project's equipment as well as the recipient of the CERs which will be issued for the proposed project activity. These are the only revenues for the investor in this CDM project. Thus - without CDM the project would be absolutely unattractive and would not be a business option for these project participants that are neither owner nor operator of the palm oil mill. This demonstrates the additionality of the project.
In case the option "partial utilization of biogas" would have to be implemented due to state (DNA) requirements AES AgriVerde would also provide the necessary equipments to guarantee the success of the collateral project. The option is covered by the monitoring plan. Also in this case the only revenues for AES would be CERs as revenues or costs saving for electricity or heat generation will remain at the mill operator due to the verified contracts. Selling the electricity or participating in cost reductions from reduced fuel costs is not part of AES Agriverde´s business model as evidenced by the contract between the PPs and the mill operator.
Also this option thus only can be realised under the CDM system. There are no doubts on the additionality of the project.

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Issue 2

what evidence has validated to support the technological barriers;

Response by PP

According to B.G. Yeoh of the SIRIM Environment and Bioprocess Technology Center in Malaysia, anaerobic digestion systems are still relatively rare in Malaysia. Therefore, palm oil mill personnel must be trained. Since this technology requires dedicated personnel for equipment operations, maintenance, and monitoring, this creates an additional cost for annual operating and maintenance that was not present under the lagoon-based system. Operations and maintenance in anaerobic digestion systems requires specialized, intensive training that is not readily available in Malaysia. As explained in the Good Practice Guidelines publication listed below, training of employees must often be conducted by equipment or component manufacturers which are not located in the host country. Another option is to hire consultants for this training but this also requires importing this knowledge from other countries. The following sources provide evidence of this:

Anaerobic Digestion of farm and food processing residues: Good practice guidelines. P.39 – 42 http://www.mrec.org/biogas/adgpg.pdf

Yeoh, B.G. (2004). *A Technical and Economic Analysis of Heat and Power Generation from Biomethanation of Palm Oil Mill Effluent in Electricity.* P. 20-64. http://www.cogen3.net/doc/countryinfo/malaysia/TechnicalEconomicAnalysisCHPPalmEffluent_BG.pdf

Response by TÜV SÜD
See response of Issue 3

Issue 3

how the prevailing practice barrier has been validated.

Response by PP

According to B.G. Yeoh of the SIRIM Environment and Bioprocess Technology Center in Malaysia, lagoon or pond-based treatment systems are standard operating practice in Malaysia as over 85% of Malaysian palm oil mills use this method. The palm oil industry views waste treatment systems as primarily a method of satisfying effluent discharge requirements. Since lagoon-based systems remain able to meet the regulatory discharge limits, the current practice for palm oil mills is unlikely to change in the absence of CDM. The Malaysian Country Report published by the Policy Analysis and Research Management Division of PTM's National Energy Center specifically states that, with the potential of CDM in the palm oil industry, "closed anaerobic digestion systems can be introduced for the purpose of methane captured activity." Reference sources include:

Yeoh, B.G. (2004). *A Technical and Economic Analysis of Heat and Power Generation from Biomethanation of Palm Oil Mill Effluent in Electricity.* P. 20-64.

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http://www.cogen3.net/doc/countryinfo/malaysia/TechnicalEconomicAnalysisCHPPalmEffluent_BG.pdf

Pusat Tenaga Malaysia (PTM) Country Report. P. 11.
http://www.setatwork.eu/downloads/cp_malaysia.pdf

Response by TÜV SÜD

Also referring to issue 2 due to the on-site audit, the validation process of the proposed project as well as to the received documents we can confirm the answers given above.

In addition several articles of technical literature base their studies on a wastewater treatment system of lagoons and open digesting tanks as a business as usual scenario. That also discloses the developmental stage of this field of activity.

Following and also reflecting the practice there are currently no biodigester applications in wastewater treatment to recover methane for flaring in the Malaysian Palm Oil Industry. This was assessed by discussions during the on-site audit as well as by the local expertise of our regional auditors participating in the on-site audit and additional literature research. There is no information that the biodigester technology is applied as wastewater treatment system aside from projects applying the CDM mechanism (issue 3). Thus neither local expertise for this technology nor skilled employees are sufficiently available (issue 2).