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Att: CDM Executive Board

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Your ref.:	Our ref.:	Date:
CDM Ref 1258	MLEH/ANCH	30 November 2007

Response to request for review

"Quezon City Controlled Disposal Facility Biogas Emission Reduction Project" (Ref. no.1258)

Dear Members of the CDM Executive Board,

We refer to the issues raised in the requests for review raised by four Board members concerning DNV's request for registration of the "**Quezon City Controlled Disposal Facility Biogas Emission Reduction Project" (Ref.no.1258)** and would like to provide the following clarifications for your perusal and review.

The points raised and our response to the same are indicated below.

Comment 1:

Further substantiation is required regarding the choice of a 10 year assessment period for the investment analysis.

DNV Response:

The project's operational lifetime is expected to be 10 years (Refer DNV's Revised Final Validation Report and the PDD). This is based on the biogas evaluation model (1996 IPCC Guidelines), which demonstrates that the biogas annual quantity will increase until the year 2008 and then decrease until year 2017. Accordingly a fixed crediting period of 10 years has been chosen for the project activity. In line with the operational lifetime and the crediting period, in DNV's opinion it is deemed logical to choose a 10 year assessment period for the investment analysis.

Comment 2:

Further explanation should be provided regarding why tax is assumed to be paid in years when there is no net income from the project activity, and the DOE should confirm by what process the input values used in the investment analysis have been validated.

DNV Response:

Referring to the IRR calculation sheets uploaded on the UNFCCC website (https://cdm.unfccc.int/Projects/DB/DNV-CUK1185342160.98/view), the taxable income is positive only when the revenues generated from CERs are considered. In the absence of CER revenues, since the total revenues from the project activity (from power production) are lower than

the total costs for the project (including depreciation), the net taxable income is negative. Hence, in this scenario no positive tax value is forecasted for the 10 years period without the CER revenues (as per line No. 39 of Work sheet named "BP without CERs revenues" of the file excel file Appendix 2 - Appendix 2 - BP PAYATAS IRR calculation).

The values input in the investment analysis pertaining to the cost parameters and the electricity tariff have been validated by DNV based on the relevant documents, and in particular they are:

a) *kWh price 0,07874800 €/kWh*: the tariff refer to the official price (in Euro) published on website "National Power Corporation" of Philippine (link http://www.napocor.gov.ph/Power%20Rats/eff_rates_for_luzon_grid.htm), on April 2007 (time of the financial analysis validation);

b) *Royalty 19%:* In the "Memorandum of Agreement" signed between the Projects Participants on February 14th, 2007, the parties have agreed to the Article III "Obligations of parties", that after the sales of CERs, PANGEA will be given to QUEZON CITY a percentage that will vary according to the selling price of CERs. During the Investment Analysis the price of CERs was considered equal to € 10,00 and the relative percentage was 19%.

c) Royalty 5%: In the "Memorandum of Agreement" signed between the Project Participants on February 14th, 2007, the parties have agreed to the Article III "Obligations of parties", that in the event the sale of electricity produced utilizing biogas extracted from the landfill, PANGEA will donate 5% of the annual gross revenues from such sale to QUEZON CITY.

d) Contingencies 10%: This is an estimated value.

e) Insurance cost 10%: This is an estimated value.

f) Share of Proceeds for Least Development Countries 2%: According to the "Share of Proceeds to assist in meeting the costs of adaptation" (May 2006) – Letter A "Mandates", the costs of adaptation shall be 2% of the CERs issued for the CDM project activity.

g) AGV Share of Proceeds: The administrative expenses was calculated according to the "Share of Proceeds to assist in meeting the costs of adaptation" (May 2006) – Letter C "Share of proceeds to cover administrative expenses";

h) Tax 37,25%: The rates in force by Italy taxation, which amounted to a total of 37,25% on the revenues, were used;

i) Total investment: The amount of total investment include all the equipments (drilled wells, HDPE pipes, well heads, substations, connecting to three phase grid, combustion plant, new engine, portable analysis instruments), civil works, fencing an security works, office building, shipment and logistic costs.

Please note that in the process of this request of review it was observed that the royalties of 19% and 5%, as described above in b) and c) respectively, was not correctly applied in the calculation sheets for the calculations of IRRs. The spread sheets were corrected and the validation report and PDD are updated accordingly.

Comment 3:

In page 3 of the PDD, the PP states that "The 22-hectare disposal facility was the disposal site for Metro Manila's municipal solid waste (MSW) from 1973 until July 2000 when it was prematurely closed due to a tragic trashslide" and that "…due to lack of alternative disposal sites, it was reopened in November 2000 pursuant to an Executive Order signed by President Joseph Estrada instructing the conversion of this open dump to a controlled dump and making it an exclusive dumpsite of Quezon City". Further clarification is requested of which areas (cells) of the dumping site were affected by the slide, and to which degree they have become inoperative for methane and leachate collection, which parts of the dumping site will be operated by the project with the specification of cells, location in relation to the slide site, etc.

DNV Response:

Prior to the start of the project activity, there was no methane and leachate collection system in place at the project site. Hence none of the cells of the dumping site have been damaged to the extent of becoming inoperative for methane and leachate collection. Please also refer to the project proponent's response to this query. The areas affected by the trashslide have been clearly indicated. Also the operational parts of the dumping site have been marked clearly in the figure depicting the details of the dumpsite.

Comment 4:

Further information and clarification is required on which is the exact technical description of a "controlled dumpsite" in relation to a sanitary landfill, in the framework of the Philippine regulations, and whether the operation of the project activity requires the installation of a biogas collection network, which might not have been in place at the time of utilization of the site as a dumping site. This operation could lead to the emission of methane to the atmosphere, the degree of which should be discounted as emissions from the project activity, and that could eventually be greater than the intended emissions reductions

DNV Response:

The technical description and definition of a "controlled dumpsite" and a "sanitary landfill" is as provided in the PP's response to the RFR. During the process of validation, DNV has verified the Rules and Regulations (IRR) of Republic Act 9003 (also known as Philippine Ecological Solid Waste Management Act of 2000). A copy of the same is attached herewith.

It has been confirmed that as per the regulations in the Philippines, there is no such requirement for a controlled dumpsite to install a biogas collection/flaring system. Hence, in the absence of the CDM project activity there would be a total release of methane gas. Therefore, an adjustment factor of 0% is deemed justified and acceptable by DNV.

Comment 5:

Due to the operational conditions described above, the project activity might not be applying a proper method for the estimation of baseline emissions. On the first place, the FOD model developed by the US-EPA applies to sanitary landfill conditions which were designed and implemented from the start with its biogas collection system in place, and these conditions might well vary if the site was a dumping site in the first place and a "controlled dumping site", afterwards. No technical explanation is given about the meaning of a "controlled dumping site" in Philippines and what does this mean regarding a biogas collection system. No adjustment factor has also been specified by the PP to take this into account. The FOD models used by the IPCC refer generally to properly constructed sanitary landfills, with a system for compaction and

storing in cells of solid waste, and a separation between domestic and commercial waste, on one hand, and hazardous waste, on the other.

DNV Response:

As explained in the PP's response to this point in the RFR (and also referring to the response provided for point 4 above), there is no requirement in the Philippines for a controlled dumpsite to install a biogas collection system, in consequence no Adjustment Factor was applied.

It should be mentioned that the *IPCC Guidelines* describe two main methods:
(A): The default IPCC methodology that is based on the theoretical gas yield (a mass balance equation).
(B): Theoretical first order kinetic methodologies, through which the *IPCC Guidelines* introduces the "First order decay model" (FOD).

Although the uncertainties in the estimates on CH_4 emissions from waste are large, regardless of the method used the parameters L_0 and k were taken into account with conservative approach considering k=0,8 and L_0= 135 m^3/tons. As per the 1996 IPCC guidelines, a Methane Conversion Factor (MCF = 1) for "Managed solid waste disposal sites" has been used for estimating the emission reductions generated from the project activity. This is justified by referring to the definition of "Managed solid disposal sites" according to the 1996 IPPC guidelines and the definition of controlled dump in "Rules and Regulations (IRR) of Republic Act 9003" (also known as Philippine Ecological Solid Waste Management Act of 2000), where the Payatas falls into the category of a controlled dump site and hence "Managed solid waste disposal sites" according to 1996 IPCC guidelines. From this a MCF=1 seems appropriate for estimating the methane generation.

Comment 6:

In page 10 of the PDD, it is stated that "According to this law [Republic Act No. 9003 note of reviewer], only in sanitary landfills with waste in place amounting to more than 500,000 tons should a gas control system be installed". Further clarification is required if this means that a "gas control" system was already installed at the Baragay Payatas site, and the nature of this system (bamboo or PVC pipes).

DNV Response:

As explained in the previous points (4 & 5 above), the project site is not a sanitary landfill but a controlled dumpsite. Hence, the requirement of installing a gas control system does not apply to the proposed project site. Therefore, there was no gas collection system installed.

Comment 7:

Further information and description of the project activity, including the appropriate technical descriptions about the operational condition of the project activity which must be included in the PDD, more specifically about conditions for biogas collection in new and old areas (cells?) of the dumpsite, including:

i. preliminary lining of the terrain
ii. nature and layout of the tubing and piping
iii. compaction procedures and degree
iv. drainage of leachate and gas, etc

DNV Response:
The project's technical description was requested during the process of validation and the same was provided in the form of design reports giving the details of the technical aspects of the project activity. The reports checked are:

1) *PANGEA Green Energy S.r.L* ."FINAL DESIGN (Project Description)
2) FINAL DESIGN (Electricity generation plants, transport, distribution and utilization design)" Payatas landfill – Quezon City – Philippines)

The response provided by the PP is in line with the technical reports presented to DNV and the same has been verified by DNV.

Comment 8:

The PP states in page 14 of the PDD that "the dumpsites cause serious public health, environmental and social impacts. They have inadequate fencing, signage and security provisions. Unrestricted access is prevalent. The presence of 4,000 waste pickers at the dumpsites is dangerous. They are poorly protected and at severe public health risk". It is not clear to which degree is the project activity affected by these conditions and whether the monitoring plan is adequate for these specific conditions.

DNV Response:
As explained in the PP's response to the comment, the project activity is not likely to get affected due to unrestricted access to the dumping site. This is ensured through the following measures –

a) Adequate security arrangements have been made around the project power plant and the waste burning area. The security measures include a 2 meter reinforced concrete fence around the centralized burning and power plant along with a 24 hour surveillance.
b) The dumping ground (where the intrusion from waste pickers is likely to happen) is located at a considerable distance from the extraction plant
c) And besides the above mentioned arrangements, the landfill site will be closed down by the end of 2007 thus eliminating any chance of intrusion due to unrestricted access.

Comment 9:

The DOE shall further clarify how they assessed and validated the applicability of the applied methodology to this specific project activity.

DNV Response:
The project applies the approved consolidated methodology ACM0001 (Version 5) "Consolidated methodology for landfill gas project activities". The project fulfills the following applicability criteria:

a) The project baseline is total atmospheric release of the landfill gas generated at the controlled dumpsite.
b) The captured gas is used to produce electrical energy, and emission reductions are claimed for displacing or avoiding energy from other sources.

It has also been confirmed that there are no regulatory requirements for landfill gas capture and

utilization from controlled disposal sites in the Philippines.

Three possible alternatives to the proposed project activity had been identified and it is clearly demonstrated that the chosen baseline ie., total atmospheric release of the landfill gas (which was also the ongoing practice in absence of CDM project activity) is the correct option.

We sincerely hope that the Board accepts our aforementioned explanations.

Yours faithfully
for DET NORSKE VERITAS CERTIFICATION AS

Michael Lehmann
Technical Director
International Climate Change Services

Attachments:

1. Republic Act no. 9003 "Ecological Solid Waste Management"