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Att: CDM Executive Board

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Your ref.:
 CDM Ref 1133

Our ref.:
 MLEH/LFAT

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**Response to request for review
 "Terrestre Ambiental Landfill Gás Project" (1133)"**

Dear Members of the CDM Executive Board,

We refer to the requests for review raised by three Board members concerning DNV's request for registration of the project activity entitled "Terrestre Ambiental Landfill Gás Project" (1133)", and we would like to provide the following response to the issues raised by the requests for review.

Comment 1:

"Version 3 of the Tool for the demonstration and assessment of additionality should be applied."

DNV Response:

The PDD will be revised with the latest version of the *Tool for the demonstration and assessment of additionality* as a response to Comment 1. The PDD submitted for registration, applying version 02 of the tool, correctly demonstrates the additionality of the project, independently of the version of the additionality tool applied. For this specific project, both versions lead to the same result.

Comment 2:

"The PDD states that "One reason for the small quantity of landfill power generation is the lack of technical expertise in the country. As there was so far just little research on this subject in Brazil, the companies that decide to use this kind of technology, will preferably buy the equipments from companies based in US or EU, and train the work labor to operate the system". The DOE shall further clarify how they have verified and then validated the accuracy of this statement against other large scale project activities in Brazil that precisely use the technical expertise that is lacking according to the argument in the paragraph."

DNV Response:

The applicable Brazilian legislation for treatment of waste is not effective in assuring that all waste is sent to adequate landfills, and no other complementary measures are foreseen that would promote the collection and destruction landfill gas or even the production of electricity with this gas. All projects which were implemented with an aim to destroy landfill gas were registered under CDM.

DNV validated the following of these projects and could verify the common practice:

Nova Gerar (0008) – Project implemented with collecting and flaring LFG without producing electricity (<http://www.novagerar.com.br/unidades.html>);

Ônix (0027) – Project implemented with collecting and flaring LFG with leachate drying, without producing electricity (<http://www.unitar.org/cifalweb/english/F/2/a/Breno%20CIFAL%20Curitiba%2012%20maio%202004.pdf>);

Salvador Bahia (0052) – Project implemented with collecting and flaring LFG without producing electricity;

Lara (0091) – Project implemented with collecting and flaring LFG without producing electricity;

Marca (0137) – Project implemented with collecting and flaring LFG without producing electricity (<http://www.marcaambiental.com.br/index2.asp>);

Bandeirante (0164) – Project implemented with collecting and flaring LFG and producing electricity through condensing the humidity and removing H₂S (Van der Wiell - Netherlands) and using Caterpillar (USA) engines.

Caieiras (0171) – Project implemented with collecting and flaring LFG without producing electricity (http://www.essencis.com.br/quem_un_SP.asp)

Anaconda/Arauna (0226) - Project implemented with collecting and flaring LFG without producing electricity

São João (0373) – Project implemented with collecting and flaring LFG and preparing to produce electricity with the same technology as in the Bandeirantes project

Recreio (0648) - Project implemented with collecting and flaring LFG without producing electricity;

Quitauna (0912) - Project implemented with collecting and flaring LFG without producing electricity (<http://www.quitauna.com.br>)

Embralixo/Arauna (1179) - Project implemented with collecting and flaring LFG without producing electricity

Urban Arauna (1247) Project implemented with collecting and flaring LFG without producing electricity

Moreover, the main difficulty in using landfill gas to produce electricity is the content of hydrogen sulfide, H₂S, which is a very corrosive compound, and the operation control to assure sufficient gas stream with the stability and quality necessary to produce electricity for the grid.

DNV has taken into account during the validation of Terrestre Landfill Project the restrictions by Brazilian legislation and the common practice for municipal waste disposal, especially that the capture and flaring of landfill gas is not required by any legislation. DNV verified too that the projects implemented in Brazil for capturing and flaring the landfill gas and especially for producing electricity with landfill gas were implemented only under the CDM scheme.

Given the above it is in our opinion not likely that landfill gas capture and flaring will be implemented without the incentive of CDM.

Comment 3:

In order to provide evidence of the additionality of the project activity, the PDD states that “In addition, there is a lack of funding in Brazil. CNI says that “...the bank loans are expensive; the payments are in short terms and not enough to supply the market. The capital market is not very developed, restricting the shares sells and others bonds directly to investors. And external financing, in the last years, has been oscillating in payment terms and costs, also being an unstable resource”. Furthermore, to get the loans, companies underwent through lot of bureaucracy, and the whole process could last months”. However this supporting evidence is a statement by the Confederação Nacional da Indústria dated 2003. Further evidence is requested.

DNV Response:

The financial market in Brazil has many restrictions. The first is the compulsory deposits, which remove a significant amount of money from circulation: as much as 45% of demand deposits in 2006, according to the annual report of the Central Bank of Brazil¹. The second is the high interest rates (SELIC) which has reached 3 times (12% per year) the US bonds². Only the government bank (BNDES) has some resources to finance long term projects in Brazil.

The country of greatest interest rates in the world also has the highest rate of meditation on compulsory deposits on demand (see table). According survey done by the agency of classification of credit risk Austin Rating, while most countries have rates below 10%, Brazil appears at the top of the list, with an exorbitant rate of 53% on the amount deposited in the banks. Of this total, 45% are in the Central Bank, without profitability, and 8% are paid by the basic rate of the economy (Selic).

The mechanism reduces the supply of credit in the market and, consequently, increases the loans to consumers. That's because withdrawing money from circulation and the power of credit of banks decreases. "The

¹ <http://www.bcb.gov.br/ingles/infina/FinancialStatements12312006.pdf>

² <http://www.receita.fazenda.gov.br/Pagamentos/jrselic.htm>

compulsory is an instrument of monetary policy that can stimulate economic growth and contained it to maintain the inflation rate at a moderate level," says the chief economist of Austin Rating, Alex Agostini³.

Comment 4:

To apply the simple cost analysis the PDD merely states that "As already mentioned before, there is a high investment cost related to biogas collection in Brazil. If a project implements only the biogas collection and flaring system, a rough cost estimate is around USD 1,000,000.00 (or about €775,000.00) for a similar project" and adds a table with equipment costs. Further evidence and substantiation is required.

DNV Response:

The project will not produce electricity, and no revenue is foreseen. The electricity consumed is from external grid as mentioned in section B.3 (project boundary) and section B.5 (step 1.a) of PDD and will be monitored as mentioned in B.7.1 (EL_{imp}). Hence, an approximate cost estimate is in our opinion sufficient to demonstrate the project is not financially attractive.

Nonetheless, a recent budget received by Estre Terrestre for the project, which include only the costs for the equipment for capturing and flaring landfill gas reaches €522.744,00. The budget attached to the response by the project participants is in Portuguese and DNV has requested a translation of the document.

Comment 5:

The evidence provided in the common practice analysis is dated in 2000. Updated information is required.

DNV Response:

To DNV's knowledge, no more recent study is available. However, there were no changes in Brazilian legislation or practice since 2000 and the common practice has not changed. It must be noted that from 5561 municipalities in Brazil, only 900 have sanitary landfills⁴ and capturing and flaring of landfill gas remains to be not common practice.

Comment 6:

As per the tool to determine project emissions from flaring gases containing methane, the type of flare and the approach to determine its efficiency should be documented and validated.

DNV Response:

The PDD section B.7.1 and Annex 2 table 6 mention that the FE (Flare Efficiency) applies to an enclosed flare with respective continuous monitoring in order to assure the level of 90% as established in the "*Methodological Tool to determine project emissions from flaring gases containing methane – version 1*". As the equipment will be installed only after the registration of CDM project, the type of the flare is not yet known and the assessment of the manufacturer's specification of the flare (temperature, flow rate of residual gas at the inlet of the flare) is thus subject to the first verification of emission reductions from the project.

For further technical details, please, refer to the project developers' response.

Comment 7:

The DOE should confirm how the appropriateness of the 20% adjustment factor being applied in this project activity has been validated.

DNV Response:

It is the opinion of DNV that the adopted Adjustment Factor (AF) of 20% (default value established in AM0003) is conservative in the context of the proposed project activity. The common practice for landfills in Brazil (including the project site) generally has the following characteristics:

³ <http://www.uasf.sebrae.com.br/uasfgestao/uasfnoticias/notago/not1061>

⁴ http://www.ibge.gov.br/home/estatistica/populacao/atlas_saneamento/pdfs/mappag59.pdf

- Natural venting of the landfill gas by exhaust wells (without systematic procedure for combusting or keeping existing passive flares lit).
- Simple and rudimentary passive venting systems (few numbers of chimneys that are constructed from large rocks inside a frame built from old steel drums) which cannot be compared with fully engineered properly installed and maintained active capturing systems.
- Covering of waste would not be undertaken daily in the baseline of the project landfill. This practice results not only in reduced LFG generation but also in additional leakage of LFG through the waste piles.

As a result of such practices, the fraction of generated methane to be destroyed in the baseline scenario is likely to be lower than 20%. Based on the common practice in the country and the current practices at the project site, which was confirmed during the site visit carried out during the validation process, it is DNV's opinion that the volume of methane likely to be destroyed in the baseline scenario is very small, which makes the 20% AF factor conservative.

We sincerely hope that the Board accepts our above explanations.

Yours faithfully,
for Det Norske Veritas Certification AS



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