Validation Report

AGCERT INTERNATIONAL LIMITED, IRELAND

VALIDATION OF THE AWMS GHG MITIGATION PROJECT BR05-B-06, BAHIA, BRAZIL

Report No 692230

2005, October 24

TÜV Industrie Service GmbH TÜV SÜD Group

Carbon Management Service
Westendstr. 199 - 80686 Munich - GERMANY

Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
692230	24th October 2005	0	24th October 2005	-

Subject:	Validation of a CDM Project
Executing Operational Unit:	TÜV Industrie Service GmbH TÜV SÜD Group Carbon Management Service Westendstr. 199 - 80686 Munich Federal Republic of Germany
Client:	AgCert International PLC, Ireland Sandyford Business Park The Apex Building Dublin 18, Ireland
Contract approved by:	Werner Betzenbichler
Report Title:	Validation of the Project AWMS GHG Mitigation Project BR05-B-06, Bahia, Brazil
Number of pages	21 (excluding annexes and cover page)

Summary:

The Certification Body ”Climate and Energy” has been ordered by AgCert International LLC, Ireland (AgCert International) to perform a validation of the above mentioned project.

In summary, it is TÜV SÜD´s opinion that the project “AWMS GHG Mitigation Project BR05-B-06, Bahia, Brazil”, as described in the revised project design document of October 2005, meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board and that the project furthermore meets all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0016 / Ver. 02 entitled “Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations.”

Hence, TÜV SÜD will recommend the project for registration as CDM project activity by the CDM Executive Board. Prior to the submission of this validation report to the CDM Executive Board, TÜV SÜD will have to receive the written approval of the DNA of involved parties, including confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 136.869 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 13.686 tonnes CO_2 represents a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	• Michael Rumberg (Project manager, GHG lead auditor, Auditor Environmental Management Systems (ISO 14001)) • Markus Knödlseder (GHG lead auditor, Auditor Environmental Management Systems (ISO 14001)) • Tomao Wilson (GHG auditor, ISO 14001Auditor Local expert) • Johann Thaler (GHG auditor - trainee)	**Internal Quality Control by:** Werner Betzenbichler

Abbreviations

AE	Applicant Operational Entity
AgCert Brazil	AgCert Do Brasil Solucoes Ambientais Ltda
AgCert International	AgCert International PLC, Ireland
AWMS	Animal Waste Management Systems
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DOE	Designated Operational Entity
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
PDD	Project Design Document
TÜV SÜD	TÜV Industrie Service GmbH TÜV SÜD Group
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

AgCert International PLC, Ireland (AgCert International) has commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the AWMS GHG Mitigation Project BR05-B-06, Bahia, Brazil. The validation serves as design verification and is a requirement of all CDM projects. 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 a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2 Scope

The validation scope 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. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual 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 based on the information made available to TÜV SÜD and the engagement conditions detailed in this report. TÜV SÜD can not guarantee the accuracy or correctness of this information. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on this report.

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.

The audit team has been provided with a draft PDD in June 2005. Based on this documentation a document review and a fact finding mission in form of an on site audit has taken place. Afterwards the client decided to revise the PDD according the CRs indicated in the audit process. This PDD version was submitted in July 2005 and published from August 4 until September 2, 2005. This public version which has also undergone a renewed document review, serves as the starting point for the assessment. This version submitted in October 2005 serves as the basis for the final assessment presented herewith.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the validation team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance

- Agricultural operations especially regarding manure management
- Technical aspects of gas flaring and biodigester operation
- Monitoring concepts
- Political, economical and technical random conditions in host country

According to these requirements TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV certification body “climate and energy”:

Michael Rumberg is head of the division CDM/JI at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of validation, verification and certifications processes for greenhouse gas mitigation projects in the context of the Kyoto Protocol. Before entering this company he worked as an expert for renewable energy, forestry, environmental issues, climate change and sustainability within the environmental branch of an insurance company. His competences are covering risk assessments, quality and environmental auditing (EMS auditor), baseline setting, monitoring and verification due to the requirements of the Kyoto Protocol.

Markus Knödlseder: After his professional training as chemical assistance Mr. Knödlseder studied environmental engineer at the University of Applied Science in Bingen, Germany. Beside his main focus in studies of environmental technologies, he dealt with environmental management and environmental controlling issues. He has been a staff at the department “Carbon Management Service” located in the head office of TÜV Industrie Service GmbH, TÜV SÜD Group in Munich since Oct. 2001. He has been involved in the topic of environmental auditing, baselining, monitoring and verification due to the requirements of the Kyoto Protocol with special focus on renewable energies. Mr. Knödlseder is also an auditor for environmental management systems (ISO 14.000).

Mr. Wilson Tomao is lead auditor and former manager of TÜV Bayern Brazil. He is familiar with local laws and regulations and the assessment of technical installations. He assisted Mr. Knödlseder during the on-site inspections and by evaluating documents submitting in Portuguese language.

Johann Thaler graduated as Master of environmental Economy at the University of Augsburg. During his study he got first experiences in environmental management systems. His master thesis was about a fuel switch program in Brazil as a CDM project. Based in Brazil he has been working for TÜV SÜD as a GHG auditor on freelance basis since March 2005.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (Rumberg/Knödlseder/Tomao)
- Environmental and Social Impact Assessment (All)
- Skills in environmental auditing (ISO 14000, EMAS) (All)
- Quality assurance (Knödlseder/Tomao)
- Agricultural operations especially regarding manure management (Knödlseder/Tomao)
- Technical aspects of gas flaring and biodigester operation (Knödlseder/Tomao)
- Monitoring concepts (All)
- Political, economical and technical random conditions in host country (Thaler/Tomao)

In order to have an internal quality control of the project, a team of the following persons has been composed by the certification body “climate and energy”:

- Werner Betzenbichler (project manager, GHG lead auditor)

1.3 GHG Project Description

This project proposes to apply to multiple swine Confined Animal Feeding Operations (located in Bahia, Brazil) a GHG mitigation methodology which is applicable to intensive livestock operations. The proposed project activities will mitigate AWMS GHG emissions in an economically sustainable manner, and will result in other environmental benefits, such as improved water quality and reduced odour. The project proposes to move the designated farms from a high-GHG AWMS practice; an open air lagoon, to a lower-GHG AWMS practice; an ambient temperature anaerobic digester with the capture and combustion of the resulting biogas. The concluding purpose of this project is to mitigate animal effluent related GHG by improving AWMS practices.

Project participant is AgCert Do Brasil Solucuoes Ambientas Ltda. The host party for this project activity is Brazil. In total 4 farms with 4 sites are contracted in the state of Bahia, Brazil.

The category of the project activity is in Sectoral Scope 13 - Waste Handling and Disposal, and Sectoral Scope 15 – Agriculture.

The starting date of the project activity is 01/11/2004. The 10 year non renewable crediting period starts 01/09/2005.

2 METHODOLOGY

The validation of the project consists of the following three phases:

- Desk review
- Follow-up interviews
- Resolution of clarification and corrective action requests

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

The completed validation protocol is enclosed in Annex 1 to this report.

Validation Protocol Table 1: Mandatory Requirements			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

Validation Protocol Table 2: Requirement checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*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 (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **Clarification** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	***Ref. to checklist question in table 2***	***Summary of project owner response***	***Validation conclusion***
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.*	*The responses given by the Client or other project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Validation Protocol Tables

2.1 Review of Documents

The project design document submitted by the client and additional background documents related to the project design and baseline were reviewed. The project design document underwent several revisions addressing changes to the baseline and monitoring methodology requested by the CDM Executive Board and clarification requests issued by TÜV SÜD. The audit team has been provided with a draft PDD in June 2005. The final PDD version submitted in October 2005 serves as the basis for the assessment presented herewith.

2.2 Follow-up Interviews

In the period of September 06 – September 08, 2005, TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of the farms and AgCert Do Brasil Solucuoes Ambientas Ltda were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Representatives of the farms	➢ Project design ➢ Technical equipment ➢ Sustainable development issues ➢ Additionality ➢ Crediting period ➢ Monitoring plan ➢ Management system ➢ Environmental impacts ➢ Stakeholder process
AgCert Brasil	➢ Project design ➢ Technical equipment ➢ Sustainable development issues ➢ Baseline determination ➢ Additionality ➢ Crediting period ➢ Monitoring plan ➢ Environmental impacts ➢ Stakeholder process ➢ Approval by the host country

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD`s positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communications between the Client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that will be given are summarised in chapter 3 below and documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

In the following sections the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the project design documents and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the project resulted in 9 Clarification Requests and no Corrective Action Requests.
3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and TÜV SÜD to resolve these Clarification or Corrective Action Requests is summarised.
4) The final conclusions for validation subject are presented.

The validation findings relate to the project design as documented and described in the final project design documentation.

3.1 Project Design

3.1.1 Discussion

The project participant is AgCert Do Brasil Solucuoes Ambientas Ltda. The project is developed by AgCert International PLC, Ireland. Brazil as the host Party meets all relevant participation requirements. But the project has not been approved by the national DNAs yet and no Letter of Authorization has been issued.

The objective of the Project ” BR05-B-06, Bahia, Brazil” is to apply to the farm GHG mitigation measures which will mitigate GHG emissions in an economically sustainable manner. The project foresees to replace the open air lagoons by positive pressure covered lagoon cells, creating ambient temperature anaerobic digesters.

The project design does reflect current good practice. The design has been professionally developed. A validation of the compatibility of the single components carried out by the project developer resulted in a positive conclusion. The project does moreover apply state of the art equipment.

The project boundaries are clearly defined. The project bundles 4 farms with installations of digesters at 4 sites are contracted in the state of Bahia, Brazil. During this assessment TÜV SÜD contacted the 4 farms indicated by the PDD and 3 of them were visited. As the project participant is operating/developing several similar CDM projects in the same or neighbouring region, the validation process has shown that no farm of this project is included in any other existing (draft) PDD.

The project equipment can be expected to run for the whole project period and it can not be expected that it will be replaced by more efficient technologies.

Initial training and maintenance efforts are required. In the PDD and during the visit on site the project developer confirmed that such training has taken place and/or is envisaged. Documentation on executed and/or planned training activities has been submitted.

The project is currently in line with the relevant legislation and plans in the host country. The required environmental licences are valid and have been submitted to the validation team.

It is not clear whether Brazil requires any specific CDM requirements to be fulfilled. But the project is considered to be in line with the sustainable development policies of Brazil as improvements to manure management as well as energy supply are relevant issues in the national Brazilian policy. The question can finally be answered after the issuance of the Letter of Approval by the Brazilian DNA.

It can be expected that the project will create additional environmental benefits by reducing emissions of Volatile Organics Compounds (VOCs). The project does moreover improve the quality of the fertilizer produced as a by-product to the farming activities.

The funding for the project does not lead to a diversion of official development assistance, as according to the information obtained by the audit team, ODA does not contribute to the financing of the project.

The project starting date and the operational lifetime are clearly defined. The crediting period is clearly defined.

3.1.2 Findings

Outstanding issue:

The project has not obtained a Letter of Approval/ Letter of Authorization from the Investor country and Brazilian government so far. No documentation has been submitted to the validation team. The issuance of these documents will also demonstrate whether the project is in line with sustainable development policies of the host country

> Response: The response will be given by the issuance of the Letter of Approval. This has not happened so far as the approval of the project depends on the review of the validation report which has to be submitted in advance.

Clarification Request No.1:

The numbers of planed bio-digesters are not transparent enough in the PDD. Number of modules and size of each and in total has to be added. Besides, the number of biodigestor systems identified by the auditor varies from those cited in the PDD; the following table illustrates the differences. AgCert should explain the differences.

Farm	Validation	PDD
Bons Irmaos	1	2
Granja JB	1	2
Sol do Amanhecer	Not clear yet **	3

** AgCert should explain if really 3 biodigestor systems are planned;

Response: The lagoon PDD retention time values were mathematically generated by TUV from our form B data. Validation retention times are values obtained by subjective questioning of the farmers. The values in this table cannot be compared as they indicate different

things. Values obtained by questioning may be somewhat variable as farmers adjust to minor farm changes.

Additional response by Email on September 21, 2005 (by Tony Calenda): Information about number of modules and size of each and in total has been submitted to the validation team.

First part of the response had nothing to do with CR1. However with the additional response submitted to the validation team the issue is considered to be resolved.

Clarification Request No.2:

At the farms of Bons Irmaos, Fazenda and Sol do Amanhecer the numbers of lagoons stated in the PDD are not correct or its use transparent enough described. Has to be adjusted. The following table shows the differences:

Farm	Validation	PDD
Bons Irmaos	2	4
Granja JB	1	1
Sol do Amanhecer	4 **	5

** if one identified separation box is counted as lagoon → would result in 5 lagoons as in the PDD described ;

Response:

Numbers contained in the PDD are pre-construction and are correct. Validation observed lagoons after construction started. Sol do Amanhecer does contain a distribution box and the PDD was updated to reflect the correct number of lagoons.

Issue is considered to be resolved.

Clarification Request No.3:

The manner of operation of the old lagoons is different from one farmer to the other, obviously. Also the connection is sometimes in parallel and sometimes in series, also the total time of retentions (from the barns until it is pumped to the fields) varies. The PDD should describe the old manure management in more detail and individually.

Response:

Refer to AWMS spreadsheet contained on AgCert Support documentation CD.

Issue is considered to be resolved.

Clarification Request No.4:

The time of retention data varies between the one identified on-site (validation team) and the one identified at AgCert office. The following table shows the differences for each farm. AgCert should explain the differences;

Farm	Validation	PDD
Bons Irmaos	About 90 days	69 days

Granja JB	10-15 days	30 days
Sol do Amanhecer	30 days	58 days

According to Marco Aurelio from the environmental state authority CRA there does not exist a minimum of retention time for effluents in Bahia (the auditor talked with Aurelio on the 4th of October by phone);

Response:

The lagoon PDD retention time values were mathematically generated by TUV from our form B data. Validation retention times are values obtained by subjective questioning of the farmers. The values in this table cannot be compared as they indicate different things. Values obtained by questioning may be somewhat variable as farmers adjust to minor farm changes.

Issue is considered to be resolved.

Clarification Request No.5:

The number of containment areas varies for all verified farms; the following table shows the differences:

Farm	Validation	PDD
Bons Irmaos	8	7
Granja JB	7	8
Sol do Amanhecer	11	13

Data have to be adjusted.

Response:

Assessment verified there are only 7 containment areas at Bons Irmaos.

The eighth containment area is a very small boar facility at Granja JB

At Sol do Amanhecer, assessment counted what appears to be one containment area as three. Since this apparent one containment area houses different animal types, it was considered 3 areas.

Issue is considered to be resolved.

Clarification Request No.6:

It should be added the enterprise's name for the farms Fazenda Bons Irmaos (Agrosuinos Bons Amigos Ltda.) and Fazenda Sol do Amanhecer (Gujao Alimentos Ltda.), as almost all documents are issued with the enterprise's name;

Response:

Added to table A2 of the revised PDD.

Issue is considered to be resolved.

3.1.3 Conclusion

The clarification requests have been resolved and the project does comply with the requirements. However the outstanding issue has to be answered before the project can be submitted for registration.

Further details to that conclusion are documented in annex 1 of that validation report.

3.2 Baseline and Additionality

3.2.1 Discussion

The project is based on the approved methodology: AM0016 “Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations”. The methodology has been approved by the CDM Executive Board at its 16th meeting in October 2004. The selected methodology has been designed for this project and hence the project is part of the methodology on which it is build upon. Therefore the respective baseline methodology is deemed to be the most applicable one for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the baseline methodology.

The application of the methodology and the discussion and determination of the baseline are transparent. The application follows exactly each of the steps outlined in the methodology and answers the corresponding sections in a proper manner.

The baseline is been determined using reliable assumptions. The parameter “population” as one of the decisive parameters for the quantitative prognosis is determined by using reliable data and is moreover based on date obtained from a three year period in the past. During the visit on site the availability of such comprehensive data could be observed predominantly. Hence plausible data has been provided from traceable sources ensuring the reliability of the parameter. As the parameter is moreover monitored ex-post and compared with the metered data for biogas flow the correct amount of emissions reductions will be determined in the verification process.

The baseline has been based on project specific data and does sufficiently take into account policies and developments regarding legal, econimic and social issues. There is no legal requirement to capture and combust greenhouse gases produced by swine manure in AWMS. There is currently also no planned legislation that is directed towards the emission of GHG as related to AWMS. The open air lagoon is hence considered the common AWMS practice in Brazil.

Concluding it can be stated that it has been made plausible that the chosen baseline scenario is the one deemed most realistic under the given frame conditions.

The project demonstrates via an economic analysis and the description of barriers that it is not the baseline scenario. Each step of the respective section of the methodology has hereby been applied in a correct manner. The elaborations in the PDD got substantiated by an external expert review. Concluding it has been made clear that the continuation of the AWMS by operating open air lagoons would be the most attractive course of action and hence the baseline scenario. During the visit on site the project owner substantiated these arguments by describing the financial result of the operations in the last two years.

The PDD does moreover elaborate on the starting date of the project activity and hereby successfully responds to the requirements defined in “step 0” of the “tool for the demonstration and assessment of additionality” approved by the EB (EB 16, annex 1). During the validation process the audit team obtained the information and evidenced that the start of project activities has been before the registration date of the first clean development mechanism project. It is

described in detail and based on defined dates how the CDM has been taken into account from the beginning of the project.

The economic performance, the legal constraints and the common practice have been identified as potential risks to the baseline. The subsequent evaluation resulted in the assessment that no major risks to the baseline exist. This assessment is considered as being plausible.

References have been made to all data sources used.

3.2.2 Findings

Clarification Request No.7: The stated tables and numbers of pigs, listed in annex 3 of submitted PDD are all wrong for farm Fazenda Sol do Amanhecer; for the farms Fazenda Bons Irmaos (mortality data and data for finisher) and Granja JB could be identified small errors. Must be corrected.

Response:

Based on updated inventory numbers, the PDD remains conservative and has not been changed.

Issue is considered to be resolved.

Clarification Request No.8: It is not clear if the inventory of farm Bons Irmaos starts in the beginning or the end of the months. It is not indicated (for farm Granja JB) from what month to what month are the data; the population data have to be adjusted. Consequently, the calculation of the emission reduction have to be adjusted according to the new calculated population data;

Response:

Dates in PDD updated. Recalculation based on updated numbers shows an increased ER estimate. To remain conservative, estimated ERs have not been updated in the PDD.

Issue is considered to be resolved.

Literature is mainly referenced well, but the sources of relevant baseline data are not referenced.

Clarification Request No.9: PDD does not address transparently where data about population comes from and which year(s) they represent.

Response:

PDD updated to reflect correct information.

Issue is considered to be resolved.

3.2.3 Conclusion

The clarification requests have been resolved and the project does comply with the requirements. Further details to that conclusion are documented in annex 1 of that validation report.

3.3 Monitoring Plan

3.3.1 Discussion

The project is based on an approved monitoring methodology. The methodology has been approved by the CDM Executive Board at its 16th meeting in October 2004.

The selected methodology has been designed for this project and hence the project is part of the methodology it is build upon. Therefore the respective monitoring methodology is deemed to be the most applicable one for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the monitoring methodology.

Details of the methodology as parameters to be obtained, recording frequency and archiving methods are considered being reasonable and appropriate.

The methodology and its application is described in detail and in a transparent manner. It is made clear that option “a) determination of GHG emissions using IPCC default parameters” has been chosen. During the visit on site the implementation of the operations and maintenance manual and the data management system in order to ensure a proper implementation of the monitoring plan could be evidenced.

The monitoring plan does include all relevant parameters to determine baseline and project emissions and it is possible to monitor and/or measure the currently specified GHG indicators. The indicators which are not measured can be obtained from IPCC documents. The parameters defined allow calculating the baseline and projecting emissions in a proper manner.

The monitoring plan does include all relevant parameters to determine leakage emissions. In general, leakage emissions in the proposed project activity type depend on practice changes imposed and do not apply to all projects carried out under the respective methodology. In the project assessed herewith leakage emissions are expected not to occur. In order to ensure a conservative approach respective parameters (electrical power use) are nevertheless included in the monitoring plan. Other potential leakage effects have been evaluated and it has been demonstrated that these effects do not apply to this specific project.

The project is considered to have no negative environmental, social and economic effects and a monitoring of such data is also not required by the applied monitoring methodology. This approach is deemed sufficient.

The PDD in combination with the Operations and Maintenance Manual does clearly indicate the authority and responsibilities within the given project structure. During the visit on site it has been described in detail how the respective organisational structure is already implemented and/ or planned. During the visit on site the validation team moreover realised that the project owner is well aware of the tasks and responsibilities.

The overall management responsibility is with AgCert International, Ireland. The company operates also trained staff in Brazil. The farm owner or representatives supports the AgCert staff during the on site audits and carries out the daily supervision of the project components and their performance. The responsibilities for each task are clearly defined and allocated to the Farm owners, AgCert and the service providers.

The quality and environmental management system (QMS and EMS), currently under implementation within AgCert, will help to support the project participants in operating the respective organisational structure.

3.3.2 Findings

None

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3.3.3 Conclusion

The QA/QC manual for all involved staff is sufficiently. The validation team accept that according to AM0016 not all parameters are necessary to estimate the baseline emissions. However, it should be noticed that most of the other parameters can be used for demonstrating the plausibility of measured data.

The QA/QC manual for all involved staff and their responsibility regarding monitoring is ruled sufficiently. Signed contracts are submitted to the validation team.

The validation team can not identify any risks due to inadequate management structure or quality assurance.

3.4 Calculation of GHG Emissions

3.4.1 Discussion

The project spatial boundaries are clearly described and limited to the farm site. An exact and correct description of the project boundaries is included in chapter B.4 of the PDD. The PDD hereby also reflects correctly that emissions from barn systems and barn flushing systems are not considered as these emissions are not affected by the proposed practice change.

The projects components are clearly defined in the PDD and described in figure B1 of the PDD. During the visit on site the given information has been confirmed.

Details of direct and indirect emissions are discussed in the PDD in an appropriate manner. All aspects are covered by the current approach. Methane (CH_4), nitrous oxide (N_2O) and carbon dioxide (CO_2) emissions have been considered.

The calculations resulting in the final numbers have been submitted. The formulae used are correctly applied.

Since most estimates are derived from accepted international sources, it seems reasonable to assume that they are accurate. In addition the uncertainty of parameters applied has been evaluated and is documented in Table E1-1 in section E of the PDD. The approach is deemed sufficient.

Leakage emissions from increased electrical power consumption have been identified as being theoretically a source of leakage. But in the project leakage emissions are expected not to occur. In order to ensure a conservative approach the respective parameters are nevertheless calculated resulting in a positive leakage effect. The emission factor is hereby derived from one of the options mentioned in the methodology, but is not specifically addressed to the project site. The positive leakage effect is in accordance with the methodology not taken into account.

Concluding it can be stated that the project emissions will be reduced compared to the baseline scenario by 136.869 tonnes CO_{2e} in respective resulting in a calculated annual average of 13.686 tonnes CO2 over a crediting period of ten years.

3.4.2 Findings

None

3.4.3 Conclusion

The calculation of GHG emissions and used data are according to applied methodology and its requirements.

3.5 Environmental Impacts

3.5.1 Discussion

The environmental impacts can be seen as being low. These low impacts have been sufficiently described in the PDD.
The legislation does not require an EIA for this type of project. But an environmental license for the site is necessary. This requirement for approval has been fulfilled.
Negative environmental effects are not expected to be created by the project. Given the nature of the project design this seems to be reasonable.
Transboundary effects are not expected as the project site is far from the national boundary.
As no significant environmental impacts are expected, such impacts have not influenced the project design.

3.5.2 Findings

None.

3.5.3 Conclusion

The project does comply with the requirements.

3.6 Comments by Local Stakeholders

3.6.1 Discussion

A formal consultation process with local stakeholders has taken place and corresponding information has been submitted to the audit team. The stakeholders consulted included people from the local community and also the representatives of the local communities and the State of Bahia. In addition neighbours to the site have been interviewed.

The stakeholders have been invited to meetings via post and electronic mail and which has also been published in local and regional newspapers.

No stakeholder process is required according to national legislation.

The comments to the project design have been recorded and provided. As all comments have been positive, the project design has not been changed due to stakeholder comments.

3.6.2 Findings

None

3.6.3 Conclusion

Comments of stakeholders were throughout positive. The project does comply with the requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on its website from August 4 to September 2, 2005 and invited comments within 30 days, by Parties, stakeholders and non-governmental organisations.

Published on http://www.netinform.de/KE/Wegweiser/Ebene1.aspx?Ebene1_ID=26 . During the commenting period there have been no comments received.

5 VALIDATION OPINION

The Certification Body ”Climate and Energy” has been ordered by AgCert International LLC, Ireland (AgCert International) to perform a validation of the above mentioned project.

In summary, it is TÜV SÜD´s opinion that the project “AWMS GHG Mitigation Project BR05-B-06, Bahia, Brazil”, as described in the revised project design document of October 2005, meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board and that the project furthermore meets all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0016 / Ver. 02 entitled “*Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations*.”

Hence, TÜV SÜD will recommend the project for registration as CDM project activity by the CDM Executive Board.

Prior to the submission of this validation report to the CDM Executive Board, TÜV SÜD will have to receive the written approval of the DNA of involved parties, including confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

By avoiding GHG emissions from open air lagoons, the project results in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An economic comparison with alternative scenarios and an analysis of the investment and technological barriers demonstrates that the proposed project activity 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. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 136.869 CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 14.163 tonnes $CO_{2,}$ (except the first year, here: 9.402 tonnes CO_{2e}) represents a reasonable estimation using the assumptions given by the project documents.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2005-10-24

Werner Betzenbichler

Head certification body “climate and energy“

Munich, 2005-10-24

Michael Rumberg

Project Manager

Appendix A: Validation Protocol

Appendix B: Information Reference List