VALIDATION REPORT

Agropecuária Salto do Leão Ltda.
Ecoinvest Carbon Brasil Ltda.

Agropecuária Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project

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Date of issue:	Project No.:
14-12-2006	CDM.Val0521
Project title	Organisational unit:
Agropecuária Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project	SGS Climate Change Programme
Revision number	Client:
01	Agropecuária Salto do Leão Ltda. Ecoinvest Carbon Brasil Ltda.

Summary
The Agropecuária Salto do Leão Ltda, - Spessatto, Santo Expedito and Barra do Leão hydroelectric Power Plant Project, consists in three small hydro power plants with reservoir.
The validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide consistent project operations, monitoring and reporting. Using a risk based approach, the validation of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria.
The starting date of project activity is August 2007 and crediting period over 7 years.
Total amount of emission reductions estimated for the first crediting period is 82,207 t CO_2 eq.

The SGS will request the registration of the Agropecuária Salto do Leão Ltda – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project as a CDM project activity, once the written approval by the DNA of the participating Parties and the confirmation by the DNA of Brazil that the project assists in achieving sustainable development has been received.

Subject.:			
CDM validation			**Indexing terms**
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Date of final decision:	Number of pages:		
	13	☐	Unrestricted distribution

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Abbreviations

AM	Approved Methodology
CAR	Corrective Action Request
CER	Certified Emission Reduction
DNA	Designated National Authority
MP	Monitoring Plan
NIR	New Information Request
PDD	Project design Document
SGS	Société Générale de Surveillance
EF	Emission Factor

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1. Introduction

1.1 Objective

Agropecuária Salto do Leão Ltda has commissioned SGS to perform the validation of the project: Agropecuária Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project with regard to the relevant requirements for CDM project activities. 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 seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

1.2 Scope

The scope of the validation 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. SGS has 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 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.

1.3 GHG Project Description

Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project is owned by Agropecuária Salto do Leão Ltda, a company that, besides the construction and exploration of SHPs, which is a new business branch, produces eggs and organic manure.

The Agropecuária Salto do Leão Ltda, - Spessatto, Santo Expedito and Barra do Leão hydroelectric Power Plant Project, consists in three small hydro power plants with reservoir:

- SHP Spessatto with 2,35 MW of installed capacity and small reservoir of 0.0017 Km² in the Erval Velho city;
- SHP Santo Expedito with 2,25 MW of installed capacity and small reservoir of 0.0005 Km², in Campos Novos city;
- SHP Barra do Leão with 3, 55 MW of installed capacity and small reservoir of 0.24604 Km², Campos Novos city.

The plants are located in the south of Brazil, state of Santa Catarina, in the cities of Erval Velho and Campos Novos. The project improves the supply of electricity with clean renewable hydroelectric power. The project will displace the thermal plants linked to the Brazilian National Integrated Grid (S-SE-CO/ South-Southeast-Midwest Grid).

Project activity is categorized in category 1 – energy Industries, type I Renewable Energy Power project, Sub category: D – renewable Electricity Generation for a Grid, (version 9, July 28, 2006).

The starting date of project activity is August 2007 and crediting period over 7 years.
Total amount of emission reductions estimated for the first crediting period is 82,207 t CO_2 eq.

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Baseline Scenario:
The baseline scenario is the continuation of the current situation of electricity supplied by large hydro and thermal power plants.

With-project scenario:
The project activity consists of the installation of a run-of-river small hydro plant with installed capacity of 8.15 MW.
The project reduces emissions of greenhouse gas (GHG) by avoiding electricity generation by fossil fuel sources and its CO2 emissions, which would be emitted in the absence of the project.

Leakage:
The project developer is not expecting any leakage related to the project activity.

Environmental and social impacts:

The environmental impact of the project activity is considered small considering the host country definition of small-hydro plants, given the small dam and reservoir size.

With the use of small hydropower facilities to generate electricity for local use and for delivery to the grid, the project displaces part of the electricity derived from diesel, a finite fossil fuel, and gives less incentive for the construction of large hydro plants which can have major environmental and social impacts.

Regarding the compliance with environmental legislation of the host country, the Brazilian regulation requires an environmental licensing process. It was verified during the validation assessment that the plants obtained the required licenses.

Regarding social and economic impacts, it is expected that small hydropower plants can provide local distributed generation, in contrast with the business as usual large hydropower and natural gas fired plants.

It is expected that the project activity will contribute to improve the supply of electricity, while contributing to the environmental, social and economic sustainability.

1.4 *The names and roles of the validation team members*

Name	***Role***
Fabian Gonçalves	*Lead Assessor*
Geisa Principe	*Local assessor*
Marco van der Linden	*Technical reviewer*

2. Methodology

2.1 Review of CDM-PDD and additional documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline. Additional information can be required to complete the validation, which may be obtained from public sources or through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate.

The results of this local assessment are summarized in Annex 1 to this report.

2.2 Use of the validation protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements are linked to checklist questions the project should meet.	*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 (**Y**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **New Information Request (NIR)** is used when the validation team has identified a need for further clarification.*

The completed validation protocol for this project is attached as Annex 2 to this report

2.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR).** A CAR

is issued, where:

I. mistakes have been made with a direct influence on project results;

II. validation protocol requirements have not been met; or

III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

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The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

2.4 Internal quality control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

3. Determination Findings

3.1 Participation requirements

Brazil is listed as the host Party. Brazil has ratified the Kyoto Protocol on 23rd August 2002 (http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf).

At time of the validation, no Letter of Approval from the host country had been provided. The Letter of Approval will be signed when the DNA of Brazil receive and analyse the validation report.

3.2 Baseline selection and additionality

To qualify as a small-scale project as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM, the project activity must meet the following criteria:

(i) Renewable energy project activities with a maximum output capacity equivalent of up to 15 megawatts (or an appropriate equivalent);
(ii) Energy efficiency improvement project activities which reduce energy consumption, on the supply and/or demand side, by up to the equivalent of 15 gigawatt/hours per year;
(iii) Other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually;

Agropecuária Salto do Leão – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project uses the renewable hydro potential of the Leão River to generate electricity with 8.15 MW of total installed capacity (less than the eligibility limit of 15 MW for small scale projects).

This activity confirms with category I.D Renewable electricity generation for a grid, that comprises renewable energy generation units that supply electricity to an electricity distribution system that is or would have been supplied by at least one fossil fuel or non-renewable biomass fired generation unit.

It was verified that the project is not a debundled component of a larger activity. The project is located in the Leão river, where Spessatto, Barra do Leão and Santo Expedito is located and all in construction. The Spessatto, Barra do Leão and Santo Expedito plants will start operation on August 2007.

In addition, the UNFCCC website was verified and does not show another registered project with the

same characteristics in the same place.

According to simplified methodologies, project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one pre-defined barrier.

For the discussion of additionality, it was used the "Tool for the demonstration and assessment of additionality", (SSC projects can use simplified procedures - Attachment A to Appendix B. The project has done more than necessary to demonstrate additionality, but it is acceptable).

In the discussion of additionality NIR 2 was raised. The Investment barrier is not so clear, was necessary to provide more information about the process to obtain the PPA, if was signed. The PDD describe some information about Proinfa, but the project didn´t make use of Proinfa program. The information presented about instutional barrier, PPA, bank financing were revised because some data are not applicable to the project. The investment barrier as presented is not the most important barrier, the project received subsidised funds (with interest rate lower than the rate of the market). The PDD version 3 provides more information regarding the barriers. NIR 2 was closed out.

The project is being developed by farmers that produces eggs and organic manure, and the energy generation is not the usual business, this represents a cultural barrier that project faces
Considering the Common practices in the country, it was discussed that the project such as Spessatto, Santo Expedito and Barra do Leão are not widely observed and commonly carried out in the country. It was verified that, until September 2006, only 1.43% of the total energy generation in the country comes from small hydro power plants. The common practice has been the construction of large hydropower plants and recently thermal plants.

3.3 Application of Baseline methodology and calculation of emission factors

The methodology applied to this Small Scale Project Activity is Type 1: Renewable energy projects. Category, I.D.: Grid connected renewable electricity generation.

Baseline calculations are done according to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient calculated in a transparent and conservative manner as the average of the "approximate operating margin" and the "build margin". For the purpose of determining the build margin and the operating margin emission factors, a project electricity system is defined by the spatial extent of the power plants that can be dispatched without significant transmission constraints. Similarly a connected electricity system is defined as one that is connected by transmission lines to the project and in which power plants can be dispatched without significant transmission constraints.

The data used for calculating the emission factor were obtained from national agency, dispatch authority ONS (Operador Nacional do Sistema). The operating margin, build margin, and emission factor of the grid was calculated using ONS data information from years 2003, 2004 and 2005.

During desk study, detail about the determination of the emission factor (0.2611 $kgCO_2e$ / kWh) was clearly explained. The worksheets with emission factor calculation were verified during validation assessment and copy was provided.

The project emissions and leakage are "zero".

The emission reductions by the project activity, ER_y during a given year y is the product of the baseline emissions factor, EF_y , times the electricity supplied by the project to the grid, EG_y, as follows:
$ER_y = EF_y . EG_y$

3.4 Application of Monitoring methodology and Monitoring Plan

The monitoring plan of the project is in line with the monitoring methodology mentioned in category I.D. Monitoring shall consist of metering the electricity generated by the renewable energy. The data monitored in combination with an emission factor will be used for calculation the achieved emission reductions.

The plant is not in operation yet. It was raised an observation (1): The procedures for calibration, maintenance of the monitoring equipment, monitoring data, reports, internal audits and corrective actions should be clearly described and implemented until the start up of the plant. Personnel involved in monitoring activities should be trained on the procedures.

3.5 Project design

CAR 3 was raised to correct section E.2 of the PDD: to present the correct table, according PDD template. Version 3 of the PDD presents the correct table. CAR 3 was closed out.

It was necessary to provide more information why the project is not part of a larger project activity. NIR 4 was raised. The PDD was revised and was verified that the project comply with Appendix C of the Simplified Modalities and Procedures for Small-Scale CDM projects activities. During validation assessment it was confirmed that the project is not considered part of a larger project activity. NIR 4 was closed out.

The other information presented in the PDD (location, specification and installed capacity of the SHP, total amount of electricity generated and sources of external data and references regarding baseline scenario and additionality) was accurate and reliable, as confirmed by the local assessor.

3.6 Environmental Impacts

No significant adverse environmental impact is expected from the project.

It was verified during the validation assessment that the plants obtained the preliminary and construction licenses. The licenses were issued by the Santa Catarina Environmental Agency (FATMA - Secretaria Estadual do Meio Ambiente de Santa Catarina). The following documents were verified: Previous license (PCH Spessatto) n° 224/05 – CRP, issued on 22/03/200; Installation license (PCH Barra do Leão) LAI n° 791/05, issued on 08/09/2005 and Installation license (PCH Santo Expedito), issued on 08/09/2005.

In order to implement measures to mitigate adverse impacts identified in the Environmental Impact Assessment, the company prepared Environmental Control Plans and Basic Environmental Project which were approved by FATMA. They involve, among other: impacts to climate and air quality; water resources monitoring; geological and soil impacts; monitoring and rescue of fauna and archaeological rescue.

3.7 Local stakeholder comments

Local stakeholders were invited to comment on the Agropecuária Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project.

The organizations and entities invited for comments on the project were:

- Erval Velho and Campos Novos City Hall
- Erval Velho and Campos Novos City Council
- State of Santa Catarina Environmental Agency
- Environmental Department of Erval Velho and Campos Novos
- Erval Velho and Campos Novos NGO – Non-Governmental Organization: Centro Comunitário de

Erval Velho Almérico Ganzer, Associação Lar dos Meninos João Didomênico

- Santa Catarina State Public Attorney

- FBOMS – Fórum Brasileiro de ONGS e Movimentos Sociais para o Meio Ambiente e Desenvolvimento

During validation assessment CAR 1 was raised: to sent the letter to local stakeholders: local communities. Documented evidences of the stakeholders consultation were verified by the local assessor. Letters to stakeholders were sent, describing the project and inviting for comments, in accordance with Resolução nº1 (DNA requirement). CAR 1 was closed out.

No comments were received.

4. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

4.1 Description of how and when the PDD was made publicly available

The PDD and the monitoring plan for this project were made available on the SGS website http://cdm.unfccc.int/Projects/Validation/DB/TYAN4IN7N5Y1WPCSSV60LQYNOUIOTK/view.html and were open for comments from 09-08-2006 until 07-09-2006. Comments were invited through the UNFCCC CDM homepage.

4.2 Compilation of all comments received

Comment number	*Date received*	*Submitter*	*Comment*
1			

No comments received to the DOE during the 30 days commenting period.

4.3 Explanation of how comments have been taken into account

No comments received.

5. Validation opinion

Steps have been taken to close out four Findings.

SGS has performed a validation of project: Agropecuária Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project. The validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide consistent project operations, monitoring and reporting.
Using a risk based approach, the validation of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria.

By the displacement of fossil fuels by renewable energy sources in the generation of electricity, the project results in reducing greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. A review of the barriers presented demonstrates that the proposed project activity was 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. If the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.
The validation is based on the information made available to SGS and the engagement conditions detailed in the 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 SGS 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.

6. List of persons interviewed

Date	***Name***	***Position***	***Short description of subject discussed***
August, 15th, 2006	Karen Nagai /	Consultant - Ecoinvest	TECHNICAL ISSUES, FINDINGS, MONITORING PLAN, BASELINE, LICENSES.
August, 15th, 2006	Noberto Spessatto/	Director - Agropecuária Salto do Leão	Licenses, stakeholder consultation process, findings, operational issues, monitoring plan.

7. Document references

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

/1/ Project Design Document, Agropecuária Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroeletrc Power Plant project. , Version 1 (03/08/2006), Version 2 (15/08/2006), Version 3 (06/09/2006), Version 4 (26/09/2006), Version 5 (13/12/2006).

/2/ AMS-I.D: - Grid connected renewable electricity generation (Simplified baseline and monitoring methodologies for selected small scale CDM project activity - Type I – Renewable Energy Projects/ I.D. Grid connected renewable electricity generation), Version 09 (28/07/2006).

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

/3/ Tool for the demonstration and assessment of additionality. UNFCCC, 28 November 2005, version2.

/4/ Intention letter – sell and purchase electricity energy, between Electra Comercializadora de Energia LTDA and Agropecuária Salto do Leão, 01/07/2005.

/5/ PCH Spessatto - Previous environmental license – LAP Nº 224/05-/CRP, 22/03/2005, issued by FATMA (Fundação do Meio Ambiente).

/6/ PCH Barra do Leão - Installation environmental license – LAI Nº. 791/05, 08/09/2006, issued by FATMA (Fundação do Meio Ambiente).

/7/ PCH Santo Espedito – Installation environmental license – LAI Nº 790/05, 08/09/2005, issued

by FATMA (Fundação do Meio Ambiente).

/8/ PCH Santo Expedito - ANEEL license Nº 205/2006-SGH/ANEEL, 22/03/2006, issued by ANEEL (Agência Nacional de Energia Elétrica – Electric Energy National Agency).

/9/ PCH Barra do Leão – ANEEL license Nº 042/2006-SGH/ANEEL, 13/01/2006, issued by ANEEL (Agência Nacional de Energia Elétrica – Electric Energy National Agency).

/10/ PCH Spessatto – ANEEL license Nº 003/2006-SGH/ANEEL, 02/01/2006, issued by ANEEL (Agência Nacional de Energia Elétrica – Electric Energy National Agency).

/11/ RDPA PCH Spessatto, Environmental report.

/12/ PCH Barra do Leão – financial worksheet.

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