



CDM Project Activity Registration and Validation Report Form

(By submitting this form, designated operational entity confirms that the proposed CDM project activity meets all validation and registration requirements and thereby requests its registration)

Section 1: Request for registration

Name of the designated operational entity (DOE) submitting this form	SGS United Kingdom Ltd.
Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration	Agropecuário Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project.
Project participants (Name(s))	Agropecuária Salto do Leão Ltda. Ecoinvest Carbon Brasil Ltda.
Sector in which project activity falls	1 Energy industries (renewable - / non-renewable sources)
Is the proposed project activity a small-scale activity?	<u>Yes</u> / No

Section 2: Validation report

List of documents to be attached to this validation report (please check mark):	
<p> <input checked="" type="checkbox"/> The CDM-PDD of the project activity <input checked="" type="checkbox"/> An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations; <input type="checkbox"/> The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development: <input type="checkbox"/> (Attach a list of all Parties involved and attach the approval (in alphabetical order)) N/A Host Party: <input checked="" type="checkbox"/> Brazil <input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation <input checked="" type="checkbox"/> Comprehensive list of documents attached clearly referenced <input checked="" type="checkbox"/> List of persons interviewed by DOE validation team during the validation process <input checked="" type="checkbox"/> Any other documents. Please refer to list of documents attached. </p> <p> <input checked="" type="checkbox"/> Information on when and how the above validation report is made publicly available. <input type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee <input type="checkbox"/> A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocations of CERs at issuance allocations of CERs at issuance. </p>	

Executive Summary and Introduction, including

- **Description of the proposed CDM project activity**
- **Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable)**
- **DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation)**

Description of the proposed CDM project activity

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 8, March 3, 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 165,012 t CO₂ eq.

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.

Scope

The scope of the validation is the independent and objective review of the project design document, the baseline study and monitoring plan and other relevant documents of the Agropecuário Salto do Leão Ltda. – Spessatto, Santo Expedito and Barra do Leão Small Hydroelectric Power Plant Project. The information in these documents is reviewed against the criteria defined in the Marrakech Accords (Decision 17) and the Kyoto Protocol (Article 12) and subsequent guidance from the CDM Executive Board.

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.

Overview of documentation that has been reviewed and names of persons that have been interviewed as part of the validation

Please refer to Annex 3.

DOE Validation team

Name	Role
Fabian Gonçalves	Team leader / lead assessor
Geisa Principe	Local assessor
Marco van der Linden	Technical reviewer

Description of methodology for carrying out validation

- Review of CDM-PDD and additional documentation attached to it
- Assessment against CDM requirements (e.g. by use of a validation protocol)
- Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are “labelled” during validation.
- Include statements or assessments in the section “Conclusions, final comments and validation opinion” below.

Review of CDM-PDD and additional documentation

The validation was performed primarily as a document review of the publicly available project documents (see Annex 3 for the list of documents). The assessment was carried out by trained assessors using a customised validation protocol.

A site visit was not required to verify assumptions in the baseline. Additional information was required

to complete the validation, which was obtained through telephone, e-mail and face-to-face interviews with the project developers. These were performed by local assessor from the SGS do Brazil. The results of the validation assessment carried out on 10th August till 5th September 2006 are summarised in Annex 6 to this report.

Assessment against CDM requirements

In order to ensure transparency, a validation protocol was customised for the project. The protocol shows 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 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.

<i>Checklist Question</i>	<i>Means of verification (MoV)</i>	<i>Comment</i>	<i>Draft and/or Final Conclusion</i>
<i>The various requirements are linked to checklist questions the project should meet.</i>	<i>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.</i>	<i>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.</i>	<i>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). New Information Request (NIR) is used when the validation team has identified a need for further clarification.</i>

The completed validation protocol for this project is attached as Annex 4 to this report.

Report of findings and use of type of findings.

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

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 that requires the Project Developer to do something (for example correct something in the PDD) the Assessor shall raise a **Corrective Action Request (CAR)**.

Observations may also 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.

New Information Requests and Corrective Action Request are raised in the draft validation protocol and detailed in a separate form (Annex 5). In this form, the Project Developer is given the opportunity to “close” NIRs and CARs.

For this project, the *New Information Requests (NIR)* and the *Corrective Action Request* were closed

out through communication between validation team and the project developers. Changes to the project design were necessary to clarify the issues raised.

Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

- **Description of how and when the PDD was made publicly available**
- **Description of how comments were received and made publicly available**
- **Explanation of how due account has been taken of comments received**
- **Compilation of all comments received (Identify the submitter)**

In accordance with the CDM modalities and procedures, the project design document of this proposed CDM project activity has been made publicly available and comments have been invited from Parties, stakeholders and UNFCCC accredited non-governmental organizations. This process is described in Annex 1 to this report, which is available as a separate document.

Conclusions, final comments and validation opinion

- Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been met. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.
- Final comments and validation opinion

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.

Eligibility as a small scale project activity

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:

- Renewable energy project activities with a maximum output capacity equivalent of up to 15 megawatts (or an appropriate equivalent);
- 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;
- 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 conforms 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.

Baseline and monitoring methodology

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 2002, 2003 and 2004.

During desk study, detail about the determination of the emission factor (0.5241 kgCO₂e / 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:

$$ER_y = EF_y \cdot EG_y$$

Additionality

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 institutional 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 as 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.

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.

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.

Comments by local stakeholders

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.

Other requirements

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.

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.

Final comments and 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.

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

By submitting this validation report, the DOE confirms that all validation requirements are met.

Name of authorized officer signing for the DOE

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.

Date and signature for the DOE

<i>Section below to be filled by UNFCCC secretariat</i>		
Date when the form is received at UNFCCC secretariat		
Date at which the registration fee has been received		
Date at which registration shall be deemed final		
Date of request for review, if applicable		
Date and number of registration	Date	Number