VALIDATION REPORT

PARAMONGA CDM BAGASSE BOILER PROJECT IN PERU

REPORT NO. 2005-0463

REVISION NO. 01

DET NORSKE VERITAS

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Client: Agro Industrial Paramonga S.A. - AIPSA	Client ref.: Mr. Hugo Ayon

Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Paramonga CDM Bagasse Boiler Project" (hereafter called "the project") in Peru. The validation is based on the UNFCCC criteria for the CDM as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. This validation report summarises the validation findings.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan (February-March 2005) ii) follow-up interviews with project stakeholders (March 2005) and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion (April 2005).

In summary, it is DNV's opinion that the Paramonga CDM Bagasse Boiler Project, as described in the revised and resubmitted project design documentation submitted to DNV on 29 April 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the simplified baseline and monitoring methodology for category I.C small-scale CDM project activities. Hence, DNV requests the registration of the Paramonga CDM Bagasse Boiler Project as CDM project activity.

Report No.: 2005-0463	Subject Group: Environment	
Report title: Paramonga CDM Bagasse Boiler Project in Peru		
Work carried out by: Mari Grooss Viddal, Ramesh Ramachandran, Edgardo Devoto		
Work verified by: Michael Lehmann		
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Abbreviations

AIPSA	Agro Industrial Paramonga S.A.A.
CAEMA	Andean Center for Environmental Economics
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CONAM	Consejo Nacional del Ambiente (National Counsel of the Environment of Peru)
DNV	Det Norske Veritas
DNA	Designated National Authority
EIA	Environmental Impact Assessment
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
NPV	Net Present Value
NSS	National Strategy Study
ODA	Official Development Assistance
PDD	Project Design Document
QUIMPAC	Sociedad Paramonga Ltda
UNFCCC	United Nations Framework Convention on Climate Change

1 INTRODUCTION

Agro Industrial Paramonga S.A. (AIPSA) has commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the Paramonga CDM Bagasse Boiler Project in Peru (hereafter called "the project"). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC and host Party criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Validation Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the 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).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM rules and modalities as agreed in the Marrakech Accords, the simplified modalities and procedures for small-scale CDM project activities and the relevant decisions by the CDM Executive Board. The validation team has, based on the recommendations in the Validation and Verification Manual /3/, employed a risk-based approach, 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 project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

1.3 Description of Proposed CDM Project

AIPSA, the project proponent, is a large sugar company in Peru, producing approximately 110 thousand metric tonnes of sugar annually. AIPSA is situated approximately 200 kilometres north of Lima.

The main objective of the Paramonga CDM Bagasse Boiler project is to change the energy generation system of AIPSA from the current Residual fuel oil based energy generation system, to a new sugar cane bagasse based energy system. The project will substitute two boilers which consume primarily Residual fuel oil, complemented by residual pith and bagasse; with one new boiler that uses only bagasse and pith. The existing boilers and the proposed new boiler are physically assigned to the adjacent paper company Sociedad Paramonga Ltda (QUIMPAC). The project will produce steam and electricity for AIPSA's sugar production process. The bagasse boiler will have an installed capacity of 13.6 MW_{th}. All bagasse used in the project comes from AIPSA's own sugar cane planting activities.

Continued use of Residual fuel oil has been identified as the baseline scenario for the project. In this way, fossil fuel (Residual fuel oil) will be displaced by renewable fuel (Bagasse) and thereby

greenhouse gas emissions are reduced. The project is estimated to reduce emissions by 85 300 tonnes CO_2e per year on the average.

The only project participant is Agro Industrial Paramonga S.A. (AIPSA) of Peru. The participating Party is Peru as host Party. No Annex I Party is yet participating in the Paramonga CDM Bagasse Boiler project.

2 METHODOLOGY

The validation consists of the following three phases:

I a desk review of the project design documents (February to March 2005)
II follow-up interviews with project stakeholders (8-11 March 2005)
III the resolution of outstanding issues and the issuance of the final validation report and opinion (March to April 2005).

The validation team consisted of the following personnel:

Ms Mari Grooss Viddal	DNV Certification Oslo	Team Leader, GHG auditor
Mr Edgardo Devoto	DNV Certification Buenos Aires	GHG auditor
Mr Ramesh Ramachandran	DNV Certification Chennai	GHG auditor
Mr Michael Lehmann	DNV Certification Oslo	QA, Energy sector expert

2.1 Review of Documents

The Project Design Document (PDD) /1/ (original version of 18 November 2004 and revised versions submitted to DNV on 29 April 2005) submitted by AIPSA, the letter of Approval by the DNA of Peru /2/ and additional background documents /3/ -/4/ were reviewed.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /3/. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The completed validation protocol for the Paramonga CDM Bagasse Boiler Project is enclosed in Appendix A to this report.

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.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
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**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*	*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).A request for **Clarification (CL)** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report clarifications and corrective action requests	***Ref. to checklist question in table 2***	***Summary of project participants' 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 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

2.2 Follow-up Interviews

In the period of 8-11 March 2005, DNV (Mr. Edgardo Devoto) performed interviews with project stakeholders in Peru to confirm selected information and to resolve issues identified in the document review. Representatives of Agro Industrial Paramonga S.A.A.(AIPSA) /5/-/8/, the Consejo Nacional del Ambiente (CONAM) /12/, Andean Center for Environmental Economics (CAEMA) /11/ and local stakeholders were consulted /9/-/10/. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
AIPSA/ CAEMA	➢ Overview of technology and whether it represents good practice, boiler design ➢ Purchase & trade agreements with QUIMPAC ➢ Operation & ownership details with respect to the power plant and boilers ➢ Details of raw materials like cane, bagasse, with respect to availability, yield, quality and consistency ➢ Details of bagasse storage and selling of bagasse to others ➢ Procedures for operation and maintenance, resources, training needs and provisions made to ensure capacity transfer from technology suppliers ➢ Construction and operation permits ➢ EIA and obtaining clearance ➢ Further information regarding the project's IRR/NPV and potential financial incentives ➢ Stakeholders consultation process
Local Stakeholders	➢ Stakeholder consultation process ➢ Environmental and social concerns
CONAM	➢ Approval process for CDM projects ➢ The project's contribution to sustainable development ➢ EIA requirements ➢ Operating and licence permits

2.3 Resolution of Clarification and Corrective Action Requests

Findings established during the validation can either be seen as a non-fulfilment of validation criteria or where a risk to the fulfilment of project objectives is identified. *Corrective Action Requests* (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;
ii) CDM or host Party 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 certified.

Requests for *Clarification* are used where additional information is needed to fully clarify an issue.

Two Corrective Action Requests and one request for clarification have been identified and were presented to the project participants in DNV's draft validation report of 13 April 2005 (rev. 0). Additional information provided by the project participants resolved these requests to DNV's full satisfaction. To guarantee the transparency of the validation process, the concerns raised by DNV and the response provided by the project participants are documented in Table 3 of the Validation Protocol in Appendix A.

3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised PDD submitted to DNV on 29 April 2005.

3.1 Participation Requirements

The only project participant is Agro Industrial Paramonga S.A.A. (AIPSA) of Peru. The participating Party is Peru as host Party. No Annex I Party is yet identified. Peru meets the requirements to participate in the CDM. The DNA of Peru approved the project on 28 January 2005 and authorized AIPSA to participate in the proposed CDM project activity /2/.

3.2 Project Design

The project design represents good current practice. The project involves the construction of a biomass based cogeneration system which will utilise bagasse. The boiler will have an installed capacity of 13.6 $MW_{thermal}$. Being a renewable energy project activity with a capacity of less than 45 $MW_{thermal}$, the project qualifies as a small-scale CDM project activity according to category (i) defined in paragraph 6, subparagraph (c) of decision 17/CP.7 on the modalities and procedures for the CDM.

The proposed technology for the bagasse based boiler is a CB SERV boiler. The boiler was selected based on an assessment of five different boilers. Initial training is required and a training program has been defined. The plant manager, supervisors, operators and maintenance personnel will attend the training.

By promoting renewable energy, the project is likely to contribute to sustainable development in Peru. In its Letter of Approval /2/, the DNA of Peru (CONAM) confirms the project's contribution to the sustainable development of Peru /2/.

The operational lifetime of the project is estimated to be around 30 years. Construction of the project is estimated to start 1 May 2005 and is expected to be completed within 12 months. A fixed 10 years crediting period is selected, starting 1 May 2006.

The project has not received and is not seeking any public funding.The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards Peru. This has verbally been confirmed by CONAM.

3.3 Baseline and Additionality of the Project

Being a renewable energy project with a capacity of less than less than 45 $MW_{thermal}$,, the project qualifies as small-scale CDM project activity. The project applies the simplified baseline and monitoring methodology for *Renewable energy: Thermal energy for the user* project activity (Type I.C) which is appropriate for the proposed project activity /4/.

The project applies one of the simplified methodologies proposed for this small scale project activity category, i.e. the baseline is the fuel consumption of the technologies that would have

been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced. The project displaces Residual fuel oil and IPCC emission coefficients for Residual fuel oil are used. The baseline methodology has been correctly applied and the assumptions made for the selected baseline scenario are sound.

Investment barriers and barriers due to prevailing practise are presented to demonstrate the additionality of the project. Moreover, there are no legal requirements for AIPSA to change from Residual fuel oil to another fuel.

To demonstrate that the project faces investment barriers, a Net Present Value (NPV) analysis of the following two alternatives has been carried out; 1) continuation of the existing situation and 2) installation of a new bagasse boiler without the CDM. The analysis concluded that the first alternative is the preferred option with significantly less negative NPV (i.e. less loss) than the second alternative. Finally, an analysis of the financial impact of the CDM on the project demonstrates that CER revenues will significantly alleviate the financial barriers for implementing the new bagasse boiler. The NPV analyses are transparently documented in the PDD.

Barriers due to prevailing practice exist due to long term contractual arrangements that favourably support the continued use of Residual fuel oil in the existing boilers. The existing boilers and the proposed boiler are physically assigned to the adjacent paper company QUIMPAC. AIPSA signed a resource exchange agreement with QUIMPAC that transfers bagasse from AIPSA to QUIMPAC for its paper pulp process, and transfers two types of fuel from QUIMPAC to AIPSA: pith and Residual fuel oil. This 30 year agreement also gives AIPSA the right to use QUIMPAC's boilers at no cost to generate electricity and steam. Hence the present arrangement is likely to be the preferred alternative during the course of the crediting period in absence of the CDM. The arrangement with QUIMPAC has been verified through follow-up interviews /5/-/8/.

Due to the presented investment barrier and barriers due to the existence of contractual arrangements that favourably support the continued use of Residual fuel oil, the barriers analysis is deemed sufficient to demonstrate the additionality of the project.

3.4 Monitoring Plan

The project applies the simplified monitoring methodology proposed for *Renewable Energy: Thermal energy for the user* project activities (Type I.C) /4/, i.e. Paragraph 9(a): "metering the energy produced by a sample of the systems where the simplified baseline is based on the energy produced multiplied by the emission coefficient of the fuel used". As the bagasse boilers co-generate steam and electricity, another monitoring methodology as per paragraph 9 of Type I.C, /4/, i.e. "metering the thermal and electrical energy generated for co-generation projects" seems to be more appropriate. However, the monitoring plan foresees continuous monitoring of the output thermal energy of the bagasse boiler (including steam used for electricity generation) and is thus in accordance with the latter monitoring methodology.

The monitoring methodology will give opportunity for real measurements of achieved emission reductions. Actual steam use will be monitored continually and will be used to annually adjust the baseline emissions that are estimated ex-ante by using an efficiency parameter. The monitoring plan also includes measuring the amount of residual oil that could be burned in extraordinary circumstances.

The amount of bagasse and pith burned in the bagasse boiler will be monitored to account for project CH_4 and N_2O emissions from burning bagasse and pith.

Since AIPSA begins to consume its own bagasse, QUIMPAC will need to acquire its bagasse supplies from other sugar cane producers. These producers are located at great distances, so that the transportation of bagasse will generate new emissions that should be accounted for in the project. Hence, the difference between actual bagasse delivered to QUIMPAC and bagasse provided in the baseline will be determined and the bagasse quantity which AIPSA will deliver to QUIMPAC will be monitored. This difference will then be the basis for calculating project emissions from transport.

Responsibilities for project management and monitoring and reporting of emission reductions are clearly defined by the AIPSA‘s board. Responsibilities and procedures for project management and monitoring and reporting of emission reductions are deemed appropriate for this type of project and allow for consistent subsequent verifications of emission reductions.

3.5 Calculation of GHG Emissions

The calculations are transparently documented and appropriate assumptions regarding expected amounts of steam generated have been used to forecast emission reductions.

Baseline calculations have followed the following four steps:

1. Calculate the energy requirements of AIPSA in terms of amount of steam per year. This is based on the production schedule for the next 4 years. The requirements of steam will be calculated by applying an efficiency parameter for demand for steam of the production process (59% tonne steam/tonne sugar cane). This efficiency parameter has been established as a result of process optimisation. The parameter will be monitored ex-post and baseline emissions will be adjusted accordingly.
2. Calculate the amount of the three fuels (Residual fuel oil, Pith and Bagasse) that AIPSA will use to generate the energy as required by the process, particularly the amount of Residual fuel oil that would have been burned. The amount of Residual fuel oil and Pith is calculated according to exchange terms of the current agreement (i.e. 46 Gallons of Residual Oil per tonne of bagasse, and 30 Gallons of Residual Oil per ton of pith). The fuel operational efficiency parameters are based on the characteristics of oils defined by Petroperu (Quality P.I. Nr. 6 and P.I. Nr. 500) which are being used by the industry (0.048 tonne steam/gallon oil, 1.6 tonne steam/tonne pith and 2.1 tonne steam/ton bagasse). The values have been verified during follow-up interviews and are deemed appropriate.
3. Identify the IPCC emissions factors of the Residual fuel oil displaced. The selected IPCC emission factors are appropriate and the use of default values is in line with the approved methodology (Type I.C).
4. Calculate amount of baseline CO_2, CH_4 and N_2O emissions. The formula for calculating baseline emissions is correctly and transparently applied.

Since the proposed new boiler uses a renewable source (bagasse) as its main fuel, the project activity results in zero net CO_2 emissions. CH_4 and N_2O emissions from burning bagasse and pith are accounted for by estimating quantity of bagasse and pith that the project will burn, multiplied with IPCC default values.

The monitoring plan includes measuring the amount of Residual fuel oil that could be burned in extraordinary circumstances. Emissions from the use of any Residual fuel oil will be deducted from the total emission reductions ex-post.

The renewable energy technology does not represent equipment transfer from another activity. Hence, no leakage calculations are necessary in accordance with the requirements for category I.C project activities. However, in the case of projects using biomass, leakage shall be considered. The validation could determine that there is sufficient bagasse available in the region where the project is located, so that no leakage effects due to bagasse shortage are likely to occur. Moreover, as mentioned earlier, emissions from transportation of bagasse, which are necessary as QUIMPAC has to acquire its bagasse supplies from other sugar cane producers as a result of the project, will be accounted for. These emissions are calculated based on a weighted average of the distances (330 km), and AIPSA's current truck capacity (30 tons bagasse/truck) and diesel fuel efficiency (10km/gallon) for transporting its own bagasse. This estimation of transport emissions based on monitoring of bagasse delivered to QUIMPAC is deemed appropriate.

3.6 Environmental Impacts

An environmental impact assessment according to Peruvian law has been carried out. The project activity will use bagasse which is expected to result in particulate emissions. Suitable air pollution control equipments like wet scrubbers are planned to be implemented.

3.7 Comments by Local Stakeholders

Relevant documentation regarding stakeholders meetings and comments were duly verified through the follow-up interviews /5/-/10/. Also CONAM (Peruvian DNA) has verified the stakeholder consultation activities undertaken for this project /12/. The stakeholder consultation process followed the procedure from CONAM –P-34 "Evaluación rápida de Proyectos para el Mecanismo de Desarrollo Limpio "MDL". Due account has been taken of the comments received.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the validator shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organisations and make them publicly available.

The PDD has been published on DNV Certification's Climate Change website, www.dnv.com/certification/ClimateChange. Parties, stakeholders and NGOs were through the UNFCCC CDM website invited to provide comments on the validation requirement during a period of 30 days from 13 February to 15 March 2005. No comments were received.

5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the Paramonga CDM Bagasse Boiler Project in Peru (hereafter called "the project"). The validation was performed on the basis of UNFCCC criteria for small-scale CDM project activities and relevant Peruvian criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The proposed bagasse boiler project will have an installed capacity of 13.6 $MW_{thermal}$ and the project will generate thermal energy for the AIPSA sugar processing plant. The project design is sound and the project is not expected to have considerable environmental impacts.

The only project participant is Agro Industrial Paramonga S.A.A. (AIPSA) of Peru. The host Party, Peru, meets all relevant participation requirements. There is currently no Annex I Party participating in the project. The DNA of Peru approved the project and confirmed the project's contribution to the sustainable development of Peru.

Being a renewable energy project activity with an output capacity of less than 45 $MW_{thermal}$, the project is eligible as "Renewable Energy Project: Thermal energy for the user" (Type I.C) small-scale CDM project activity as defined in Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The project baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced. The project displaces Residual fuel oil and IPCC emission coefficients for Residual fuel oil are used. The baseline methodology has been applied correctly and the calculations have been verified.

The project faces investment barriers and barriers due to prevailing practice. The existence of these barriers has been demonstrated by a Net Present Value analysis of the project and baseline demonstrating that the latter is the preferred option in the absence of CER revenues and by demonstrating that the existing contractual arrangement with the adjacent paper company, QUIMPAC is likely to be the preferred alternative during the course of the crediting period in absence of the CDM. The existence of these barriers has been confirmed during interviews with AIPSA.

By displacing Residual fuel oil-based steam and electricity, the project results in reductions of CO_2e emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Given that the project is implemented as designed, the project is likely to achieve the stated estimated amount of emission reductions.

The monitoring plan sufficiently specifies the monitoring requirements of the main project indicators. Detailed responsibilities and authorities for project management, procedures for monitoring and reporting, and QA/QC procedures are described and allow for consistent subsequent verifications of emission reductions.

In summary, it is DNV's opinion that the Paramonga CDM Bagasse Boiler Project, as described in the project design document submitted to DNV on 29 April 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the simplified baseline and monitoring methodology for type I.C small-scale CDM project activities.

Hence, DNV requests the registration of the Paramonga CDM Bagasse Boiler Project as a CDM project.

6 REFERENCES

Documents provided by the project participants that relate directly to the project:

/1/ AIPSA: *Paramonga CDM Bagasse Boiler Project*. Project Design Document of 18 November 2004 and resubmitted to DNV on 29 April 2005.

/2/ Host country approval letter: Letter Nr. 195-2005-CONAM-SE, dated 28 January 2005.

Background documents related to the design and/or methodologies employed in the design or other reference documents:

/3/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*, at www.vvmanual.info

/4/ Appendix B of the simplified modalities and procedures for small-scale CDM project activities: *Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories* (Version 05: 25 February 2005).

Persons interviewed during the validation, or persons contributed with other information that are not included in the documents listed above:

/5/ Mr Edgardo Wong, Director and owner of AIPSA

/6/ Hugo Ayon, Financial Director/Director of CDM AIPSA Project

/7/ Freddy Sarmiento, General Manager - AIPSA Plant

/8/ Mrs Samantha Elgegren, Head of Social Department AIPSA

/9/ Governor and mayor of Paramonga City

/10/ Local inhabitants/community of Paramonga city (DNV attended a meeting with local stakeholders on 9 March 2005)

/11/ Thomas Black & Javier Blanco - CAEMA (PDD developers)

/12/ Mrs. Julia Justo - CONAM (by phone)

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APPENDIX A

VALIDATION PROTOCOL
FOR SMALL-SCALE CDM PROJECT ACTIVITIES

Table 1 Mandatory Requirements for Small Scale Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	OK	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	OK	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	OK	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	~~CAR 1~~ OK	Written approval from CONAM dated 28 January 2005)
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	OK	Table 2, Section B.2.1
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Decision 17/CP.7	OK	The project has not received and is not seeking any public funding and DNV has not come across any indication of ODA being

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/Comment
			involved.
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures § 29	OK	Peru: CONAM
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities and Procedures § 30, 31b	OK	Peru ratified the Protocol 12 September 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	N/A	No Annex I Party is yet identified.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	N/A	No Annex I Party is yet identified.
12. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK	Table 2, Section A.1
13. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	OK	Document is as per the SSC PDD format Version1
14. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK	Table 2, Section A.1.3, B and D
15. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	OK	Comments from stakeholders were duly verified. Furthermore, DNV participated in the last meeting (2005-03-09) together with local stakeholders including the Governor and the Major of Paramonga city. All comments

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/Comment
			were supporting the implementation of the AIPSA CDM project.
16. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	OK	An EIA was carried out by Ecolab and finalized in March 2005. Ecolab is included in a list elaborated by INRENA as an authorized company to perform EIAs.
17. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	OK	The PDD has been published on DNV Certification's Climate Change website. Parties, stakeholders and NGOs were through the UNFCCC CDM website invited to provide comments on the validation requirement during a period of 30 days from 13 February to 15 March 2005. No comments were received.

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. **Project Description** The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	/1/	DR	Yes. The project qualifies as a renewable energy project. (Type I small scale CDM project activity). It involves a biomass based cogeneration system which will utilise a bagasse based boiler with an installed capacity of 13.6 $MW_{thermal}$ which is less than 45$MW_{thermal}$.		OK
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	/1/	DR	The project is not a debundled component of any large project.		OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	/1/	DR	The project conforms to Type I.C of the small-scale CDM project activities as it is a biomass based cogeneration system that produces heat/electricity for use on site.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/ /5/- /8/, /11/	DR I	The project boundaries have been defined in terms of the two companies AIPSA (sugar plant) & QUIMPAC (paper plant). The existing boilers and the proposed boiler are physically assigned to QUIMPAC. A long term agreement has been signed between the two companies with AIPSA given the right to use QUIMPAC main boiler & secondary boiler to generate steam & power for AIPSA's production processes. The two companies have also signed agreements for the exchange of bagasse (from AIPSA) for residual pith & Residual fuel oil (from QUIMPAC).		OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/1/ /5/- /8/, /11/	DR I	Physical boundaries were defined in accordance with Drawing EIMCON S.A.C.Nr. 020-01-D1-150 "Instalación de Molino". The boarders between the two companies are defined according to "Declaratoria de Fábrica" dated December, 1997. Bagasse storage area has been established in an area of 340 sq. metres closed to the new bagasse boiler.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2.3. Does the project design engineering reflect current good practices?	/1/ /5/-/8/, /11/	DR I	Five proposals were analyzed: HPB (Sermatec), Interunion, Reko, Colmaquinas and CB SERV. The technology selected was CB SERV based on the following criteria: improved efficiency (from 68% to 85,5% with the new one), more efficient steam generation (1,7 to 2,3 steam/bagasse ton), lower emissions according to international standards. The boiler developer has experience with such type of bagasse boiler as they have already fabricated one boiler in UNAGRO (Bolivia), Vale do Paranaiba (Brazil) and repowered existing boilers in Maceio, Brazil. The boiler will be assembled in Paramonga, Perú giving local workers labour benefits. Latest technology will be applied - water tube type, only at this step for steam generation.		OK
A.2.4. Will the project result in technology transfer to the host country?	/1/ /5/-/8/, /11/	DR I	See also A.2.3. The project will result in technology transfer as this new technology is introduced to the industry in Peru.		OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	/5/-/8/, /11/	DR I	The project requires extensive initial training. A programme was defined including objectives, responsibilities and relevant documentation. Plant manager, supervisors and operators will attend to these training courses. Maintenance people will also attend to training courses in order to know and carry out relevant maintenance of the new bagasse boiler. AIPSA together with the boiler developer will arrange the training.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR I	The project is expected to reduce other emissions to air, mainly with respect to SO_2 emissions from the use of Residual fuel oil.		OK
A.3.2. Will the project create any adverse environmental or social effects?	/1/	DR I	Unlikely as the project envisages suitable air pollution control equipment such as wet scrubbers for reducing particulate emissions.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/ /2/	DR	By promoting renewable energy the project will contribute to sustainable development in Peru. The approval letter from CONAM states that the project contributes to sustainable development.		OK
A.3.4. Is the project in line with relevant legislation and plans in the host country?	/1/ /2/	DR I	The PDD mentions that the new Boiler will comply with existing national standards/regulations. The CONAM approval letter also states that the project is in line with energy and environmental Peruvian legislation and policies. An EIA was duly carried out.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B. **Project Baseline** The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	/1/	DR	Yes the project applies one of the simplified methodologies proposed for the small scale project activity (I.C), i.e., the baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced.		OK
B.1.2. Is the baseline methodology applicable to the project being considered?	/1/ /4/	DR	Yes, the methodology is applicable (Type I-Category C)		OK
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to	/1/	DR I	The existing boilers and the proposed boiler are physically assigned to the adjacent paper company QUIMPAC. AIPSA signed a resource exchange agreement with QUIMPAC that transfers bagasse		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
prevailing practice or other barriers?			from AIPSA to QUIMPAC for its paper pulp process, and transfers two types of fuel from QUIMPAC to AIPSA: pith and Residual fuel oil. This 30 year agreement also gives AIPSA the right to use QUIMPAC's boilers at no cost to generate energy and steam. Hence the present arrangement is likely to be the preferred alternative during the course of the crediting period in absence of the CDM. The arrangement with QUIMPAC has been verified through follow-up interviews. A Net Present Value (NPV) analysis of the following two alternatives has been carried out; 1) continuation of the existing situation and 2) installation of a new bagasse boiler without the CDM. The analysis concluded that the first alternative is the preferred option with significantly less negative NPV (i.e. less loss) than the second alternative. Finally, a analysis of the financial impact of the CDM on the project demonstrates that CER revenues will significantly alleviate the financial barriers for implementing the new bagasse boiler. The NPV analyses are transparently documented in the PDD and all underlying assumptions are justified.		
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	/1/	DR I	A Residual fuel oil baseline may be selected if it is established that Residual fuel oil would be the fuel used in the absence of the project activity.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	/1/ /2/	DR I	Letter of approval states that the project contributes to sustainable development and is in line with local environmental policies and requirements. CONAM has already checked the opinion of the relevant industry sector: in this case INRENA.		OK
B.2.4. Is the baseline selection compatible with the available data?	/1/	DR I	The information at present is available from company records.		OK
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	/1/	DR I	Yes. Local operating permit and the existing agreement with QUIMPAC indicate that likely scenario without the CDM activity will be to continue with Residual fuel oil Boilers at the AIPSA sugar plant.		OK
C. **Duration of the Project / Crediting Period** It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	/1/	DR I	The project will start some time in 2005 when the feasibility of the project is approved by relevant CDM authorities. The project is expected to be operational in 2006 after start-up, according to schedule from the builder of the boiler. The operational lifetime of the project is estimated to be around 30 years. The duration of the agreement between AIPSA & QUIMPAC (signed on 5th December 1990) established a period of 30 years which could be renewed upon agreement between the parties.		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1/	DR	A 10-years crediting period is selected, starting 01/01/2006. The crediting period cannot start before the project is operational, hence if the expected starting date for the project is after 01 January 2006, the crediting period should be modified accordingly.	~~CL 1~~	OK
***D.* Monitoring Plan** The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	/1/	DR	This is as per paragraph 9 of Appendix B, Type I.C: "metering the energy produced by a sample of the systems where the simplified baseline is based on the energy produced multiplied by the emission coefficient of the fuel used". As the bagasse boiler co-generates steam and electricity, another monitoring methodology as per paragraph 9 of Type I.C, Appendix B, i.e. "metering the thermal and electrical energy generated for co-generation projects" seems to be more appropriate. However, the monitoring plan foresees continuous monitoring of the output thermal energy of the bagasse boiler (including steam used for electricity generation) and is thus in accordance		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			with the latter monitoring methodology.		
D.1.2. Is the monitoring methodology applicable to the project being considered?	/1/	DR	Yes		OK
D.1.3. Is the application of the monitoring methodology transparent?	/1/	DR	Yes		OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	/1/	DR I	Yes. Actual steam use will be monitored continually and will be used to annually adjust the baseline emissions that are estimated ex-ante by using an efficiency parameter. The various fuel operational efficiency factors (bagasse, pith, Residual fuel oil) are based on the characteristics of oils defined by Petroperu (Quality P.I. Nr. 6 and P.I. Nr. 500) which are being used by the industry. The inventory regarding cane quality and associated products (bagasse/pith) is being assured up to year 2015 based on production plan and projections. The projections are based on the performance and efficiency of traditional and new cane varieties.		OK
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	/1/	DR	Yes. Since the proposed new boiler uses a renewable source (bagasse) as its main fuel, the project activity results in zero net GHG on-site emissions. The monitoring plan includes		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			measuring the amount of residual oil that could be burned in extraordinary circumstances.		
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	/1/	DR	Yes. The amount of Residual fuel oil used in one of the existing boilers (the Foster Wheeler Boiler) is possible to measure.		OK
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	/1/	DR	Yes		OK
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	/1/	DR	Yes the data is available for 12 years (2 years after crediting period)		OK
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	/1/	DR I	According to the simplified baseline and monitoring methodology for category I.C small scale CDM project activities, leakage shall be considered only if energy technology equipment is transferred from another activity. This is not the case for this project. However, in the case of projects using biomass, leakage shall be considered (refer to paragraph 8 of the general guidance to the simplified baseline and monitoring methodologies). As QUIMPAC as a consequence of the project will need to acquire part of its bagasse supplies from other sugar cane producers that are located at great distances, the		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			transportation of the bagasse will generate emissions that have been accounted for in the project. Availability of bagasse has been verified during follow-up interviews.		
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	/1/	DR	Yes, transport emissions will be monitored. The emissions are calculated based on a weighted average of the distances (330 km), and the AIPSA current truck capacity (30 tons bagasse/truck) and diesel fuel efficiency (10km/gallon) for transporting its own bagasse. This estimation is seen as appropriate.		OK
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	/1/	DR	Yes, the estimation of transportation emissions based on amount of bagasse sold to QUIMPAC is appropriate for small-scale projects.		OK
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	/1/	DR	Yes, amount of bagasse sold to QUIMPAC is possible to verify.		OK
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR I	Yes. Actual steam use will be monitored continually and will be used to annually adjust the baseline emissions that are estimated ex-ante by using an efficiency parameter. This is in line with small scale methodologies approved by CDM-EB		OK
D.4.2. Will it be possible to monitor / measure the	/1/	DR	Yes. Actual steam is possible to measure. Both		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
specified baseline emission indicators?			thermal energy required by the process and the output thermal energy of the bagasse boiler is measured.		
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	/1/	DR	Yes. This is in line with the small-scale modalities, appendix B, type I.C.		OK
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	/1/	DR	Data will be kept for twelve years (2 years after the crediting period).		OK
D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	/1/	DR I	Project responsibilities are clearly defined by the AIPSA 's board.		OK
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	/1/	DR I	Internal procedures define the responsibilities and authorities for monitoring, measurement and reporting.		OK
D.5.3. Are procedures identified for training of monitoring personnel?	/1/	DR I	Yes, ref. D.5.2.		OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR I	Yes, ref. D.5.2.		OK
D.5.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR I	Yes. The quality and management system procedures identify equipment calibration		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			activities, (eg: FMO-R-011"Programa Anual de Calibraciones y Verificaciones"		
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR I	Yes. Eg: FMO-P-001 "Mantenimiento de Maquinaria y Equipo".		OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR I	Yes, ref. D.5.2.		OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR I	Yes, ref. D.5.2.		OK
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR I	Yes, ref. D.5.2.		OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	/1/	DR I	Yes, ref. D.5.2.		OK
D.5.11. Are procedures identified for project performance reviews?	/1/	DR I	Yes, ref. D.5.2.		OK
D.5.12. Are procedures identified for corrective actions?	/1/	DR I	Yes .Eg. "SGC-R-010/018"		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E. **Calculation of GHG emission** It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	/1/	DR I	Yes. Since the proposed new boiler uses a renewable source (bagasse) as its main fuel, the project activity results in zero net CO_2 emissions. The monitoring plan includes measuring the amount of residual oil that could be burned in extraordinary circumstances.		OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	/1/	DR I	Yes. CO_2 emissions are taken into account. Other emissions are deemed negligible since the bagasse contains only negligible quantities of other elements like Nitrogen, Sulphur. However, as CH_4 and N_2O emissions are considered for the baseline, CH_4 and N_2O emissions from burning bagasse must also be accounted for.	~~**CAR 2**~~	OK
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	/1/	DR	Yes.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.1.4. Are the calculations documented in a complete and transparent manner?	/1/	DR	Yes		OK
E.1.5. Have conservative assumptions been used?	/1/	DR	Yes		OK
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	/1/	DR I	Yes		OK
E.2. Leakage It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	/1/	DR I	According to the simplified baseline and monitoring methodology for category I.C small scale project activities leakage shall be considered only if energy technology equipment are transferred from another activity. This is not the case. However, in the case of projects using biomass, leakage shall be considered. Availability of biomass has been verified during follow-up interviews. Leakage due to transportation of bagasse arising due to QUIMPAC sourcing bagasse from other sources has been taken into consideration.		OK
E.2.2. Are potential leakage effects properly accounted for in the calculations (if	/1/	DR I	The transportation leakage has been accounted for and such assumption is conservative as		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
applicable)?			QUIMPAC has started to use pulp transported directly by sea. In case they continue to use pulp, they will not need to handle and treat bagasse with electricity generate by oil. The use of bagasse will be monitored and transport emissions deducted accordingly.		
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	/1/	DR	Yes. This is in line with the SSC modalities, Appendix B, Type I.C.		OK
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	/1/	DR	Yes, calculation of transport emissions is documented in a complete and transparent manner.		OK
E.2.5. Have conservative assumptions been used (if applicable)?	/1/	DR	Yes. This is in line with the SSC modalities, Appendix B, Type I.C.		OK
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	/1/	DR	Yes, the estimates used are acceptable for small-scale projects.		OK
E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	/1/	DR	Baseline emission boundaries are defined in accordance with Type I.C in Appendix B. The baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity (Two Residual fuel oil Boilers) times an emission coefficient for the		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			fossil fuel displaced. IPCC default values for the emission coefficient (Residual fuel oil) have been used.		
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	/1/	DR	All direct emissions are captured.		OK
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	/1/	DR	Yes		OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	/1/	DR	The methodology complies with the approach proposed for category I.C activities.		OK
E.3.5. Are the calculations documented in a complete and transparent manner?	/1/	DR I	Yes. Baseline calculations have followed the following four steps: 1. Calculate the energy requirements of AIPSA in terms of amount of steam per year. This is based on the production schedule for the next 4 years. The requirements of steam will be calculated by applying an efficiency parameter of demand for steam of the production process (59% ton steam/ton sugar cane). This efficiency parameter has been established as a result of process optimisation. The parameter will be monitored ex-post and baseline emissions will be adjusted accordingly. 2. Calculate the amount of the three fuels (Residual fuel oil, Pith and Bagasse) that AIPSA will use to generate the energy as		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			required by the process, particularly the amount of Residual fuel oil that would have been burned. The amount of Residual fuel oil and Pith is calculated according to exchange terms of the current agreement (i.e. 46 Gallons of Residual Oil per ton of bagasse, and 30 Gallons of Residual Oil per ton of pith). The fuel operational efficiency parameters are based on the characteristics of oils defined by Petroperu (Quality P.I. Nr. 6 and P.I. Nr. 500) which are being used by the industry (0,048 ton Steam/Gallon Oil, 1,6 ton Steam/ton Pith, 2,1 ton Steam/Ton Bagasse). This has been verified during follow-up interviews and is seen as appropriate. 3. Identify the IPCC emissions factors of the Residual fuel oil displaced. The IPCC emission factors are appropriate and the use of default values is in line with the approved methodology (Type I.C). 4. Calculate baseline CO_2, CH_4 and N_2O emissions. The formulas for calculating baseline emissions are correctly and transparently applied.		
E.3.6. Have conservative assumptions been used?	/1/	DR	Yes. IPCC default values are deemed appropriate.		OK
E.3.7. Are uncertainties in the baseline emissions	/1/	DR	Yes. IPCC default values are deemed appropriate.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
estimates properly addressed?					
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	/1/	DR	Yes. Fossil fuel (Residual fuel oil) will be displaced by renewable fuel (Bagasse) and thereby reduce greenhouse gas emissions. The proposed project will utilize a bagasse boiler with an installed capacity of 13.6 MWth according to specifications, and is estimated to reduce GHG emissions by 87 340 tonnes CO_2e per year in average.		OK
F. **Environmental Impacts** It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	/1/	DR	An EIA was carried out based on the following guidelines: a) Guía para la Formulación de Termino de Referencia de Estudios de Impacto Ambiental en el Sector Agrario (R.J. Nr.021-95-INRENA9; b) Codigo del Medio Ambiente y los Recursos Naturales (D.L . 613) ; c) Guia para la Elaboracion de Estudios de Impacto Ambiental(R.M Nr. 108-99-ITINCI/DM).		OK
F.1.2. Does the project comply with environmental legislation in the host country?	/1/	DR I	Yes. This has been confirmed by CONAM.		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
F.1.3. Will the project create any adverse environmental effects?	/1/	DR I	The project activity will use bagasse which is expected to result in particulate emissions. Suitable air pollution control equipment like wet scrubbers are planned.		OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	/1/	DR	Yes		OK
***G.* Comments by Local Stakeholder** Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR I	Yes. Relevant documentation regarding stakeholder meetings and comments were duly verified. CONAM has also verified stakeholders activities for this project.		OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR I	Stakeholders have been consulted through meetings and media announcements.		OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR I	Stakeholder consultation process followed the statements established on procedure CONAM –P-34 "Evaluación rápida de Proyectos para el Mecanismo de Desarrollo Limpio "MDL".		OK
G.1.4. Is a summary of the comments received provided?	/1/	DR I	Yes		OK
G.1.5. Has due account been taken of any comments received?	/1/	DR I	Yes		OK

* MoV = Means of Verification, DR= Document Review, I= Interview

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to Table 1&2	Summary of project participants' response	Validation team conclusion
CAR 1 The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Table 1	AIPSA will proceed under the unilateral approach to project registration, without an Annex B party. This approach has been approved by the CDM Executive Board at its meeting on 24 February 2005 through its decision on the Cumayapa Hydro Project. The Cumayapa project was successfully registered by the Executive Board in April 2005. ACTION: All references to the Annex I Party/ project participant have been removed from the PDD	OK. As the only participating Party is Peru, the project has the written approval of voluntary participation from the DNA of each party involved.
CAR 2 As CH_4 and N_2O emissions are considered for the baseline, CH_4 and N_2O emissions from burning bagasse must also be accounted for.	Table 2, E.1.2	ACTION: IPCC emissions factors for CH_4 and N_2O from burning bagasse were fully incorporated into the estimation of project emissions and into the monitoring methodology. These changes have resulted in a reduction of the estimated CERs from 873 394 tonnes CO_2e to 852 999 tonnes CO_2e, a reduction of 20 395 tonnes CO_2e over the 10 year period.	OK. The amount of bagasse and pith burned in the bagasse boiler are monitored and IPCC emission factors for CH_4 and N_2O will be used to ex-post determine project CH_4 and N_2O emissions from burning bagasse and pith.
CL 1 A fixed crediting period has been chosen with starting period of 10 years. However, the starting date of the crediting period is January 2006 though the project is not expected to be completed by March 2006.	Table 2, C1.2	ACTION: AIPSA has re-set the construction date to May 1, 2005, pending the positive validation report from DNV. The crediting period has been adjusted to begin on May 1, 2006 and will continue until April 30, 2016.	OK. The selected starting date of the crediting period is in line with the expected starting data of project operation.

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