



VALIDATION REPORT

AQUA FRESCA MULTIPURPOSE AND ENVIRONMENTAL SERVICES PROJECT IN COLOMBIA

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DET NORSKE VERITAS



VALIDATION REPORT

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Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “*Aqua Fresca Multipurpose and Environmental Services Project*” (hereafter called “the project”) in Colombia on the basis of 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.

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

In summary, it is DNV’s opinion that the project, as described in the project design document of October 2005, meets all relevant UNFCCC requirements for the CDM, is eligible as category I.D small-scale CDM project activity and correctly applies the approved simplified baseline and monitoring methodology AMS-I.D. Hence, DNV requests the registration of the “*Aqua Fresca Multipurpose and Environmental Services Project*” as CDM project activity

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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification request
CND	Centro Nacional de Despacho
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
EPM	Empresas Publicas de Medellin
ERPA	Emission Reductions Purchase Agreement
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
MP	Monitoring Plan
N ₂ O	Nitrous oxide
NGO	Non-governmental Organisation
OCMCC	Colombian DNA
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
SIN	Colombian National Interconnected System
UNFCCC	United Nations Framework Convention on Climate Change
UPME	The Colombian Energy and Mining Planning Unit



1 INTRODUCTION

Generadora Union S.A. E.S.P (project developer) has commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the “*Aqua Fresca Multipurpose and Environmental Services Project*” (hereafter called “the project”) in Colombia. This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consisted of the following personnel:

Mr Einar Telnes	DNV Certification Oslo	Team Leader/ Energy sector expert
Mr Gustavo Godínez	DNV Certification Mexico City	GHG auditor
Mr Ramesh Ramachandran	DNV New Dehli	GHG auditor
Ms Mari Grooss Viddal	DNV Certification Oslo	Technical reviewer

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 WB/IETA Validation and Verification Manual/8/, 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

The project activity consists of the construction of a small run-of-river hydroelectric plant with a capacity of 7.49 MW established to generate electricity utilizing water from the Piedras river. The plant is located in the jurisdiction of Jerico and Fredonia Municipalities. Generated electricity will be sold to the national grid, the Colombian National Interconnected System (SIN).

The project is being developed by the company Generadora Union S.A E.S.P and operated and maintained by the public utility Empresas Publicas de Medellin. The project consists of a diversion dam, a 233 m tunnel, a forebay, a 1500m penstock and a power house.



With an expected average annual generation of 66.3 GWh, the project is estimated to reduce GHG emissions by approximately 27 510 tons CO₂e per year by displacing fossil-fuel based electricity with electricity generated from a renewable source.

2 METHODOLOGY

The validation consisted of the following three phases:

- I a desk review of the project design, baseline and monitoring plan (May-October 2005)
- II follow-up interviews with project stakeholders (12-13 July 2005)
- III the resolution of outstanding issues and the issuance of the final validation report and opinion (August-October 2005)

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

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

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

The completed validation protocol for the “*Aqua Fresca Multipurpose and Environmental Services Project*” is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation protocol 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) validation protocol requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term Clarification may be used where additional information is needed to fully clarify an issue.



Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
Requirement	Reference	Conclusion	Cross reference
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>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.</i>	<i>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.</i>

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<i>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.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</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). A request for Clarification (CL) is used when the validation team has identified a need for further clarification.</i>

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

Figure 1 Validation protocol tables



2.1 Review of Documents

The Project Design Document (PDD) of May 2005 including annexes /1/ submitted by Generadora Union S.A. E.S.P was assessed, together with additional background documents related to the project design and baseline /2/-/9/. Subsequent to the desk review and the follow up interviews, a revised PDD of October 2005 was assessed.

2.2 Follow-up Interviews

During the period of 13-14 July 2005, DNV performed interviews with project stakeholders in order to confirm selected information and to resolve issues identified in the document review. Representatives of Aguas de la Cabana S.A E.S.P/ Generadora Union S.A. E.S.P /10/, La Unidad de Planeación Minero Energética (UPME) /11/, the Municipality of Jerico /14/, Corantioquia /13/ and the Colombian DNA/12/ were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Aguas de la Cabana S.A. E.S.P & Generadora Union S.A.E.S.P	Environmental impacts Compliance with legal requirements Barriers and additionality of the project Stakeholder consultation process Emissions calculations Parties involved Starting date of project and crediting period Project operation, training, monitoring and maintenance
Municipality of Jerico	Local stakeholder consultation process Environmental and social impacts of the project
Corantioquia	Environmental licenses Legal compliance Local stakeholder consultation process
La Unidad de Planeación Minero Energética UPME (Union of Mineral and Energy Planning)	National Electricity Sector Expansion Plan for Colombia Incentives for renewable energy in Colombia Expected generation cost for a Hydroelectric Operator Most recent renewable sources that have been added to the grid Calculation of build margin and operating margin
Ministry of the Environment, Housing and Territorial Development, Colombian DNA	The process of host country approval for CDM projects in Colombia and the process of approving this project. Environmental Impact Assessment requirements Requirement for local stakeholder consultation Official government funding

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design. Six requests for Clarification were raised by DNV and presented to the project participants in DNV's draft validation report of 13 September 2005 (rev. 0). The project participants responded to DNV's requests for



Clarification to DNV's satisfaction. To guarantee the transparency of the validation process, the concerns raised and responses given are documented in 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 and resubmitted project design documentation of October 2005.

3.1 Participation Requirements

The project participants are Aguas de la Cabaña S.A. E.S.P., Colombia, and Kommunalkredit Public Consulting GmbH, Austria. All Parties involved, i.e. Colombia as host Party and Austria as participating Annex I Party, meet the requirements to participate in the CDM. The project was approved by the Austrian DNA 30 August 2005, including an authorization of Kommunalkredit Public Consulting GmbH as project participant /3/. The DNA of Colombia approved the project on 26 November 2004 /2/.

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 Colombia.

3.2 Project Design

The project involves the construction of a run-of river hydropower plant with an installed capacity of 7.49 MW and an expected annual production of 63.3 GWh. The project will reuse the waters of Rio Piedras Hydroelectric Plant and no dam or reservoir will be constructed. A 44 kV transmission line with a maximum length of 15 km will be built to connect the plant to the National Electrical Grid in the Municipality of Fredonia.

A Pelton turbine with vertical axis and a rated capacity of 7.49 MW will be used. There are several hydropower plants using the same technology operated by Empresas Públicas de Medellín. Empresas Públicas de Medellín has established a contract with Aguas de la Cabaña to operate and maintain the hydropower plant. Therefore, the project does not envisage any extraordinary initial training and maintenance efforts. The project technology and design represent good current practice.

The project contributes to sustainable development in that it produces electricity based on a renewable source, thereby decreasing Colombia's dependency on fossil fuels. The project's contribution to sustainable development has been confirmed by the Colombian DNA /2/.

Being a renewable energy project activity with an output capacity of less than 15 MW (i.e. 7.49 MW), 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 project has selected a renewable crediting period of 6 years, starting 01 January 2007. Expected operational lifetime of the project is set to 50 years.



3.3 Baseline and Project Additionality

The project is a *Renewable electricity generation for a grid* project activity (Type I.D) as defined in the simplified modalities and procedures for small-scale CDM project activities. The project applies one of the simplified baseline methodologies proposed for this project activity category (AMS-I.D), i.e. the generated power multiplied by an emission coefficient of 0.4345 kg CO₂/kWh, calculated as the average of the “approximate operating margin and the build margin”.

The approximate operating margin of 0.660 kgCO_{2e}/kWh, was originally calculated as the weighted average emissions of all generating sources serving the system, excluding hydro, geothermal, wind, low-cost biomass, nuclear and solar generation, based on the average of emissions from 1995-2003 as given by the Resolution 181401 of 29 October 2004, publicly available from UPME. From the same source, the approximate operating margin for the years 2001-2003 is calculated to be 0.575 kgCO₂/kWh. DNV questioned the conservativeness of using the 1995-2003 data, instead of using the previous 3 years (2001-2003 data) which is good common practice (e.g. ACM0002). This resulted in the adaptation of the more conservative OM emission factor of 0,575 kgCO_{2e}/kWh in the latest versions of the PDD. Data for 2004 were not yet available at the time the PDD was written and submitted for validation.

The build margin of 0.294 kgCO_{2e}/kWh has been calculated based on the 20% of power plants most recently added to the grid as their aggregated capacity in terms of MWh/year is higher than the capacity of the five most recently commissioned plants. The approximate operating and build margin are determined using publicly available data from UPME. The calculations of the operating and build margin emission coefficient were verified by reviewing the underlying calculations /5/ and confirmed through interviews with an UPME representative.

Given the combined OM and BM factors derived as given above, a combined baseline emission factor of 0.4345 kgCO_{2e}/kWh is used for the project.

The additionality of the project is demonstrated through the existence of investment barriers. A financial analysis has been performed, showing an Internal Rate of Return (IRR) of 15.1% without CER revenues and an IRR of 16.5% with CER revenues (price of EUR4/ton CO_{2e}) and a debt coverage increase from 1.29 to 1.38 with CER revenues /4/. Since the IRR without CER revenues is at the lower end of IRR and debt coverage expected by investors in Colombia, it is demonstrated that the project is not financially attractive in absence of the CDM.

Acquiring funding for the project has been difficult. That there are neither financial incentives nor funding for this type of project has been confirmed by a financial institution in Colombia. It has also been confirmed through follow-up interviews that the project faced difficulties in getting funding prior to the Emission Reductions Purchase Agreement (ERPA) with the Austrian Government in February 2005 /6/. The presented barriers related to the perceived risks for investors and lack of funding have been confirmed during validation. Hence, it is demonstrated that the project faced investment barriers that have been alleviated through the designation of the project as CDM project activity.

There are no significant technological barriers as there is previous experience with hydropower technology in Colombia.



3.4 Monitoring Plan

The project applies the simplified monitoring methodology proposed for *Renewable Electricity Generation for a Grid* project activities AMS-I.D, i.e. the electricity generated by the project is metered.

The monitoring methodology will give opportunity for real measurements of achieved emission reductions. The electricity generated will be obtained from the metering system of the Agua Fresca Plant and be recorded on a daily basis. Electricity (in MWh) sold to the grid will be logged daily through data from CND (Centro Nacional de Despacho). For each certification period, a certified note from CND will be provided indicating the total electricity delivered by the project to the SIN. CND publishes daily and monthly reports of the actual operation of the SIN, including the hourly generation for each power unit. The information required for monitoring is thus provided by CND and is also available with UPME.

Project emissions are deemed negligible. This is in line with AMS-I.D. However, in attachment 7 of the PDD /1/ it is claimed that fuel consumed during construction will be monitored, documented, and subtracted from the expected emission reductions. This is deemed conservative, and monitoring of project emissions from construction is included in section D of the PDD.

In attachment 7 of the PDD /1/, monitoring of sustainability indicators is described.

There is a contract with Empresas Publicas de Medellin who is responsible for commissioning, operation and maintenance of the hydro power plant and transmission lines. The responsibilities and authorities for operation and maintenance will be part of their ISO 9001 certified quality management system. The daily recording will be carried out by Aguas de la Cabaña. Procedures for daily recording are included in the monitoring plan (section D of the PDD and attachment 7, /1/). This is deemed sufficient for this type of project.

3.5 GHG Emission Accounting

The calculations are transparently documented, and appropriate assumptions regarding expected amount of electricity generated (i.e. 63.3 GWh per year) have been used to forecast emission reductions. Project emissions are deemed negligible.

The baseline emission factor of 0.4345 kg CO₂/kWh is determined based on the average of the “approximate operating margin” and “build margin”. This is in line with option 7a) of AMS I.D.

No significant leakages are expected. According to the simplified baseline and monitoring methodology for category AMS I.D small-scale projects, leakage shall only be considered if the projects represent transfer of energy technology equipment from another activity. This is not the case and no leakage is thus considered.

3.6 Environmental Impacts

The proposed project is a run-of-river hydropower plant and the environmental impacts of the project are not considered to be significant. An environmental impact assessment, as required by Colombian law, has been carried out and approved through the Environmental License (Resolution 1226). The EIA, the Environmental License, construction and operating permits have been reviewed during the validation.



3.7 Comments by Local Stakeholders

Several meetings have been held with the community, the Municipality of Jerico and local authorities from August 2002 to April 2005. The stakeholder consultation process has been verified during the validation. Consultations with the municipality is a requirement for CDM projects, and the organisation Corantioquia has monitored the process as required by the Colombian DNA. No negative comments were received for the project. The local stakeholder consultation process carried out for the project is deemed sufficient.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the validation of CDM projects, the validator shall make publicly available the PDD and receive, within 30 days, comments on the validation requirements from Parties, stakeholders and UNFCCC accredited Non-governmental Organisations (NGOs) and make them publicly available.

The PDD of May 2005 has been published on DNV's Climate Change website* on 6 June 2005. 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 6 June to 5 July 2005. No comments were received.

* www.dnv.com/certification/ClimateChange



5 VALIDATION OPINION

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Aqua Fresca Multipurpose and Environmental Services Project” in Colombia on the basis of UNFCCC criteria for small-scale CDM project activities, and relevant Colombian criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol criteria for the CDM, the CDM rules and modalities as agreed in the Marrakech Accords, the simplified modalities and procedures for small-scale CDM project activities and relevant decisions by the CDM Executive Board.

The project participants are Aguas de la Cabaña S.A. E.S.P., Colombia, and Kommunalkredit Public Consulting GmbH, Austria. The host-Party Colombia and the participating Annex I Party Austria meet the requirements to participate in the CDM. The DNA of Colombia and DNA of Austria have provided approval of voluntary participation in the project.

The project is not expected to have considerable environmental impacts. By promoting renewable energy, the project is in line with the current sustainable development priorities of Colombia. The DNA of Colombia has confirmed the project’s contribution to the sustainable development of Colombia.

The proposed project will have an installed capacity of 7.49 MW electricity generation and the power will be supplied to the Colombian grid. Being a renewable energy project activity with an output capacity of less than 15 MW, the project is a “Renewable electricity generation for a grid project activity” (Type I.D) as defined in the simplified modalities and procedures for small-scale CDM project activities. The project applies a grid emission coefficient of 0.4345 tCO₂/MWh, calculated as the average of the approximate operating margin and the build margin in accordance with the simplified baseline and monitoring methodologies for type I.D small-scale CDM project activities (AMS-I.D). The baseline methodology has been applied correctly and the assumptions made for the selected baseline scenario are sound.

The project faces investment barrier such as perceived risks for investor and lack of funding for the project. The existence of these barriers has been demonstrated in the PDD by presenting the general Colombian investment climate and the project specific challenges of acquiring funding. The existence of such investment barriers have been confirmed during interviews with Aguas de la Cabana S.A. E.S.P, UPME and the Colombian DNA.

By displacing fossil fuel-based electricity, the project results in reductions of CO₂ 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 estimated amount of emission reductions.

The monitoring plan sufficiently specifies the monitoring requirements of the main project indicators. Empresas Publicas de Medellin is responsible for commissioning, operation and maintenance of the project. The responsibilities and authorities for operation and maintenance is part of their ISO 9001 certified quality management system.

In summary, it is DNV’s opinion that the “Aqua Fresca Multipurpose and Environmental Services Project”, as described in the revised project design document of October 2005, meets all relevant UNFCCC requirements for the CDM, is eligible as category I.D small-scale CDM



project activity and correctly applies the approved simplified baseline and monitoring methodology AMS-I.D. Hence, DNV Certification recommends the “Aqua Fresca Multipurpose and Environmental Services Project” for registration as a CDM project activity by the CDM Executive Board.



REFERENCES

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

- /1/ CDM PDD of “Aqua Fresca Multipurpose and Environmental Services Project”, submitted to DNV in May 2005 and updated in October 2005, including attachments 1 to 11;
 - 1) Copy of permits from Corantioquia (Resolution 1226, 130CA_021709, 130CA_2360)
 - 2) Copy of Law 297, 2001: Rational use of energy in Colombia
 - 3) Copy of Letter of Approval from Colombia
 - 4) Copy of Law 629, 2000: Colombia’s Kyoto Protocol Ratification
 - 5) Copy of AOM Agreement with EPM
 - 6) Copy of Resolution 181401 for calculating OM and BM of Colombian grid
 - 7) Detailed description of the Monitoring Plan
 - 8) Environmental effects (summary)
 - 9) Environmental Management Plan (Agua Fresca project)
 - 10) Environmental Investment Plan
 - 11) Copy of documentation from local stakeholder process
- /2/ Letter of Approval from DNA of Colombia, 26 November 2004
- /3/ Letter of Approval from DNA of Austria, 30 August 2005
- /4/ Excel calculations of IRR and NPV.xls, submitted to DNV in July 2005
- /5/ Excel calculations of OM and BM.xls, submitted to DNV in July 2005
- /6/ Certificate of funding from financial institution, submitted to DNV in July 2005
- /7/ Colombian DNA approval procedures for CDM projects, submitted to DNV in July 2005

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

- /8/ International Emission Trading Association (IETA) & the World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>
- /9/ 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 06: 30 September 2005.

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

- /10/ Juan Bernardo Jaramillo, Gabriel Jaime Ortega and Sergio Ortega Restrepo from Aguas de la Cabana S.A. E.S.P & Generadora Union S.A.E.S.P
- /11/ Jose Vicente Dulce, Ciro Serrano Camacho and Ismael Concha from La Unidad de Planeación Minero Energética UPME



- /12/ Camilo Rojas Garcia from Ministry of the Environment, Housing and Territorial Development /Colombian DNA
- /13/ Gloria Patricia Cañola, Luz Omaira Arias and Argiro Cano Valencia from CORANTIOQUIA
- /14/ Freddy Oswaldo Cardona from the Municipality of Jerico

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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	OK GL-1	Letter of approval of the DNA of Columbia dated 26 November 2004 has been obtained. Letter of approval of DNA of Austria dated 30 August 2005 has been obtained
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	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM	OK	Table 2, Section B.2.1

Requirement	Reference	Conclusion	Cross Reference / Comment
project activity	Project Activities §26		
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 activity will not receive public funding, and DNV has not come across any indication of ODA being involved in the financing of the project.
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures § 29	OK	Columbia; Ministry of Environment, Housing & Territorial Development Austria : Federal Ministry of agriculture, Forestry, Environment and Water Management
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	Colombia ratified the Kyoto Protocol on 30 th Nov 2001. Austria ratified the Kyoto Protocol on 31 st May 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	OK	Austria's assigned amount is 92 % of the emissions in 1990.
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	OK	Austria has in place a national registry and annually submits its inventory to the UNFCCC
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	The document is as per the SSC PDD format (Version 01) which was in effect at the time the PDD was submitted for validation

Requirement	Reference	Conclusion	Cross Reference / Comment
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.1 The project conforms to Type I, category D of the simplified modalities and procedures for small-scale CDM projects
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	Table 2, Section G
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	Table 2, Section F
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		The PDD has been published on DNV'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 6 June to 5 July 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 with a maximum output capacity equivalent to up to 15 MW (Type I small-scale CDM project activity). It involves the installation of an electricity generation turbine with a nominal capacity of 7.49 MW.		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 a larger project activity.		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 confirms to Type I, Category I.D of the SSC CDM project activities as the electricity will be sold to the grid.		OK
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/	DR	The project boundaries have been defined in terms of the run-of-river facility and subsequent transmission lines and grid.		OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's)	/1/	DR	The system boundary corresponds to the Colombian National Interconnected System (SIN).		OK

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

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
boundaries clearly defined?					
A.2.3. Does the project design engineering reflect current good practices?	/1/	DR I	Yes. This is a run of the river hydro electric power project. A Pelton turbine with vertical axis and a rated capacity of 7.49 MW will be used. There are several hydropower plants using the same technology operated by Empresas Públicas de Medellín. The project design engineering reflects current good practise.		OK
A.2.4. Will the project result in technology transfer to the host country?	/1/	DR I	The technology employed is similar to existing hydropower project in Colombia. Therefore, no technology transfer to Colombia is foreseen.		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?	/1/	DR I	Empresas Públicas de Medellín will operate and maintain the plant and transmission line. Therefore, the project does not envisage any extensive initial training and maintenance efforts.		OK
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 will reduce Honduras' dependency on outside energy, strengthen the country's rural electrification coverage, contribute to local employment and to the local community's welfare.		OK
A.3.2. Will the project create any adverse environmental or social effects?	/1/	DR	No significant adverse environmental or social aspects are foreseen, since the project is a small-scale hydroelectric run-of-river project.		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 Colombia. The Colombia DNA confirmed that the project assists Colombia in achieving sustainable		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			development.		
A.3.4. Is the project in line with relevant legislation and plans in the host country?	/1/	DR I	The plant has a construction and operating permit in place. An EIA has been carried out for the project as required by Colombian legislation. The EIA has been approved and an Environmental License has been granted.		OK
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 baseline methodologies proposed for the small-scale project activity category I.D, i.e. the baseline is the annual kWh generated by the project times an emission coefficient based on the average of the approximate operating margin and build margin.		OK
B.1.2. Is the baseline methodology applicable to the project being considered?	/1/	DR	Yes. The methodology AMS Type I, Category D is applicable for the project as electricity from a renewable source is supplied to the grid.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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 prevailing practice or other barriers?	/1/	DR I	<p>The project participants have chosen to present the case on additionality due to the existence of institutional, and investment barriers – with special emphasis on investment barriers.</p> <p>A financial analysis has been performed, showing an Internal Rate of Return of 15.1% without CER revenues and an IRR of 16.5% with CER revenues. The IRR without CER revenues is at the lower end of IRR and debt coverage expected by investors in Colombia. The financial analysis has been provided to DNV for validation. Also investment barriers other than the financial barriers have been confirmed by DNV. Follow-up interviews have provided evidence that the project faced difficulties in finding funding prior to the ERPA with the Austrian Government. Lack of incentives for these types of projects has also been confirmed.</p> <p>Barriers due to lack of funding and incentives and perceived risk for investors are deemed sufficient to demonstrate the additionality of the project.</p>		OK
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	<p>The operating and build margin are calculated as required by AMS I.D. The approximate operating margin of 0.660 kgCO₂/kWh, is calculated as the weighted average emissions of all generating sources serving the system, excluding hydro, geothermal, wind, low-cost biomass, nuclear and</p>	CL-2	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			solar generation. This is calculated as the average of emissions from 1995-2003 as given by the Resolution 181401 of 29 October 2004, publicly available from UPME. From the same source, the approximate operating margin based on 20% of the most recent built plants as of 2003 is calculated to be 0.575 kgCO ₂ /kWh. However, DNV questions the conservativeness of the use of data from 1995-2003, instead of using the previous 3 years (2001-2003 data) which is good common practice.		
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	/1/	DR I	Yes. No specific incentives exist for this type of project, except from free tax for imported equipment.		OK
B.2.4. Is the baseline selection compatible with the available data?	/1/	DR I	The baseline selection is compatible with available data. The data has been taken from the grid. This information is publicly available on an annual basis from UPME. Data for 2004 is not yet available.		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	Refer comments under B.2.2.		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 starting date of the project has not been clearly stated. Though the operational lifetime has been identified as 50 years. Interviews confirmed that the starting date will be corrected to 1 July 2006.	CL-3	OK
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of	/1/	DR	A renewal crediting period of 6 years and 6 months has been chosen, with the starting date of the		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?			crediting period on 1 July 2006.		
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 AMS I.D; the generated electricity is directly measured.		OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	/1/	DR	Yes		OK
Appendix A Is the application of the monitoring methodology transparent?	/1/	DR	Yes. The application is transparent.		OK
Appendix B Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	/1/	DR	Yes. The metered electricity will directly replace electricity otherwise produced from thermal plants.		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	Project emissions are deemed negligible (ref. E.1.1). This is in line with AMS type I.D. As a	GL4	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			conservative approach, in attachment 7 of the PDD, it is claimed that fuel consumed during construction will be monitored, documented, and discounted against the expected emission reductions. If this is the case, monitoring of project emissions from construction need to be included in section D of the PDD.		
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	Not applicable		OK
D.4. Monitoring of Sustainable Development					
D.4.1. If applicable, are the choices of sustainable development indicators reasonable?	/1/	DR	In attachment 7 of the PDD, it is said that there will be monitoring of sustainability indicators. However, types of indicators and how to monitor these have not been included in the PDD.	CL-5	OK
D.5. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.5.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	The electricity generation will be monitored and baseline emissions will be determined by multiplying this value with an ex-ante emission coefficient. The emission coefficient of 0.477 tCO ₂ /MWh is		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			fixed ex-ante and therefore no indicators for baseline emissions need to be monitored.		
D.5.2. Will it be possible to monitor / measure the specified baseline emission indicators?	/1/	DR	Yes. Electricity generation will be metered by Generadora Union S.A. E.S.P and the actual dispatch will be obtained from Centro Nacional de Despacho (CND). Electricity (in MWh) sold to the grid will be logged daily through data from CND (Centro Nacional de Despacho). For each certification period, a certified note from CND will be provided indicating the total electricity delivered by the project to the SIN. CND publishes daily and monthly reports of the actual operation of the SIN, including the hourly generation for each power unit. The information required for monitoring is thus provided by CND and is also available with UPME.		OK
D.5.3. Do the measuring technique and frequency comply with good monitoring practices?	/1/	DR	Electricity generation will be continuously metered. Meter measurements will be recorded on a daily basis.		OK
D.5.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	/1/	DR	It is not stated for how long data will be kept. Good practice is to keep data for the crediting period and 2 years.	CL-6	OK
D.6. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/	DR I	There is a contract with Empresas Publicas de Medellin who is responsible for Commissioning, Operation and Maintenance of the hydro power plant and transmission lines. The responsibilities and authorities for operation and maintenance will		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			be part of their ISO 9001 certified quality management system. The daily recording will be carried out by Aguas de la Cabaña.		
D.6.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	/1/	DR I	There is a contract with Empresas Publicas de Medellin who is responsible for Commissioning, Operation and Maintenance of the hydro power plant and transmission lines. The responsibilities and authorities for operation and maintenance will be part of their ISO 9001 certified quality management system. The daily recording will be carried out by Aguas de la Cabaña.		OK
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR	There are several hydropower plants using the same technology operated by Empresas Públicas de Medellín. Therefore, the project does not envisage any extraordinary initial training.		OK
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	No emergency situations that can cause unintended GHG emissions are foreseen.		OK
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	Procedures for calibration of monitoring equipment shall at the latest be implemented prior to start of the crediting period.		OK
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR	Procedures for maintenance of the power plant shall at the latest be implemented prior to start of the crediting period.		OK
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR I	The electricity generated will be obtained from the metering system of the Agua Fresca Plant and be recorded on a daily basis. Electricity (in MWh) sold to the grid will be logged daily through data from CND (Centro Nacional de Despacho). For each certification period, a certified note from CND will be provided indicating the total electricity delivered		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			by the project to the SIN. CND publishes daily and monthly reports of the actual operation of the SIN, including in that report the hourly generation for each power unit. The information required for monitoring is thus provided by CND and is also available with UPME.		
D.6.8. 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	The daily recording will be carried out by Aguas de la Cabaña. Procedures for daily recording are included in the monitoring plan (section D of the PDD and attachment 7). This is deemed sufficient for this type of project.		OK
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	Uncertainties are expected to be minimal, considering the nature of the projects. Such procedures are not imperative to the projects.		OK
D.5.10. Are procedures identified for project performance reviews and corrective actions?	/1/	DR	Detailed procedures should be developed prior to project commencement in order to enable consistent subsequent verifications of emission reductions.		OK
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	/1/	DR	Project emissions are deemed negligible and		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
indirect project emissions captured in the project design?			therefore not included in the emission reductions calculation ex-ante. Emissions related to the construction of the plant are not expected to be significant and comparable to the construction emissions from alternative fossil fuelled power plants. This is in line with AMS I.D. As a conservative approach, in attachment 7 of the PDD, it is claimed that fuel consumed during construction will be monitored, documented, and discounted against the expected emission reductions ex-post.		
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	No significant leakages are expected when comparing the projects with the baseline scenario. According to the simplified baseline and monitoring methodology for category I.D small-scale projects, leakage shall only be considered if the projects represent transfer of energy technology equipment from another activity. This is not the case and no leakage must hence be considered.		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 emissions boundaries	/1/	DR	The baseline emissions boundary is defined as the		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
clearly defined and do they sufficiently cover sources for baseline emissions?		I	Colombian grid (SIN - Colombian National Interconnected System). This is appropriate and in line with ASM I.D.		
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	/1/	DR	All direct baseline 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 project applies one of the simplified baseline methodologies proposed for this project activity category, i.e. the generated power multiplied by an emission coefficient of 0.477 kgCO ₂ /kWh, calculated as the average of the "approximate operating margin and the build margin".		OK
E.3.5. Are the calculations documented in a complete and transparent manner?	/1/ /5/	DR I	All data for calculating the grid emission factor (OM and BM) are publicly available from UPME. An excel sheet with the calculations has been provided during validation.		OK
E.3.6. Have conservative assumptions been used?	/1/ /5/	DR	The approximate operating margin of 0.660 kgCO ₂ /kWh, is calculated as the weighted average emissions of all generating sources serving the system, excluding hydro, geothermal, wind, low-cost biomass, nuclear and solar generation. This is calculated as the average of emissions from 1995-2003 as given by the Resolution 181401 of 29 October 2004, publicly available from UPME. From the same source, the approximate operating margin is calculated based on 20% of the most recent plants built as of 2003 to be 0.575 kgCO ₂ e/kWh. DNV therefore questions the conservativeness of the 1995-2003 data, instead of using the previous 3 years (2001-2003 data) which	CL-2	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			is good common practice.		
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	/1/	DR	Yes		OK
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	Based on an expected generation of 63.3 GWh firm power per year, the project is estimated to reduce GHG emissions by approximately 30 194 tonnes CO ₂ e per year by displacing fossil-fuel based electricity with electricity generated from a renewable source.		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 I	An environmental impact assessment, as required by the Colombian law, has been carried out and approved through the Environmental License (Resolution 1226).		OK
F.1.2. Does the project comply with environmental legislation in the host country?	/1/	DR I	The project has an Environmental licence granted by Corantioquia.		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR I	As it is a run-of-river small hydro project, the impacts are expected to be minimal.		OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	/1/	DR I	The environmental impacts of the project are sufficiently assessed.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR I	Several meetings have been held with the community, the Municipality of Jerico and local authorities from August 2002 to April 2005.		OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR I	Stakeholders have been consulted through direct meetings and newspaper 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	Local stakeholder consultation with the municipality is a requirement for CDM projects, and the organization Corantioquia has monitored the process as required by the Colombian DNA.		OK
G.1.4. Is a summary of the comments received provided?	/1/	DR I	No negative comments were received for the project.		OK
G.1.5. Has due account been taken of any comments received?	/1/	DR I	No negative comments were received for the project.		OK

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Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
<p>CL 1</p> <p>The project participants need to be better identified in the PDD. Kommunalkredit Public Consulting GmbH should be listed as a project participant in A.3 and Annex I. Only project participants should be included in A.3 of the PDD.</p>	<p>Table 1 No.4</p>	<p>The participation of The Republic of Austria, Federal Minister of Agriculture, Forestry, Environment and Water Management, represented by Kommunalkredit Public Consulting GmbH (KPC). is now establish in the PDD in sections A.3 and Annex 1 as the Purchaser of CERs.</p>	<p>The adjustment is deemed appropriate. CL is resolved.</p>
<p>CL 2</p> <p>DNV questions the conservativeness of using 1995-2003 data for calculation of the OM, instead of using the previous 3 years which is good common practice, (i.e. 2001-2003 data).</p>	<p>B.2.2 E.3.6</p>	<p>The Colombian Energy and Mining Planning Unit (UPME) in response to the question establish in CL2, refer to the justification of the Resolution 181401 (Attachment 6 – PDD) for Calculating OM of Colombian Grid.</p> <p>Some parts of the Resolution allows to justify the use of the period 1995-2003 are presented forward.</p> <p>“.. was considered only the thermoelectric plants of the interconnected system operated in the period between 1995 and 2003, period representative for the sector because in 1995 begins the actual regulatory system and includes typical situations from the point of view of climatology, economy and the specific sector, like it is describe forward.”</p> <p>Laws 142 (public utilities) and 143 (Electric Law) of 1994, are the fundamental base for the reforms occurred in the mines and energy sectors in Colombia. Particularly, the reorganization of the sector with the state as regulative and supervisor entity, the creation of the electric energy market</p>	<p>Operating Margin has been adjusted (from 0.660 kgCO₂e/kWh to 0,575 kgCO₂e/kWh) to include data from the previous 3 years, (i.e. 2001-2003 data). CL is resolved.</p>

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
		<p>and the initiation of the privatization of different companies of the electric sector. These reforms are operative since 1995.</p> <p>One of the main characteristics of the Colombian electric sector is the variability of the hydrology, especially due to the droughts occurred during El Niño. In the 1997-1998 and 2002-2003 periods, other dry phenomena occurred. Thanks to the real availability of the thermal plants the system was able to avoid new energy cuts.</p> <p>Finally, in the 1999-2000 the country suffered an economical crisis which impacted the power demand to the point that it fell about -5%, which reflects in a significant way in the system generation.</p> <p>A shortest period may compromise the representativeness of the emission factor by not including these characteristic factors of the behaviour of the national interconnected system.</p> <p>The PDD of October 2005 has been updated to include data from the 3 most recent years.</p>	
<p>CL 2 (continued)</p> <p>As conservativeness is a ruling principle under the CDM, we would recommend that the most conservative factor(s) is(are) applied for the baseline emission factor.</p>	<p>B.2.2</p> <p>E.3.6</p>	<p>The use of the more conservative OM factor is adopted.</p>	<p>The use of the more conservative factor is deemed appropriate. CL is resolved.</p>
<p>CL 3</p> <p>The project has selected a renewable crediting period of 6 years and 6 months, starting 01 July 2006. Expected operational</p>	<p>C.1.1</p>	<ul style="list-style-type: none"> • The construction initiation is defined for July of 2006. • Commercial operation and the crediting period will start in January of 2007. 	<p>The updated dates address sufficiently the clarification request raised. CL is resolved.</p>

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
lifetime of the project is set to 50 years. The starting date of the project needs to be prior to the starting date of the crediting period.		As a consequence with the dates establish in the project, the section B3 redefined like: Total Emission Reductions: First Period (Jan 2007 – December 2012): Second Period (January 2013 – December 2019): Total (Jan 2007 – December 2019).	
CL 4 In attachment 7 of the PDD, it is claimed that fuel consumed during construction will be monitored, documented, and discounted against the expected emission reductions. If this is the case, monitoring of project emissions from construction need to be included in section D of the PDD.	D.2.1	Section D5 in the PDD has been updated to address this.	Monitoring of project emissions from construction has been included in section D of the PDD. CL is resolved.
CL 5 In attachment 7 of the PDD, it is said that there will be monitoring of sustainability indicators. However, types of indicators and how to monitor these have not been included in the PDD.	D.4.1	The information about the Indicators of Sustainability is strait from the Environmental Investment Plan, and resume in the table added in the numeral D.5.5.1. of the Attachment 7 of the PDD (Monitoring Plan).	The updated PDD addresses the raised concern. CL is resolved.
CL 6 It is not stated for how long project monitoring data will be kept. Good practice is to keep data for the whole crediting period and 2 more years.	D.5.4	To define the management of the information of Emission Reduction and Sustainable Development the numeral D.5.6. is added to the Attachment 7 of the PDD (Monitoring Plan).	The updated PDD addresses the raised concern. CL is resolved.