CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD)
Version 03 - in effect as of: 22 December 2006

CONTENTS

Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	• The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. • As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.
03	22 December 2006	• The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.

SECTION A. General description of small-scale project activity

A.1 Title of the small-scale project activity:

Title: SHPs Albano Machado and Rio dos Índios CDM Project (JUN1115)
Version: 4
Date: 17/01/2012

A.2. Description of the small-scale project activity:

The project activity consists in the construction of the renewable energy generation Albano Machado (3.06 MW installed power) and Rio dos Índios (8.01 MW installed power) Small Hydro Power plants (SHP`s) located in the Trindade do Sul and Nonoai cities in the Rio Grande do Sul State, Brazil.
The purpose of the project activity is to provide electricity energy from renewable source to the Brazilian National Interconnected System (from the portuguese "*Sistema Interconectado Nacional – SIN*"), offsetting the fossil fuels thermal generation and helping to attend the rising energy demand in Brazil.

The project activity reduces emissions of greenhouse gases (GHG) and the global warming, avoiding the use of fossil fuel that would be burned in thermoelectric generating units interconnected to the grid. This initiative helps Brazil to meet its goals of promoting sustainable development.

For the project participants the project activity is a sustainable alternative for the generating electricity because considering that the projects consist of Small Hydropower Plants with small reservoir, they have low environmental impacts, almost zero if compared to the large hydroelectric plants.

Also the project activity contributes to the sustainable development, because:

- It reduces the fossil fuel (non-renewable source) use. Thus the project contributes to the natural resources better utilization and makes use of clean and efficient technologies;
- It contributes to better working conditions and increases employment opportunities in the area where the project is located;
- It contributes to the better conditions for the local economy, mainly in the rural areas from the cities involved.

A.3. Project participants:

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) Project Participants (*) (as applicable)	Kindly indicate if the party involved wishes to be considered as project participant (Yes/No)
Brazil (Host Country)	Rio do Lobo Energia Ltda (private entity)	No
	Casa de Pedra Energia S.A (private entity)	
	Carbotrader Assessoria e Consultoria em Energia Ltda. (private entity)	
(*) In accordance with the CDM modalities and procedures, at the time of making the CDM- PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Technical description of the small-scale project activity:

A.4.1. Location of the small-scale project activity:

A.4.1.1. Host Party(ies):

Brazil

A.4.1.2. Region/State/Province etc.:

South Region –Rio Grande do Sul State (RS)

A.4.1.3. City/Town/Community etc:

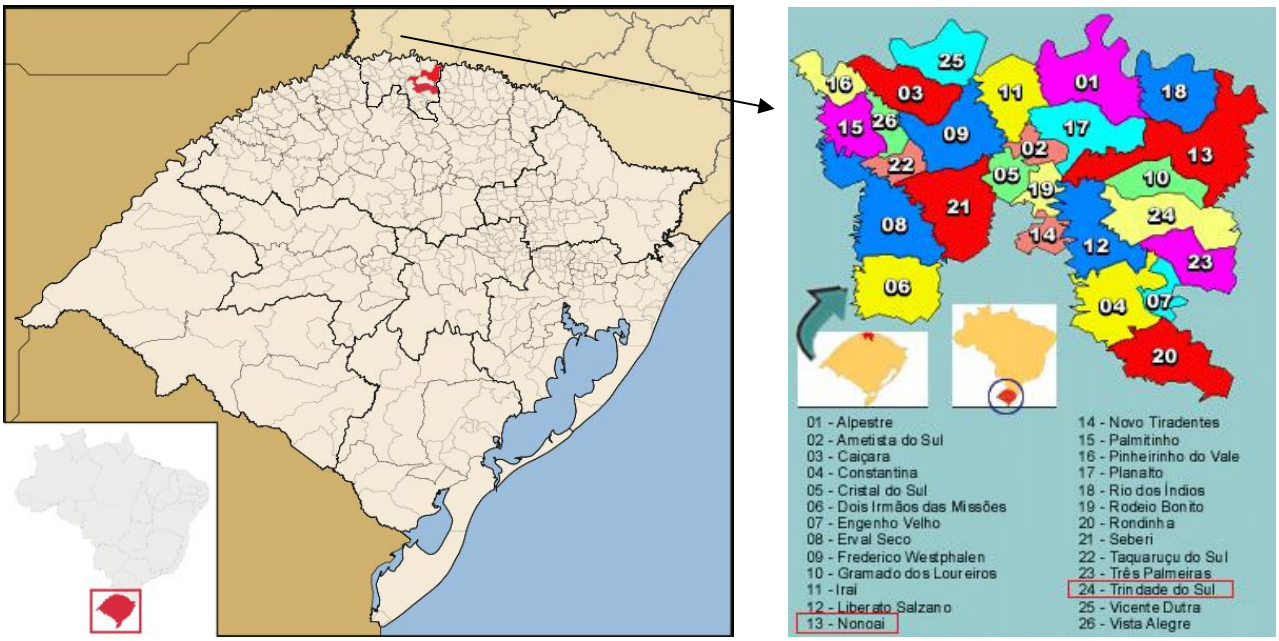
SHP Albano Machado – Trindade do Sul and Nonoai Cities
SHP Rio dos Índios – Nonoai City

A.4.1.4. Details of physical location, including information allowing the unique identification of this small-scale project activity :

The SHP Albano Machado is located at the Lajeado do Lobo river, coordinates 27º 29'48'' S and 52º 48' 13'' W (Dam), in the Trindade do Sul and Nonoai cities, Rio Grande do Sul State, south region, Brazil.

The SHP Rio dos Índios is located at the Rio dos Índios river, coordinates 27°16'30"S and 50°47'38"W, in the Nonoai city, Rio Grande do Sul State, south region of Brazil.

Figure 1: Trindade do Sul and Nonoai cities



Sources: Wikipedia - pt.wikipedia.org and City Brazil - www.citybrazil.com.br

A.4.2. Type and category(ies) and technology/measure of the small-scale project activity:

Small-scale project activity.

Type I: Renewable energy projects.
Category: I.D. Grid connected renewable electricity generation

The project activity consists in the use of water directly from the river to generate electricity. The potential gravitational energy of the water is used to move the turbines, and doing so, it generates electricity. It is a source of clean and renewable energy, which presents minimal impact on the environment.
The technology and equipment utilized in project activity will be developed and manufactured in Brazil and the transfer of know-how or technology to host country is not established.

The Albano Machado and Rio dos Índios plants will be interconnected with the national interconnected grid system (SIN) and shall supply energy to this electric system.
The Small Hydropower Plants (SHPs) are enterprises classified as Small Hydropower Plants because according to Resolution 652, 09/12/2003, of the National Electric Energy Agency (ANEEL), to be considered a small hydroelectric central, the area of the reservoir must be less than 3 km^2 (300 ha) and the generation capacity must be from 1 MW to 30 MW. These enterprises are also called "run of river" plants, which does not include significant water "stocks".

The SHPs characteristics are specified below:

Table 1: Main data from the SHPs

SHP	**Albano Machado**	**Rio dos Índios**
Installed Power (MW)[1]	3.06	8.01
Reservoir Area (Km^2) [2]	0.0893	0.2526
Power Density (W/m^2)	34.26	31.71
Energy Assured (MWaverage)	1.66	4.336
Turbines Type	Francis	Francis
Turbines Quantity	2	2
Unit Nominal Power (kW)	1,566	4,160
Flow Rate (m^3/s)	3.57	1.89
Synchronous Speed (rpm)	900	1,200
Generators		
Generators Quantity	2	2
Nominal Power (kVA)	1,800	4,500
Effective Power (kW)	1,530	4,005
Power's Factor	0.85	0.89
Frequency (Hz)	60	60

A.4.3 Estimated amount of emission reductions over the chosen crediting period:

Years	**Estimation of annual emission**

[1] According to the ANEEL Resolution no. 407/2000 the SHP capacity can vary from the planned power capacity and the implemented one in +- 5% without affect the legal documents already issued (shouldn´t be formally declared and justified to the ANEEL for regularization).

[2] Based on the Environmental Licenses issued in 2010

	reductions in tonnes of CO_2e
2012 (July)	5,189
2013	16,258
2014	16,258
2015	16,258
2016	16,258
2017	16,258
2018	16,258
2019 (June)	8,128
Total estimated reductions (tonnes of CO_2e)	**110,865**
Total number of crediting years	**7**
Annual average of the estimated reductions over the crediting period	**15,838**

A.4.4. Public funding of the small-scale project activity:

There is no public funding provided by international organizations for the performance of the project works so the carbon credits revenue are the option chosen.

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity:

Based on the information provided in Appendix C of the simplified modalities and procedures for small scale CDM activities, this small-scale renewable energy project is not part of a larger emission-reduction project, i.e., is not a debundled component of a larger project or program. It is a unique CDM project proposed by the project developer. The project participants have not registered or operated (are not therefore engaged in any way) in any other small-scale CDM project activities in hydropower or by using any other technologies within the project boundary, and surrounding the project boundary.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity:

Approved baseline and monitoring methodology:

AMS-I.D. - Grid connected renewable electricity generation -Version 17 (EB61 Annex 17 , 3 June 2011).

B.2 Justification of the choice of the project category:

In accordance to the list of sector scopes available on the UNFCCC website, the category in which the project is classified belongs to the Sector Scope I - Energy Industries (renewable/non-renewable sources).

The project activity is applicable to type I of small-scale projects (renewable energy), methodology I.D. – Grid connected renewable electricity generation – since it is classified in applicability requirements necessary for this category.
This category encompasses renewable sources, as hydro, which supplies electricity to a national or a regional grid, with power lower than 15 MW and reservoirs that satisfies at least one of the following conditions:
• The project activity is implemented in an existing reservoir with no change in the volume of reservoir;
• The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m2;
• The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m2.

The project activity will supply electricity to the Brazilian National Interconnected System. the total power capacity of Albano Machado (3.06 MW) and Rio dos Índios (8.01 MW) totalizes 11.07 MW, below 15 MW, then they can be classified as Greenfield power plants. Both created new reservoirs with the Power Density (PD) greater than 4 W/m2 (34.26 W/m2 for Albano Machado and 31.71 W/m2 for Rio dos Índios).

To summarize see below the applicability based on the methodology requirements:

1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass:
(a) Supplying electricity to a national or a regional grid; or
(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.

Applicable, the proposed project activity comprises renewable energy generation units (hydro).

2. Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A2) applies is included in Table 2.

3. This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition;[3] (c) Involve a retrofit[4] of (an) existing plant(s); or (d) Involve a replacement[5] of (an) existing plant(s).

Applicable, since install a new power plant at sites where there were no renewable energy power plants operating prior to the implementation of the project activity (Greenfield plants).

4. Hydro power plants with reservoirs[6] that satisfy at least one of the following conditions are eligible to apply this methodology:

• The project activity is implemented in an existing reservoir with no change in the volume of reservoir;
• The project activity is implemented in an existing reservoir,[7] where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m2;
• The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.

Applicable, since the project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.

5. If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel,[8] the capacity of the entire unit shall not exceed the limit of 15 MW.

Not Applicable, has not renewable and non-renewable components.

6. Combined heat and power (co-generation) systems are not eligible under this category.

Not Applicable, has not combined heat and power.

7. In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct[9] from the existing units.

,
Not Applicable, the proposed project activity doesn´t involve addition of renewable energy generation units at an existing renewable power generation facility.

8. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.

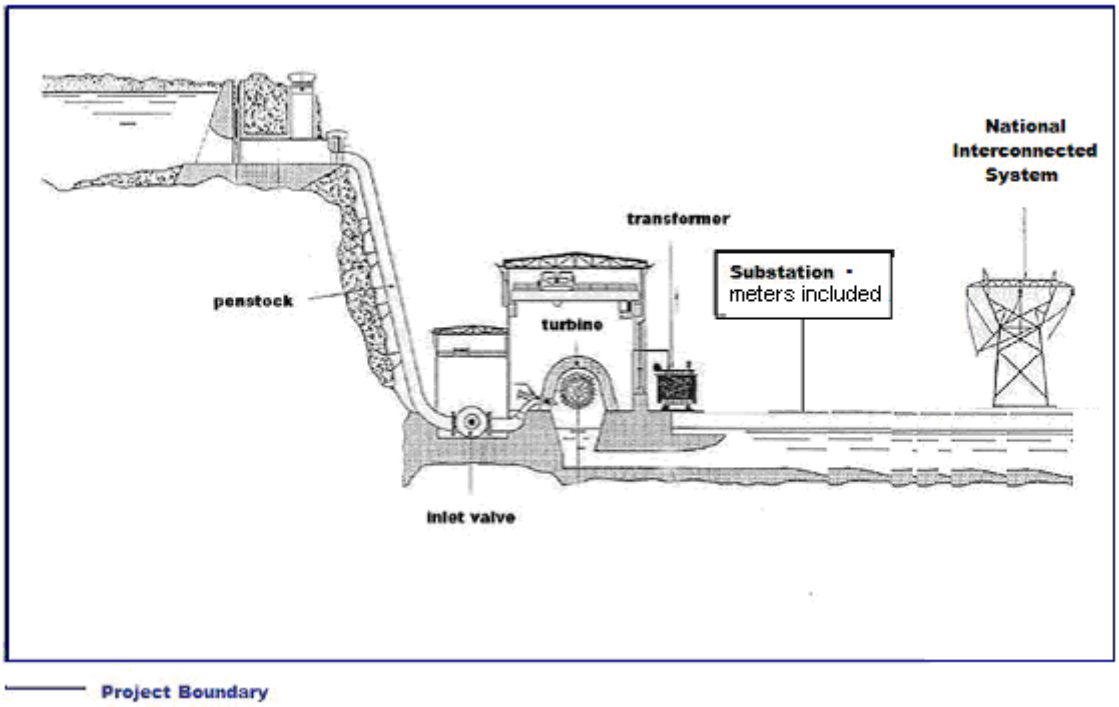
Not Applicable, the proposed project activity isn´t retrofit or replacement.

B.3. Description of the project boundary:

According to the AMS I.D the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.

Thus, the project boundary is the area where the project is located which includes the reservoirs, dams, powerhouses included the turbines, generators, substations, metering systems and the National Interconnected Grid.

The picture below presents the project boundary for each SHP[3]:



Regard the grid connection points, the electricity from the SHP Albano Machado shall be dispatched to the RGE (Rio Grande Energia – local energy distributor from the interconnected grid) located in the Entre Rios city (RS) being this the interconnection point.
The SHP Rio dos Índios electricity shall be dispatched to the CELESC Distribuição S.A substation (local energy distributor from the interconnected grid) located near of Chapecó City (SC) being this is the interconnection point.

B.4. Description of baseline and its development:

[3] Optionally, the meters can be installed near the powerhouse

The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. .

The baseline emissions are the product of electrical energy baseline $EG_{BL,\ y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor (in tCO_2e/MWh) calculated in a transparent and conservative manner.

The region where the municipalities Trindade do Sul and Nonoai (Rio Grande do Sul State) and neighboring municipalities are located is supplied by the National Interconnected Electric Grid. Part of the electricity produced by SHPs would have to be generated, in the case of its absence, by thermal power plants connected to the electrical grid and fed by fossil fuels, increasing anthropogenic emissions. The addition of 11.07 MW by SHPs of this project activity shall comply with all requirements of a project for small-scale CDM.

In this context, the project activity uses as source for the Emission Factor calculation the National Interconnected System (SIN) data for the operating and building margin. These datas are publicly available and provided by the Designated National Authority (DNA) of this host country.

The National Interconnected System (SIN) CO_2 Emission Factor is calculated based on generating records from the plants centrally operated by the **National Electric System Operator (ONS)**, which includes thermoelectric plants that use fossil fuels as energy.

The methodology used to this calculation is the dispatch data analysis, which is the most appropriate in determining the emission factor of the electrical grid.

These informations are necessary for renewable energy projects connected to the electric grid and implemented in Brazil as a **Clean Development Mechanism (CDM)** of the Kyoto Protocol.

The emission factor datas result from the National Electrical System Operator (ONS), Mines and Energy Ministry (MME) and the Science and Technology Ministry (MCT) workforce , which are made public available to the CDM projects proponents . Thus, they can be applied in the calculation of *ex-ante* emissions avoided by the project activity, but the emissions reduction shall be calculated *ex-post*.

Further details of the development of the project baseline can be viewed through the link: http://www.mct.gov.br/index.php/content/view/307492.html.

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:

Table 4: SHPs Project Timeline (AM – Albano Machado and RDI – Rio dos Índios).

Date	SHP	Subject	Evidence
12/12/2006	AM	ANEEL Authorizative Resolution No. 764	http://www.aneel.gov.br/cedoc/rea2006764.pdf
12/12/2008	AM	CDM Prior Consideration (Communication delivery to the UNFCCC Secretariat through e-mail)	Email: "*Re: Electra Power project activities information*"
30/03/2009	AM	Generator Aquisition (Project Activity Start Date)	Generator purchase contract
17/04/2009	AM	Turbines Aquisition	Turbines Purchase Contract
01/05/2009	AM	SHP Construction Start	Construction Schedule
10/08/2009	AM	Instalation License Issued	Document "LI 878 / 2009-DL"
01/12/2009	AM	DOE Offer for the Validation Services	E-mail "*Proposta MDL para as PCHs Albano Machado e Rio dos Índios*"
02/12/2009	AM	CDM Local Stakeholders Consult	Letters to the Brazilian Stakeholders
22/04/2010	AM	PDD public available for global stakeholders comments	http://cdm.unfccc.int/Projects/Validation/DB/WJNOGITOOZTPB8NKK4JD63XIO1QUDD/view.html
29/09/2010	AM	Operation License Issued	Document "LO 5936 / 2010-DL"
28/10/2010	AM	SHP Construction Finalization	ANEEL Dispatch No. 3272
Date	**SHP**	**Subject**	**Evidence**
03/03/2009	RDI	ANEEL Autorizative Resolution No. 1826	http://www.aneel.gov.br/cedoc/rea20091826.pdf
22/12/2008	RDI	CDM Prior Consideration	Email: "*Re: Electra Power project activities information*"
01/12/2009	RDI	DOE Offer Validation Services	E-mail "*Proposta MDL para as PCHs Albano Machado e Rio dos Índios*"
02/12/2009	RDI	Local Stakeholders Consult	Letters to the Brazilian Stakeholders
22/04/2010	RDI	PDD public available for global stakeholders comments	http://cdm.unfccc.int/Projects/Validation/DB/WJNOGITOOZTPB8NKK4JD63XIO1QUDD/view.html
01/03/2011	RDI	SHP Construction Start	Forecasted in the SHP Construction Schedule "*Cronograma_RDI_rev4*"
30/10/2012	RDI	SHP Construction Finalization	Forecasted in the SHP Construction Schedule "*Cronograma_RDI_rev4*"

According to the Annex A of Appendix B of the Simplified Modalities and Procedures for Small-Scale CDM Project Activities, a barrier analysis must be done in order to demonstrate the project additionality, as described below (version 08.0 of 29 September 2011):
The Project Participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

(a) **Investment barrier**: This barrier evaluates a financially more viable alternative to the project activity would have led to higher emissions;

(b) **Technological barrier:** This barrier evaluates a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;

(c) **Barrier due to prevailing practice:** This barrier evaluates prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;

(d) **Other barriers:** This barrier evaluates without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

(a) Investment barrier

General Aspects

In Brazil, interest rates of financing agencies in local currency are significantly higher than the same rates in the American currency. The credit market is dominated by shorter maturities and the long-term credit lines are available only for stronger corporative borrowers and for special government initiatives.

The domestic financial markets with long-term of maturity are difficult to access. Experience has shown that in times of financial stress, the duration of the savings instruments falls to levels close to one day, with a large concentration in overnight-type bank deposits. Savers do not hold long-term financial contracts because it is not possible to determine the price of the uncertainty involved in the preservation of the value of the purchasing power.

The lack of long-term local financings results from the reluctance of financial institutions to increase the maturity of their investments. Thus, investors choose for more liquid investments and put their money into government securities instead of investing in long-term opportunities that could fund infrastructure projects.

The National Bank for Economic and Social Development, BNDES, is the sole supplier of long-term loans[4]. The financing of the BNDES debt is held mainly through commercial banks. But the high level of guarantee required, the high fees charged due to the risk associated with renewable projects and requirement of the contract for the purchase and sale of energy (CCVE), hamper the access of investors to these resources.

Aspects of the Project

[4] According *Jennifer Hermann* in her article "Sistematização do debate sobre "Desenvolvimento e Estabilidade" no Brasil". (free translation - Systematization of the discussion on "Development and Stability" in Brazil)

To examine **the investment barriers** of the project, the application of a benchmark analysis[5] was used in order to perform the additionality analysis.

The suitable financial indicator selected for the proposed CDM project activity is the project's Internal Rate of Return (IRR), this data is considered adequate for this kind of Project as well decision context.

The financial/economic analysis is based on parameters that are standard in the market.

To the Benchmark was considered 5 entire years average (from January 2004 to December 2008) of the National Treasury Notes – Series C (NTN-C) with maturity in the 2031 year.

The NTN-C Brazilian Government Bonds represents a free risk rate of return available for investors. The data sources are public and easily accessible[6].

The table below presents the calculated Benchmark value:

Benchmark (Brazilian Gov. Bond Rates average)
17.13%

As mentioned the finance indicator choosen to the benchmark comparison should be the Internal Rate Return from the SHPs, being the values:

IRR without the CERs revenues	
Albano Machado	Rio dos Índios
14.59%	14.65%

Comparing the Small Hydro Power Plants IRRs with the Benchmark is it possible to conclude that the project activity is unlikely to be the most financially/ economically attractive.

The input values used in the IRR calculation are listed in the tables below. The IRR spreadsheet calculation will be presented in a separated document:

SHP Albano Machado

Investment	14,070,472	R$	OPE - Budget Standard Eletrobrás and Cap14 Page 2 from Rischbieter Engenharia e Serviços[7] SHP Project
Energy Price	155.00	R$/MWh	Project Proponent Benchmark and Energia Direta Website also 8th CCEE Energy Auction [8]

[5] Other options could be the simple cost or the investment comparison analysis, but since the project activity has other revenues, like the CDM benefits, the simple cost must be discarded and there are not other investment alternatives for the project sponsors. So the benchmark analysis was adopted in order to check the additionality.

[6] in http://www.tesouro.fazenda.gov.br

[7] Third Party Company responsible for the SHP project calculations http://www.rischbieter.com.br/

[8] http://www.ccee.org.br/StaticFile/Arquivo/biblioteca_virtual/Leiloes/8_energia%20nova/Resultado%20por%20vendedor.pdf

Assured Energy	1.66	MWaverage	Project Design and Brazilian Mines and Energy Ministry ("*Portaria 079 - 2007 - Anexo*")
Operation and Maintenance (O&M)	2.40	% over the total asset	PP Benchmark and "Diretrizes para Estudos e Projetos de Pequenas Centrais Hidrelétricas" page 14

SHP Rio dos Índios

Investment	36,745,269.82	R$	OPE - Budget Standard Eletrobrás and Project Proponent´s Investment Statement delivered to the Financing Bank.
Energy Price	155.00	R$/MWh	Project Proponent Benchmark and Energia Direta Website also 8th CCEE Energy Auction [9]
Assured Energy	4.336	MWaverage	*Rischbieter' Engenharia e Serviços* Studies page 10 and Project Proponent´s Investment Statement delivered to the Financing Bank
Operation and Maintenance (O&M)	2.40	% over the total asset	PP Benchmark and "Diretrizes para Estudos e Projetos de Pequenas Centrais Hidrelétricas" page 14

Anyway, a sensitivity analysis was performed in order to check the breakeven points for the project activity taken into account the most sensitive parameters variation, such as: Investment Value; Energy Price, Assured Energy and the Operation and Maintenance (O&M) Costs. The results are presented below:

	Albano Machado	Break Even Point	Project Value
Investment	**-18.00%**	R$ 11,537,787.04	R$ 14,070,472.00
Energy Price	**+14.90%**	178.10 R$/MWh	155.00 R$/MWh
Assured Energy	**+14.90%**	1.91 MWaverage	1.66 MWaverage
O&M	**-93.18%**	0.16% on total asset	2.40% on total assets

	Rio dos Índios	Break Even Point	Project Value
Investment	**-17.80%**	R$ 30,204,611.79	R$ 36,745,269.82
Energy Price	**+14.90%**	178.10 R$/MWh	155.00 R$/MWh
Assured Energy	**+13.65%**	4.928 MWaverage	4.336 MWaverage
O&M	**-92.97%**	0.17% on total asset	2.40% on total assets

The project sponsors considered the variation level not feasible because:

Investment Value

[9] http://www.ccee.org.br/StaticFile/Arquivo/biblioteca_virtual/Leiloes/8_energia%20nova/Resultado%20por%20vendedor.pdf

Regarding the Investment costs, the input values have come from the Eletrobrás Standard Budget (from the Portuguese: *Orçamento Padrão Eletrobrás* - OPE) presented by the Project Participants and developed by the "Rischbieter Engenharia e Serviços" (Third Party company and the project designer expert) also the financial statement delivered to the financial entity (BNDES Bank).
The budget follows the standard used by Eletrobras for its projects and is widely used in Brazil to assess SHP projects. The OPE is part of the executive project of the SHP, which has to be assessed by the National Electric Energy Agency (from Portuguese Agência Nacional de Energia Elétrica – ANEEL, sector regulatory agency in Brazil), in this way a third part agency in Brazil.
After observe the data presented above, it can be considered that the input value for investment costs used in the financial analysis is adequate/suitable as well as conservative, considering that it reflects the input value presented at the time of validation.

Plant Load Factor

This value is based on well established calculus and formulas for these kind of project activity and also is based on the historical flow river where the SHPs shall be located (Jan/1957 to the Albano Machado and Jan/1960 to the Rio dos Índios until Dec/2006 so 49 and 46 years analysis). ANEEL has validated these by: Rio dos Índios – Dispatch 3473, 19 September 2008, and, Albano Machado - Dispatch 3,761, 5 October 2009.

Energy Price

The energy price values evidenced trough the public energy auction occurred in the CCEE brings values around R$144.00/MWh (2009):
http://www.ccee.org.br/StaticFile/Arquivo/biblioteca_virtual/Leiloes/8_energia%20nova/Resultado%20por%20vendedor.pdf

Also the ANEEL Reference Value (VR) to the 2008 year has R$ 139.44/MWh as the value to be performed.
The Reference Value is the value at which the energy distributors can afford for the energy price trough the Power Purchase Agreement to the small power generators in the concession area: http://www.ccee.org.br/StaticFile/Oficio%200312008%20SEM%20Aneel.pdf

So R$ 155.00/MWh considered by the PP is already an optimistic price level (7.6% over the currently prices). But R$ 178.10/MWh represents 23.6% over, not in line with the market prices and also not feasible
.

O&M

The variance of 92.97% is not possible because represents no operation and maintenance on the ventures.

Conclusion

Based on the explanation above, the proposed CDM project activity is unlikely to be the most financially/economically attractive. It is evident that the project must become a CDM in order to join the

carbon credits revenue into the project cash-flow becoming better profitability when comparing to other options that could led to the higher emissions.

The IRR from the SHPs will get better with the CERs revenues:

IRR with the CERs revenues	
Albano Machado	Rio dos Índios
15.07%	15.07%

(b) Technological barrier

Not used.

(c) Barrier due to prevailing practice

Not used.

(e) Other barriers

Not used.

Conclusion of the barriers analysis

Small hydro power plants are power plants with a reservoir area smaller than 3 km². It generally consists of a run-of-the-river hydro plant which has minimum environmental impact. This is not the business-as-usual scenario in a country where large hydro and thermal fossil fuel projects are preferred. CDM has made it possible for some investors to set up small hydro plants and sell electricity to the grid and this motivated the SHPs Albano Machado and Rio dos Índios implementation.

The registration of the proposed project activity will help the Project Participants to improve its economic performance contributing with several expenses related to the operation phase and will be an important incentive to overcome the financial barrier. Also, the project registration may have a strong impact in paving the way for similar projects to be implemented in Brazil.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

Baseline emissions

The baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

$BE_y = EG_{BL,y}. EF_{CO2,grid,y}$

Where:

BE_y =Baseline Emissions in year *y* (t CO2)
$EG_{BL,y}$ = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year *y* (MWh)
$EF_{CO2\ grid\ y}$ = CO2 emission factor of the grid in year *y* (t CO2/MWh)

The Emission Factor can be calculated in a transparent and conservative manner as follows:

(a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures described in the "Tool to calculate the Emission Factor for an electricity system".

Thus, from the tool, the emission factor of the grid is $EF_{grid,CM,y}$, which in this case is the same used in the present project activity: $EF_{CO2,grid\ y}$.

Considering that the project activity is based on SHPs, the calculation of the combined margin emissions factor shall use the following default values for w_{OM} and w_{BM}:

w_{OM} = 0.5 and w_{BM} = 0.5 for the first crediting period , and w_{OM} = 0.25 and w_{BM} = 0.75 for the second and third crediting period.

Project Emissions

Since the power densities (PD) from the SHPs are higher than 10W/m^2 (as defined in the ACM0002).

$PE_y = 0$

PE_y = Project Emission in the year *y*

PD Albano Machado = 3.06 MW / 0.0893 Km^2 = 34.26 W/m^2
PD Rio dos Índios = 8.01 MW / 0.2526 Km^2 = 31.71 W/m^2

Leakage

There are no transfers of energy generating equipments from or to another activity, so according to the methodology the leakage is considered zero.

L_y= 0

Emissions Reductions

The emission reduction is calculated as follows:

$ER_y = BE_y - PE_y - L_y$

As $\boldsymbol{PE_y = 0}$ and $\boldsymbol{L_y = 0}$, $\boldsymbol{ER_y}$ is:

$\boldsymbol{ER_y = BE_y}$

B.6.2. Data and parameters that are available at validation:

Data / Parameter:	$Cap_{Albano\ Machado\ ,y}$
Data unit:	W
Description:	Installed capacity of the hydro power plant before the implementation of the project activity. For new hydro power plants, this value is zero
Source of data used:	Project site.
Value applied:	0
Justification of the choice of data or description of measurement methods and procedures actually applied:	The methodology for which this value is applied in new hydroelectric plants.
Any comment:	-

Data / Parameter:	$Cap_{Rio\ dos\ Índios,y}$
Data unit:	W
Description:	Installed capacity of the hydro power plant before the implementation of the project activity. For new hydro power plants, this value is zero
Source of data used:	Project site.
Value applied:	0

Justification of the choice of data or description of measurement methods and procedures actually applied:	The methodology for which this value is applied in new hydroelectric plants.
Any comment:	

Data / Parameter:	$A_{Albano\ Machado,y}$
Data unit:	m^2
Description:	Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero
Source of data:	Project site.
Value of data:	0
Justification of the choice of data or description of measurement methods and procedures actually applied:	Measured from topographical surveys, maps, satellite pictures, etc.
Any comment:	-

Data / Parameter:	$A_{Rio\ dos\ indios,y}$
Data unit:	m^2
Description:	Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero
Source of data:	Project site.
Value of data:	0
Justification of the choice of data or description of measurement methods and procedures actually applied:	Measured from topographical surveys, maps, satellite pictures, etc.
Any comment:	-

B.6.3 Ex-ante calculation of emission reductions:

The baseline methodology considers the determination of the emissions factor to the grid which the project activity is connected as the core data to be determined in the baseline scenario. In Brazil, the grid is interconnected by the National Interconnected System (SIN) in a single system.

"Operating Margin Emission Factor (OM)" calculation ($EF_{grid,OM-DD,y}$)

The Dispatch Data emission factor (OM), is summarized as follows:

$$EF_{grid,OM-DD,y} = \frac{\sum_{h} EG_{PJ,h} \cdot EF_{EL,DD,h}}{EG_{PJ,y}}$$

Where:

$EF_{grid,OM-DD,y}$	Dispatch data analysis operating margin CO_2 emission factor in year y (tCO_2/MWh);
$EG_{PJ,h}$	Electricity displaced by the project activity in hour h of year y (MWh);
$EF_{EL,DD,h}$	CO_2 emission factor for power units in the top of the dispatch order in hour h in year y (tCO_2/MWh);
$EG_{PJ,y}$	Total electricity displaced by the project activity in year y (MWh);
h	Hours in year y in which the project activity is displacing grid electricity;
y	Year in which the project activity is displacing grid electricity.

For effect of *ex-ante* operation margin emission factor calculation will be used, like a good estimation to $EF_{grid,OM-DD,y}$ value, the arithmetic average of the 12 last monthly emission factors published by the DNA (ultimate data available - http://www.mct.gov.br/index.php/content/view/307492.html)

Average Monthly Factor (tCO_2/MWh)												
year	2010											
month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EF	0.2111	0.2798	0.2428	0.2379	0.3405	0.4809	0.4347	0.6848	0,7306	0,7320	0,7341	0,6348

So the Operation Margin Emission Factor is:

$EF_{grid,OM-DD,y}$ = 0.4787

"Build Margin Emission Factor (BM)" calculation ($EF_{grid,BM,y}$)

According to the used methodology, the build margin emission factor (BM) also needs to be calculated:

$$EF_{grid,BM,y} = \frac{\sum_{i,m} EG_{m,y} . EF_{EL,m,y}}{\sum_{m} EG_{m,y}}$$

Where:

$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year y (tCO_2/MWh);

$EG_{m,y}$	Net quantity of electricity generated and delivered to the grid by power unit m in year *y* (MWh);
$EF_{EL,m,y}$	CO_2 emission factor of power unit m in year *y* (tCO_2/MWh);
m	Power units included in the build margin.

For the build margin emission factor $EF_{grid,BM,y}$ will be adopted the 2009 year value published by the DNA (ultimate data available).

$EF_{grid,BM,y}$ = 0.1404

"Baseline Emission Factor" calculation ($EF_{grid,CM,y}$)

Finally, the baseline emission factor (*EFy*) is calculated through a weighted-average formula, considering both the $EF_{OM,y}$ and the $EF_{BM,y}$ that gives:

$$EF_{grid,CM,y} = 0.4787 \cdot 0.5 + 0.1404 \cdot 0.5 = 0.30955 \quad (tCO_2/MWh)$$

$$EF_{grid,CM,y} = EF_{CO2,grid,y.}$$

The Emission Reductions for this project activity are:

$$ER = BE_y - L_y - PE_y$$

The baseline emissions would be then proportional to the electricity delivered to the grid throughout the project's lifetime. Baseline emissions due to displacement of electricity are calculated by multiplying the electricity baseline emissions factor ($EF_{grid,CM,y}$) for the electricity generated by the project activity.

$$BE_y = EG_{BL,y} . EF_{CO2,grid,y}$$

The electricity energy generated by the SHPs Albano Machado and Rio dos Índios ($EG_{BL,y}$) in the year *y* are estimated in 52,525 MWh/year.

So the baseline emissions are:

$$BE_y = 52{,}525 . 0.30955 = \mathbf{16{,}258\ tCO_2e/year}$$

To this project the leakage aren´t considered, so:

L_y = 0.

As mentioned the (PE_y) is zero:

PE_y =0

Thus all this, the Emission Reductions (ER) from the project activity are:

$$\boldsymbol{ER} = 16{,}258 - 0 - 0 = \mathbf{16{,}258 tCO_2e/year}$$

B.6.4 Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tCO_2e)	Estimation of Baseline emissions (tCO_2e)	Estimation of leakage (tCO_2e)	Estimation of Overall emission reductions (tCO_2e)
2012 (July)	0	5,189	0	5,189
2013	0	16,258	0	16,258
2014	0	16,258	0	16,258
2015	0	16,258	0	16,258
2016	0	16,258	0	16,258
2017	0	16,258	0	16,258
2018	0	16,258	0	16,258
2019 (June)	0	8,128	0	8,128
Total (tones CO_2e)	0	110,865	0	110,865

B.7 Application of a monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:

Data / Parameter:	$EG_{Albano\ Machado,y}$
Data unit:	MWh/year
Description:	Net electricity of the SHP Albano Machado delivered to the grid in year y
Source of data to be used:	Energy Meters
Value of data	**14,542**
Description of measurement methods and procedures to be applied:	The net electricity delivered to the grid will be checked through the energy metering. The data from the energy meters will be cross checked with the CCEE data bank (Electric Power Commercialization Chamber in Brazil) or with invoice of energy sales in the way to verify the coherency of the data.
QA/QC procedures to be applied:	The meter must comply with national standards and industrial regulations to ensure the accuracy. The meters must be sealed for safety after calibration.
Any comment:	These data will be used for calculate the emission reductions. The data will be archived monthly (electronic) should be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later

Data / Parameter:	$EG_{Rio\ dos\ Indios,y}$
Data unit:	MWh/year
Description:	Net electricity of the SHP Rio dos Indios delivered to the grid in year y
Source of data to be used:	Energy Meters
Value of data	**37,983**
Description of measurement methods and procedures to be applied:	The net electricity delivered to the grid will be checked through the energy metering. The data from the energy meters will be cross checked with the CCEE data bank (Electric Power Commercialization Chamber in Brazil) or with invoice of energy sales in the way to verify the coherency of the data.
QA/QC procedures to be applied:	The meter must comply with national standards and industrial regulations to ensure the accuracy. The meters must be sealed for safety after calibration.
Any comment:	These data will be used for calculate the emission reductions.The data will be archived monthly (electronic) should be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later

Data / Parameter:	$EF_{CO2,grid,,y}$
Data unit:	tCO_2e/MWh
Description:	CO_2 emission factor of the grid electricity in year y
Source of data to be used:	Calculated through the data provided by DNA (Designated National Authority). The Brazilian DNA provides the Operating Margin Emission Factor and the Build Margin Emission Factor.
Value of data	**0.30955**
Description of measurement methods and procedures to be applied:	The Emission Factor will be monitored through ex-post calculation, which data are available by the DNA (Designated National Authority). The Combined Margin is calculated through a weighted-average formula, considering both the $EF_{grid,OM\text{-}DD,y}$ and the $EF_{grid,BM,y}$ and the weights w_{OM} and w_{BM} (are default 0.5).
QA/QC procedures to be applied:	This data will be applied in the project emission reductions calculation. The data will be annually filed (electronic archive) and should be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.
Any comment:	

Data / Parameter:	$EF_{grid,OM\text{-}DD,y}$
Data unit:	tCO_2/MWh
Description:	CO_2 Operating Margin emission factor of the grid, in a year *y*
Source of data to be used:	Data provided by DNA to the year *y*.
Value of data	**0.4787**
Description of measurement methods and	The Operating Margin Emission Factor will be collect in the DNA website, which is responsible for this calculation.

procedures to be applied:	
QA/QC procedures to be applied:	This data will be applied in *ex-post* calculation of the Emission Factor. The data will be annually filed (electronic archive) should be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later
Any comment:	

Data / Parameter:	$EF_{grid,BM,y}$
Data unit:	tCO2/MWh
Description:	CO2 Build Margin emission factor of the grid, in a year *y*
Source of data to be used:	Data provided by DNA (Designated National Authority) to the year *y*.
Value of data	**0.1404**
Description of measurement methods and procedures to be applied:	The Build Margin Emission Factor will be collect in the DNA website, which is responsible for this calculation.
QA/QC procedures to be applied:	This data will be applied in *ex-post* for the calculation of the Emission Factor. The data will be annually filed (electronic archive) should be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later
Any comment:	-

Data / Parameter:	$Cap_{Albano\ Machado\ ,y}$
Data unit:	W
Description:	Installed capacity of the hydro power plant after the implementation of the project activity.
Source of data:	Project site.
Value of data:	3,060,000
Description of measurement methods and procedures to be applied:	Technical specifications on the installed equipments.
Monitoring frequency:	Yearly monitoring frequency.
QA/QC procedures to be applied:	This data will be applied for the Power Density calculation.
Any comment:	-

Data / Parameter:	$Cap_{Rio\ dos\ Índios,y}$
Data unit:	W
Description:	Installed capacity of the hydro power plant after the implementation of the project activity.
Source of data:	Project site.
Value of data:	8,010,000
Description of measurement methods and procedures to be applied:	Technical specifications on the installed equipments.
Monitoring frequency:	Yearly monitoring frequency.
QA/QC procedures to be	This data will be applied for the Power Density calculation.

applied:	
Any comment:	The equipment can be assembled with 5% variation in accordance with ANEEL Resolution 407/2000.

Data / Parameter:	$A_{Albano\ Machado,y}$
Data unit:	m^2
Description:	Area of the reservoir measured in the water surface, after the implementation of the project activity, when the reservoir is full.
Source of data:	Reservoir in the Project site.
Value of data:	89,300
Description of measurement methods and procedures to be applied:	Measured from topographical surveys, maps, satellite pictures, etc.
Monitoring frequency:	Yearly monitoring frequency.
QA/QC procedures to be applied:	Data will be monitored and recorded by project developer. This data will be applied for the Power Density calculation
Any comment:	-

Data / Parameter:	$A_{Rio\ dos\ índios,y}$
Data unit:	m^2
Description:	Area of the reservoir measured in the water surface, after the implementation of the project activity, when the reservoir is full.
Source of data:	Reservoir in the Project site.
Value of data:	252,600
Description of measurement methods and procedures to be applied:	Measured from topographical surveys, maps, satellite pictures, etc.
Monitoring frequency:	Yearly monitoring frequency.
QA/QC procedures to be applied:	Data will be monitored and recorded by project developer. This data will be applied for the Power Density calculation
Any comment:	-

B.7.2 Description of the monitoring plan:

The monitoring plan for the project activity is based on the methodology AMS I.D.

1) **Power generation:**

General characteristics of the measurement system:

The procedures designs for monitoring electricity generation by the project activity follow the parameters and regulations of the Brazilian energy sector. The National Grid Operator (ONS) and the Electric Power Commercialisation Chamber (CCEE) are the organs responsible for specification of the technical requirements of energy measurement system for billing, which those bodies up, monitor and approve projects for accurate accounting of energy.

The agent responsible for the measurement system for billing (SMF) develop the project in accordance with the technical specifications of the measurements for billing, which should include the location of measurement points, panels of measurement, meters and systems for local and remote measurement.

The measurement system makes the measure and records the energy. This is installed in the panels of measurement, which are generally located in the control room or cabins of measurement. For this system is guaranteed the inviolability of data, which are placed stamps and seals or seals with electronic passwords.

Should be installed metering panels with two meters (the main and the backup).

The measurement system contains also a communication system that has the function to send the data of electricity dispatched for the grid to the CCEE.

Data monitoring:

The readings of meters are used for calculating the emission reductions when the Meter is in normal operation state. The monitoring steps are as follows:

(1) The data will be measured hourly and recorded monthly;
(2) The power output settlement sheet from CCEE and/or sales receipts will be used to cross check the monitored data.
(3) The project owner provides DOE with readings record of meters, access to the CCEE data measured and/or copies of sales invoices and others emission reductions calculations.

Quality control:

(1) Calibration of meters

The calibration of meters conducted by qualified organization must comply with national standards and industrial regulations to ensure the accuracy. The meters must be sealed for safety after calibration. The calibration records must be archived together with other monitoring records.
The class of accuracy in the equipment that will be used in the project activity is under the national standards (NBR 14519 from Associação Brasileira de Normas Técnicas – Brazilian Association of Technical Standards). It can be viewed in the Grid Procedures from the National Grid Operator: Module 12, Sub-module12.2 Installation of the Measurement System for Billing in the link:
http://www.ons.org.br/download/procedimentos/modulos/Modulo_12/Submodulo%2012.2_Rev_1.0.pdf

(2) Emergency treatment

In case of impracticability of measures from any point of measurement, due to maintenance, commissioning or for any other reason, will be used the methodology to estimate data as the item 14.3 of the Procedure of Energy Commercialization PdC ME.01[10]

Data Management:

All the project activity issues regarding the SHPs will be treated by the SPEs (Special Purpose Entities) Rio do Lobo Energia Ltda and Casa de Pedra Energia S.A board and the Management Sector responsible. By now, all the SHPs construction issue has been conducted by the Board of the SPEs.

An operational structure for the plants is assigned and trained before the commercial operation start.

The data will be annually filed (electronic archive) should be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Training Procedures:

All the training necessary for the plant operational team will be provided during the plant construction and during the plant commercial operation. Also a plant operation manual will be created in order to provide assured instructions.

Furthermore, operation, maintenance and calibration procedures will follow the national guidelines set by the National Grid Operator.

Emission Factors:

The Emission Factor related to this project activity ($EF_{grid,CM,y}$,$EF_{gris,OM\text{-}DD,y}$ e $EF_{grid,BM,y}$) as mentioned previously, are available by the Brazilian DNA and it can be viewed at its website (www.mct.gov.br/clima). Thus, the monitoring of such data will be ex-post through periodic access to data provided by DNA.

The Area of the reservoir (A_{PJ}) should be measured annually through the topographical surveys, maps, satellite pictures, etc.
The facility capacity ($Cap_{PJ,y}$)should be measured annually through the technical specifications on the installed equipments.

B.8 Date of completion of the application of the baseline and monitoring methodology and the name of the responsible person(s)/entity(ies)

The application of the baseline and monitoring methodology was completed on 13/12/2010. The entity responsible for its development is Carbotrader (also is the Project Participant listed in the Annex I).

Company:	CARBOTRADER ASSESSORIA E

[10] http://www.ccee.org.br/cceeinterdsm/v/index.jsp?vgnextoid=67778d3ef9a3c010VgnVCM1000005e01010aRCRD

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Represented by:	
First Name:	Arthur Augusto
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SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

30/03/2009 the SHP Albano Machado construction start, evidenced trough the Generators contraction, this data is the first evidence of the SHP project implementation - related to the project activity expenditure commitment.

From the 2 SHPs the Albano Machado is the first one to be implemented, Rio dos Índios didn´t start the project implementation yet.

C.1.2. Expected operational lifetime of the project activity:

30 years

C.2 Choice of the crediting period and related information:

C.2.1. Renewable crediting period

C.2.1.1. Starting date of the first crediting period:

01/07/2012 (or in the UNFCCC registration date, which occurs later)

C.2.1.2. Length of the first crediting period:

7 years – 0 month

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

Not applicable.

C.2.2.2. Length:

Not applicable.

SECTION D. Environmental impacts

D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:

With respect to regulatory permits the Albano Machado and Rio dos Índios SHPs have the following ANEEL authorizations:

- Authoritative Resolution Nº 764, issued on 12nd December 2006
- Dispatch Publication Nº 3,761, issued on 5th October 2009
- Authoritative Resolution Nº 1,826, issued on 3rd March 2009
- Dispatch Publication Nº 3,473, issued on 19th September 2008

With respect to environmental permits legislation requires issuing of following licenses:

- **Preliminary License (LP):** preliminary phase of planning activity in which concept and location of enterprise are evaluated. In this phase Environmental Impact Study (EIA) and Environmental Impact Report (RIMA) are analysed, or, depending on the case, the Environmental Control Report (RCA).

- **Installation License (LI):** authorizes implementation of enterprise. In this phase, the Environmental Control Plan (PCA) is analysed, it contains projects for systems of treatment and/or disposing of liquid and atmospheric effluents and solid residue etc.

- **Operation License (LO):** authorizes operation of enterprise after verification of compliance with measures determined in phases of LP and LI.

Thus these SHPs have the following documentation:

The **Albano Machado** Small Hydro Power Plant has the following Environmental Licenses:

- LP N° 703/2004-DL – Environmental Preliminary License from Environmental Protection State Foundation – FEPAM (Fundação Estadual de Proteção Ambiental - FEPAM). Issued on 03 September 2004.
- LI Nº 878 / 2009-DL – Environmental Installation License from FEPAM. Issued on 10 August 2009.
- LI N° 03/2010-DL - Environmental Installation License from FEPAM in 04 January 2010.
- LO N 5936/2010-DL – Operation License from FEPAM issued on 29 September 2010.

The **Rio dos Índios** Small Hydro Power Plant has the following Environmental Licenses:

- LP N° 307/2004-DL – Environmental Preliminary License from FEPAM in 23 April 2004.
- LI N° 375/2008-DL – Environmental Installation License from FEPAM in 22 April 2008.
- LI N° 275/2010-DL - Environmental Installation License from FEPAM in 17 March 2010.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

The project activity includes 2 Small Hydro Power plants where the environmental impacts are considered not significant when compared with the other generation power plants types (with large flooded area). The Instalation Licenses were issued by the FEPAM - Fundação Estadual de Proteção Ambiental (statual agency responsible for the environmental fiscalization during all the project activity lifetime).

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

In accordance to Ruling nº.1, dated 11st September 2003 and Ruling nº 7, of the Inter-Ministry Commission on Global Climate Change (CIMGC), any CDM projects shall send a letter describing the project and request commentaries by local interested parties.

The project activity applies to only one state of the federation, thus, the invitations of comments should be addressed to the following actors involved and affected by the project activities:

- City Hall and City Councils;
- State environmental body and Municipal environmental body;
- Brazilian Forum of NGOs and Environmental and Development Social Movements - http://www.fboms.org.br;
- Community associations;
- State Prosecutors Office;
- National Prosecutors Office.

In order to satisfy and comply with this ruling the project proponents sent invitation letters describing the project, and requested commentaries by the following interested parties:

- City Hall of Nonoai
- Hall of Councilors of Nonoai
- Department of Planning, Development, Industry, Commerce and Tourism of Nonoai
- Department of Public Works of Nonoai
- Municipal Service Center for Children and Teenagers Adílio Daronch - CEMACAAD
- Chamber of Commerce, Cultural, Industrial, Services and Agriculture of Nonoai
- City Hall of Trindade do Sul

- Hall of Councilors of Trindade do Sul
- Department of Agriculture of Trindade do Sul
- Cooperative of Agricultural Production in Trindade do Sul
- Brazilian Forum of NGOs and Social Movements for Environment and Development (FBOMS)
- State Foundation of Environmental Protection - FEPAM
- Public Ministry of State of Rio Grande do Sul
- Prosecutor's Office in the State of Rio Grande do Sul

The interested parties above were invited to present their concerns and provide comments on project activity. The letters were delivered before the validation start and are opened for the comments.

In the letter delivered to the stakeholders, the responsible were informed that the Project Design Document, as well the Annex III from the Resolution No. 1 from the *Comissão Interministerial sobre Mudança Global do Clima (CIMGC – the Brazilian DNA)* were available for the consult in the Carbotrader website, company that belong to the project participant: www.carbotrader.com in the links: www.carbotrader.com/jun1115dcp.pdf and www.carbotrader.com/jun1115a3.pdf. These documents available in the website shall, be updated in accordance with the most recent PDD version.

E.2. Summary of the comments received:

So far no comments were received from interested parties.

E.3. Report on how due account was taken of any comments received:

Not applicable due to the item E.2.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding is involved in the present project

Annex 3

BASELINE INFORMATION

The CO_2 emission factors for power generation in the Brazilian National Interconnected System (SIN) are calculated based on generation records of plants centrally dispatched by the National Operator of the Electric System (ONS) and, in particular, thermoelectric power plants. Such information is required by renewable energy projects connected to the electrical grid and implemented by under the Clean Development Mechanism (CDM) of the Kyoto Protocol.

The baseline emissions are calculated according to the "**Tool to calculate the emission factor for an electricity system**" **version 2.2.1** With this methodology the National Grid Operator (ONS) is tasked with explaining the SIN´s (National Interconnected System) operational practices regulated by the ANEEL (Brazilian Electricity Regulatory Agency) to the work group made up by the Ministry of Science and Technology (MCT) and Ministry of Mines and Energy (MME). According to this system, the CO_2 Emission Factors applicable to the project activity will be calculated by the National Grid Operator (ONS) for the single system since May 27, 2008.

More details about baseline development of this project can be found through this links:
http://www.mct.gov.br/index.php/content/view/73318.html and
http://www.mct.gov.br/index.php/content/view/13986.html.

Annex 4

MONITORING INFORMATION

The monitoring of the project's activity is based on the baseline methodology and monitoring applicable to this project and, as described in items B 7.1 and B 7.2, measuring equipment of generated energy is used for verification of renewable energy generated by the project's activity.

After energy generation data has been collected, there will be a reconciliation of this data with the reports/data issued by the CCEE or with the sold energy numbers in energy sales invoices. We emphasize that the energy data from CCEE is a passes by auditing and must not contain errors. This procedure will be adopted in order to give consistency to the data.

It should be noted that all collected data in the monitoring scope will be electronically filed and kept for at least 2 years after the last credit period or the last issuance of CERs for this project activity, whichever occurs later.

This monitoring plan is based on the Small Scale Methodology AMS I.D version 17, as well as on the "**Tool to calculate the emission factor for an electricity system" version 2.2.1, EB 63, 29th September 2011.**