

Teles Pires Hydropower Project Activity

Stakeholder consultation

Summary and consideration of received comments

Version 29-Aug-2012

During the consultation processes of the *Teles Pires hydropower Plant Project Activity*¹ comments were received in the local and global stakeholder consultation.

Local stakeholder consultation process

The local stakeholder consultation process initiated 30 Dec 2011 and followed the requirements of the Brazilian DNA as described in section E of the PDD. Related to the local stakeholder consultation, two comments were received.

Local comment 1. Submitted by Sindicato dos Trabalhadores e Trabalhadoras Rurais de Paranaita on behalf of Clarinda Maximino

Original comment in Portuguese: *“Já houve no Município uma grande evolução e valorização em todos os setores comerciais. Muitas famílias que não tinham emprego hoje estão trabalhando na própria Cidade, isso é muito bom para o desenvolvimento do Município. Tendo como ponto positivo também em nosso município, todos os investimentos que já houve pela Empresa, cursos em varias áreas, Treinamentos para o trabalho, o investimentos nas Estradas e na Saúde, que em nosso município estava muito precária. Pelo que estamos vendo hoje avalio o voto de 100% após o término da Obra... E no decorrer da construção 90% devido acidentes que pode vir a acontecer, sendo ponto negativo não diretamente da Empresa: também não tinha no município andarilhos e depois da propaganda da USINA veio muitas pessoas de longe sem ter o contato diretamente com a Empresa e por esse motivo já esta havendo muitos roubos no Município. Precisamos de mais Segurança.”*

Summary in English: *The stakeholder recognizes positive impacts of the project activity in the city (economy development, more jobs, capacity building, and investment in roads and health system) and call the attention to possible negative impacts (work accidents, population growth and crime).*

PPs answer

In July 2012 the *Migrant Center* (CAM, from the Portuguese “Centro de Atendimento ao Migrante”) in Paranaita will start operation. The center will provide migrants arriving in Paranaita in the search for a job at the project activity. The goal is to have a register of the arriving workers, to test their capabilities. If their knowledge and skills are appropriate and needed they will be offered a position. Otherwise support may be provided for the return travel, if requested.

Besides arriving migrants, unemployed workers somehow related to the project activity construction (for example, migrants that arrived before the operation of the CAM) are being identified in

¹ Also referred here as “UHTP” from the Portuguese “Usina Hidrelétrica Teles Pires”.

the Paranaita urban area to perform the same procedure (register, test of skills, job offer or support for the return travel).

For unemployed workers not related to the project activity construction, there is a program since January 2012 to inform them about the Social Assistance Reference Center (CRAS, from the Portuguese “Centro de Referência da Assistência Social”) from the Social Assistance Secretary of the Paranaita Municipality.

Local comment 2. Submitted by Secretaria de Estado do Meio Ambiente, Pará on behalf of Edna Corumbá, declining to comment the project.

PPs answer

No response required.

Global stakeholder consultation process

Version 1.0 of the project activity PDD was made publicly available directly on the CDM UNFCCC website² and the period for comments ran from 25 January to 23 February 2012.

Comments from the following persons/organizations were submitted to the DOE:

GSP comment 1.	Submitted by International Rivers on behalf of Brent Millikan
GSP comment 2.	Submitted by International Rivers on behalf of Brent Millikan
GSP comment 3.	Submitted by Zhong Zhou Li
GSP comment 4.	Submitted by Zhong Zhou Li
GSP comment 5.	Submitted by Zhong Zhou Li
GSP comment 6.	Submitted by International Rivers on behalf of Brent Millikan
GSP comment 7.	Submitted by International Rivers on behalf of Brent Millikan

Considering the comments received, the PPs clarify that (1) has exactly the same content of (2), as well as (3) is the same of (4). Comment (5) was clearly directed to another project activity, which the Host Country is very likely India. In spite of that, the PPs will try to respond issues that might also be applicable to the Teles Pires Hydropower Plant project activity. Regarding comment (7), it only states that (6) was submitted. Some comments made by Zhong Zhou Li (3, 4 and 5) were directed to DOE and are related to the CDM validation requirements (see VVS procedures). Since they are related to issues out of the Project Participants’ capacity, the PPs will not respond the comments.

In order to answer all received comments, each comment is initially grouped by similarity. To the best of the PPs understanding the concerns can be roughly divided in three main issues:

- Additionality
- Environmental licensing
- GHG emission from hydropower reservoirs

² Validation: Teles Pires Hydropower Plant Project Activity. 06 Jun. 2012.

<<http://cdm.unfccc.int/Projects/Validation/DB/0LAWB1YZURTG26K2GL72WDDP2VOALS/view.html>>.

For each of abovementioned issues firstly, the related received comments are summarized, secondly, the issues are addressed and, finally, if applicable, additional comments are provided. The identification of the sender is indicated between parentheses at the beginning of each paragraph.

Additionality

Summary of received comments

(GSP comments 1 and 2): *Given the availability of other sources of funding for the Teles Pires Hydropower Project, via the budget of the parastatal energy company Eletrobras, state pension funds, subsidized credit from the Brazilian National Development Bank (BNDES) and tax incentives, it may be concluded that there are no grounds for arguing the additionality of the project.*

(3 and 4): *Has the PP considered the CDM revenues while envisaging the project? Without CDM the project was not viable, is it right? This project is having a debt component? Then how bankers or lenders gave the loan? Have the bankers or lenders considered the CDM revenues while agreeing to give loan to this projects? If not this project should be rejected right away by DOE by terminating the contract forthwith. If yes, where is the proof? What is the date of the evidence document from bank? Is this document printed now a days or earlier. If the project is fully equity project then on what basis the PP has invested full equity in to the project while considering the CDM revenue? Is there any past record of this PP to invest or not to invest at returns what he is talking about in this project?*

PP cannot give different DPR's and FR's (feasibility studies and reports). They must submit only the one given to Banks and other agencies while obtaining loans and decision making time. DPR/FR values must be probed fully.

Is the project equipment purchased second hand equipment or sourced from cheap foreign sources? If the PP is purchasing second hand or second quality equipment and inflating the purchase order values and invoices, this must be probed thoroughly and real values to taken for additionality calculation. Is these machines, equipment was a part of any bundle of CDM activity envisaged and developed earlier?

What is the exact project cost? The project cost is covering what? Each value considered must be validated with proof.

(5): *Date of investment decision should be at the time of DPR preparation. So, the basis of the cost escalation factors at a later date for CDM consideration is not valid.*

How the CDM benefit will alleviate the technical barriers. As per additionality tool, if the barriers are not alleviated by CDM, then the project is not additional.

The Meth mentions that if investment analysis option is used, apply the following:

- *Apply an investment comparison analysis, as per Step 3 of the .Combined tool to identify the baseline scenario and demonstrate additionality., if more than one alternative is remaining after Step 2 and if the remaining alternatives include scenarios P1 and P3;*
- *Apply a benchmark analysis, as per Step 2b of the .Tool for the demonstration and assessment of additionality. If more than one alternative is remaining after Step 2 and if the remaining alternatives include scenarios P1 and P2.*

But PP failed to apply like this. Pls. clarify.

Common practice analysis should be based on EB 39 Annex 10 (Additionality tool). Each step of common practice analysis should be fulfilled as per tool.

(6) The “growing concern” for the environment that the document mentions should include avoiding the creation of “hot air”, or carbon credit without a real climate benefit. This project creates hot air in two ways. First, it is based on the fiction that the hydroelectric dam will have zero emissions, despite extensive evidence indicating that Amazonian dams have large emissions, especially in the first decade that is the time horizon of the project. Second, the project is not “additional”, as required by Article 12 of the Kyoto Protocol in creating the Clean Development Mechanism. Projects are supposed to gain credit only if the claimed emissions reductions would not have taken place without the CDM funding. In this case, the dam is planned and financed by Brazilian companies with the full expectation of making a profit without any additional help from the CDM. None of the 25 million tons of CO₂-equivalent claimed is additional.

PPs answer

The PPs would like to call the attention to the fact that, in order for the project activity to receive a positive validation opinion (VVS, version 02.0, paragraph 31), all CDM requirements, including those specified in the project standard, relevant methodologies, tools and guidelines, have to be thoroughly verified and validated by the DOE (VVS, version 02.0, paragraph 17).

Under other many detailed requirements, the DOE shall necessarily determine and report:

- whether the proposed project activity is additional as demonstrated in the PDD (VVS, version 02.0, paragraph 101);
- whether CDM benefits were considered necessary in the decision to undertake the project as a proposed project activity if the starting date of the proposed project activity is prior to the start of validation, which is the date of publication of the PDD for global stakeholder consultation (VVS, version 02.0, paragraph 105).
- if investment analysis has been used to demonstrate the additionality of the proposed project activity, the DOE shall determine whether the proposed project activity would not be the most economically or financially attractive alternative or economically or financially feasible without the revenue from the sale of CERs (VVS, version 02.0, paragraph 117).
- whether the project participants have conducted a common practice analysis (VVS, version 02.0, paragraph 128).

Therefore, to the best of the PPs understanding all concerns expressed in the received comments will be thoroughly and independently assessed against the CDM requirements (VVS, version 02.0, paragraph 19).

PPs comments

One evidence of a trend to reduce the participation of hydropower generation in Brazil is the fact that, in spite of the 87% share in hydropower installed capacity in 1999³, in the period from 1996 to 2002

³ Abbud, O.A. & M. Tancredi (2010). *Transformações recentes da matriz brasileira de geração de energia elétrica – Causas e impactos principais*. Textos para discussão 69. Centro de Estudos da Consultoria do Senado. (retrieved

there was an increase in installed capacity of 20,576 MW with less than 60% of it from hydropower generation³.

As explained in the PDD, during 2003 and 2004, the Federal Government announced the new model for the Brazilian Electricity Market sustained by Laws nº10.847 and 10.848 of March 15th, 2004 and Decree nº5.163 of July 30th, 2004. According to OECD⁴, “Central to the new model is the creation of the ‘Pool’ (Ambiente de Contratação Regulado, ACR), matching electricity demand and supply capacity through long-term contracts, which will replace on a competitive bases the “initial contracts” inherited from the 1990s. These contracts were designed as a bridge between the 1980s and the new environment after the privatization of most distribution companies and schedule to gradually expire after 2002. The new framework is inspired by the “single-buyer” model, where an entity - typically the government - buys all electricity from producers and sells it to distributors. However, although establishing a common mechanism for the purchase of energy, the model allows market risk to be shared among participants instead of being borne exclusively by the government, which acts rather like an auctioneer than a buyer. With long-term contracts set through the Pool, price uncertainty will be broadly restricted to electricity traded in the free, short-term market and bilateral contracts between generators and large consumers.”

Another recent evidence of the trend to reduce the participation of hydropower generation in the Brazilian electricity matrix is the share of new generation contracted in the first 10 auctions under the new model (from 2004 to 2007), namely, 3.6% biomass fired, 35% hydropower and 61.4% fossil-fuel-fired⁵.

Such results lead the Brazilian government to adopt regulatory actions to integrate climate change mitigation activities into its electricity expansion policies, as indicated for example, in the *National Council for Energy Policy* (CNPE, from the Portuguese “Conselho Nacional de Política Energética”) release of resolution 1/2008, indicating a hydropower plant as project of public interest with priority for tendering and implementation, clearly an E- policy.

Repeating the text from the PDD, it is also worth mentioning that, as a “prerogative of the host country on the design and implementation of policies to promote or give competitive advantage to low greenhouse gas emitting fuels and technologies⁶,” the Brazilian Government already in the first version of its *National Plan on Climate Change*⁷ included the goal to keep a high share of renewables in the primary energy sources and to increase hydropower generation. In the plan the Project and other hydropower plants are referenced as cumulatively reducing 183 million tCO₂e. The goal was later communicated by

from http://www.senado.gov.br/senado/conleg/textos_discussao/TD69-OmarAbbud_MarcioTancredi.pdf on 09-Jun 2012).

⁴ Regulation of the Electricity Sector IN OECD Economic Surveys of Brazil 2005.

⁵ Esparta, A.R.J. (2008). *Greenhouse gases emission reductions in the Brazilian power sector – Kyoto Protocol’s CDM experience and a future pathway*. PhD Thesis. Energy Graduation Program, University of Sao Paulo (retrieved from <http://www.teses.usp.br/teses/disponiveis/86/86131/tde-29042008-160752/pt-br.php> on 09-Jul-2012).

⁶ UNFCCC (2009). Decision 5/CMP.5, paragraph 11.

⁷ Comitê Interministerial sobre Mudança do Clima (2008). Plano Nacional sobre Mudança do Clima.

the Brazilian Government to the UNFCCC in January 2010⁸, as a follow up of the Copenhagen Accord, as follows:

Increase in energy supply by hydroelectric power plants (range of estimated reduction: 79 to 99 million tons of CO₂ eq in 2020).

Therefore, it seems clear to the PPs that in addition to the assessment and demonstration of additionality in the PDD, hydropower generation is being promoted as a low greenhouse gas emitting technology, unequivocally an E- policy.

Environmental licensing

Summary of received comments

Introduction

The PPs would like, first, to confirm their confidence in the Brazilian institutions related to the regulatory processes (electricity and environmental) and justice, second, to openly contest statements and allegations in some of the comments about illicit actions in the Brazilian institutions related to environmental licensing process and justice and, finally, briefly describe the environmental licensing process in the next paragraphs to let clear its seriousness, transparency, thoroughness and appropriateness.

Planning for the expansion of electric power generation in Brazil is complex and has leaned towards the adoption of political, legal and planning tools that will allow a holistic and cross-sectional perspective of the several factors involved.

As regards the environment, federal law No. 6938 of 1981 sets forth the National Environmental Policy, which outlines the preservation, improvement and recovery of the environment aimed at promoting life, with a view to ensure in the country conditions aimed at social and economic development, national security interests and the protection of human dignity, considering fundamental principles and guidelines that constitute the foundation for sustainable development and respect for life.

The same law (6938/81) created the National Environmental System (SISNAMA as per the Portuguese acronym), setting forth the National Environmental Council (CONAMA) as a consulting and deliberative body of the System, endowed with sufficient powers to propose policies and rule on environmental standards and patterns. The CONAMA is responsible for establishing rules and standards to be applied to the licensing process of hydroelectric projects, among others.

The executing bodies of the SISNAMA are the Brazilian Environmental and Renewable Natural Resource Institute (IBAMA as per the Portuguese acronym) in the federal sphere and, as decentralized entities, the Environment Secretariats and Agencies in the respective Brazilian states and municipalities which, according to their respective competencies, are responsible for the application of Environmental Legislation and of the standards and regulations defined by the CONAMA, including direct relationship to all activities significantly affecting the environment.

⁸ Communication from the Government of Brazil to the UNFCCC indicating the intended nationally appropriate mitigation actions, the use of the CDM not excluded (29 January 2010). Retrieved on 04/10/2011 from http://unfccc.int/meetings/cop_15/copenhagen_accord/items/5262.php.

Therefore, since 1981, pursuant to federal law 6.938/81, environmental licensing became a requirement throughout the national territory, and actually or potentially contaminating activities may not operate without the due license, resulting in the passing of several laws, decrees and resolutions by the CONAMA, specifically dealing with environmental licensing, such as:

Conama Resolution 01/86 sets forth basic criteria and general guidelines for environmental impact assessment (EIA). It sets forth the EIA/EIR – Environmental Impact Assessment and Environmental Impact Report, as a legal requirement for the implementation of projects with substantial environmental impact.

Conama Resolution 06/86 contemplates the approval of models for the publication of licensing applications.

Conama Resolution 09/87 – Sets forth the performance of Public Hearings in the environmental licensing process.

In 1988 the Brazilian Federal Constitution expressly strengthened the instrument Environmental Impact Assessment (EIA), establishing a preliminary environmental impact study for any works or activities which could potentially cause significant environmental degradation, *in verbis*:

Federal Constitution of 1988

Chapter VI – On the Environment:

Art. 225. Everyone is entitled to an ecologically balanced environment, which is a resource shared by all citizens and essential for a healthy quality of life, imposing on the public authorities the obligation of protecting and preserving it for present and future generations.

§1º- In order to ensure the enforcement of said right, the public authorities shall:

...

IV – require by law the performance of an environmental impact study prior to the installation of any works or activities which may be potentially hazardous for the environment;

As of the Federal Constitution of 1988, an extensive environmental set of laws was effective in the country, states and municipalities, ranging from supplementary laws, acts and decrees, to non-statutory resolutions and standards, such as Normative Instructions and administrative ordinances issued by the SISNAMA's constituent environmental organs.

The presentation of all the laws, standards and regulations exceed the scope of this summary, although the Environmental Crime Act warrants special mention. It was introduced in 1998, and sets forth that projects, including the authorities in charge thereof, may be criminally liable for any environmental damages or pollution, or for building, revamping, expanding, installing or operating, in any part of the national territory, any potentially contaminating premises, works or services, without a license or the approval of the competent environmental entities, or in violation of applicable legal and regulatory standards.

In addition to the requirements of the formal environmental licensing process, the Public Ministry⁹ is actively involved from the institutional viewpoint, as contemplated in the Federal Constitution of 1988, and is responsible for promoting civil investigations and public civil actions aimed at protecting public and social assets, as well as environmental resources and other areas of interest.

In addition, the market increasingly requires more licensed companies to comply with the environmental legislation, with control and command instruments where the financing and incentive entities, such as the governmental entity BNDES, condition approval of hydroelectric projects, among other requirements, to the submission of an Environmental License.

Thus, Brazil, a country with considerable water potential, where hydroelectric operation is still considered the best option for the generation of electric power for the fulfillment of national strategic objectives, including that of maintaining clean power and electric systems in the country, has set forth sustainability criteria which must be met in order to install hydroelectric plants, considering social, cultural, environmental, and territorial aspects, as well as the development of the local economy, in addition to merely economic and political requirements.

The implementation of an institutional and legal framework to promote sustainable hydroelectric plants is essential. Brazil has such framework, consolidated in an advanced and highly demanding Environmental Licensing process.

Today, licensing is still a main tool in the Brazilian planning process to guarantee the sustainability of each power generation project, along its three axes: social, environmental and economic.

Being a legal requirement, the Environmental Licensing process is in itself made up of a formal administrative procedure through which the public authorities, represented by the environmental entities, issue a license for the location, installation, expansion and operation of projects and activities involving environmental resources, which are considered effectively or potentially contaminating to the environment or for those activities which can in any way affect the environment, considering legal and regulatory provisions and the technical standards applicable to each case.

The formal process involves several stages and at times entails a challenge for several sectors of society since, in addition to the preliminary bureaucratic process set forth by the environmental agency and to the requirement of complying with all legal and non-statutory standards, it is subject to the formal engagement of several entities based on their area of expertise, public consultation and the performance of technical engineering and environmental studies which may involve state of the art human expertise.

Hydroelectric Company Licensing in Brazil

⁹ The Public Ministry is an independent body and does not belong to any of the three Powers – Executive, Legislative and Judiciary. It owes autonomy in the State's structure and cannot be extinguished or have its attributions repassed to another institution. The role of the body is to supervise the execution of the laws that defend the national patrimony and the social and individual interests, perform the external control of the police activity, promote public criminal prosecutions and issue recommendations suggesting improvements in the public services (source: <http://www.brasil.gov.br/sobre/brazil/structure/prosecutors-office-1>).

Environmental Licensing of hydroelectric companies is a long process. Pursuant to Normative Instruction No. 184/2008 of the IBAMA, which regulates the environmental licensing procedure, the expected time period for issuance of the Preliminary and Installation licenses for hydroelectric plants is two years. However, a study considering a sample of 66 hydroelectric plants concludes that the average time to issuance of the Installation License has been 3.4 years¹⁰.

Pursuant to applicable regulations, the environmental licensing process is made up of three stages, with the issuance of their respective environmental licenses: The Preliminary License (LP as per the Portuguese acronym), the Installation License (LI) and the Operation License (LO).

The environmental license is a document with a definite valid deadline, where the environmental authority sets forth the environmental control rules, conditions, restrictions and measures to be followed by the company. Upon issuance of the Environmental License, companies agree to comply with the requirement of maintaining the environmental quality of the installed premises.

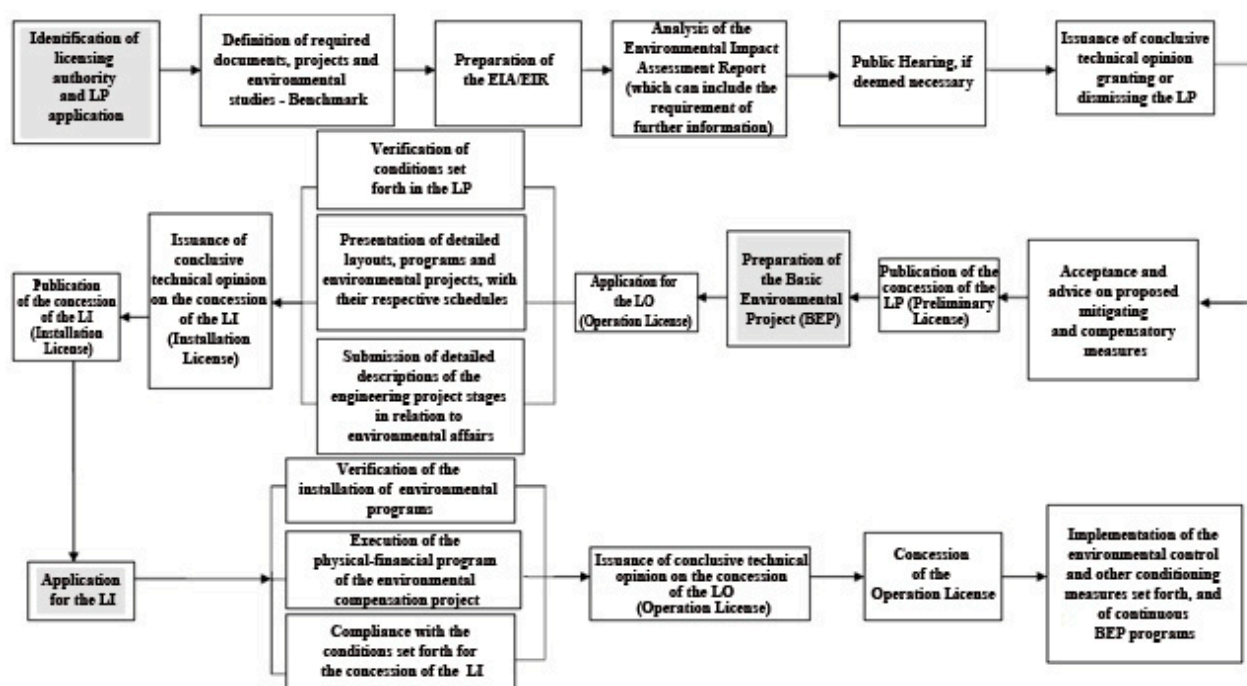


Figure 1 - Sample Environmental Licensing flow chart (the involvement of the intervening entities, such as Funai, Iphan, Fundação Cultural Palmares, Ministry of Health, etc. is not represented. Source: Tribunal de Contas da União - TC 022.564/2007-9)

Preliminary License – LP

This is the first licensing stage in which the licensing authority assesses the location and concept of the project, certifying its environmental feasibility and setting forth the basic requirements and conditions to be applied in the future implementation phases.

¹⁰ Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the Debate, Volume I, Summary Report, 2008. Available at: <http://siteresources.worldbank.org/EXTWAT/Resources/4602122-1214578930250/Summary_Report.pdf>.

In this stage, environmental studies such as EIA/EIR are required for the typology of hydroelectric plants. The licensing authority, based on these studies, defines the conditions to be met by the activity in order to comply with applicable environmental standards.

The LP serves as a framework for the whole project. In this stage, aspects related to the feasibility of the project are defined, involving, among other factors: a) the determination of the need for a given initiative to be subject to an Environmental Impact Assessment (screening); b) the establishment of benchmarks for the conduct of a specific study (definition of competent authority responsible for the licensing and scope of the study); c) the performance of a technical study called EIA; d) the preparation of a communication document called EIR; e) formal public engagement mechanisms, such as public hearings; f) technical analysis procedure (for the environmental authority and other players involved) and review of the studies submitted and g) a formal decision-making procedure (issuance of the Preliminary License (LP)).

In Brazil, hydroelectric projects are only eligible for participating in public auctions after obtaining the Preliminary Environmental License.

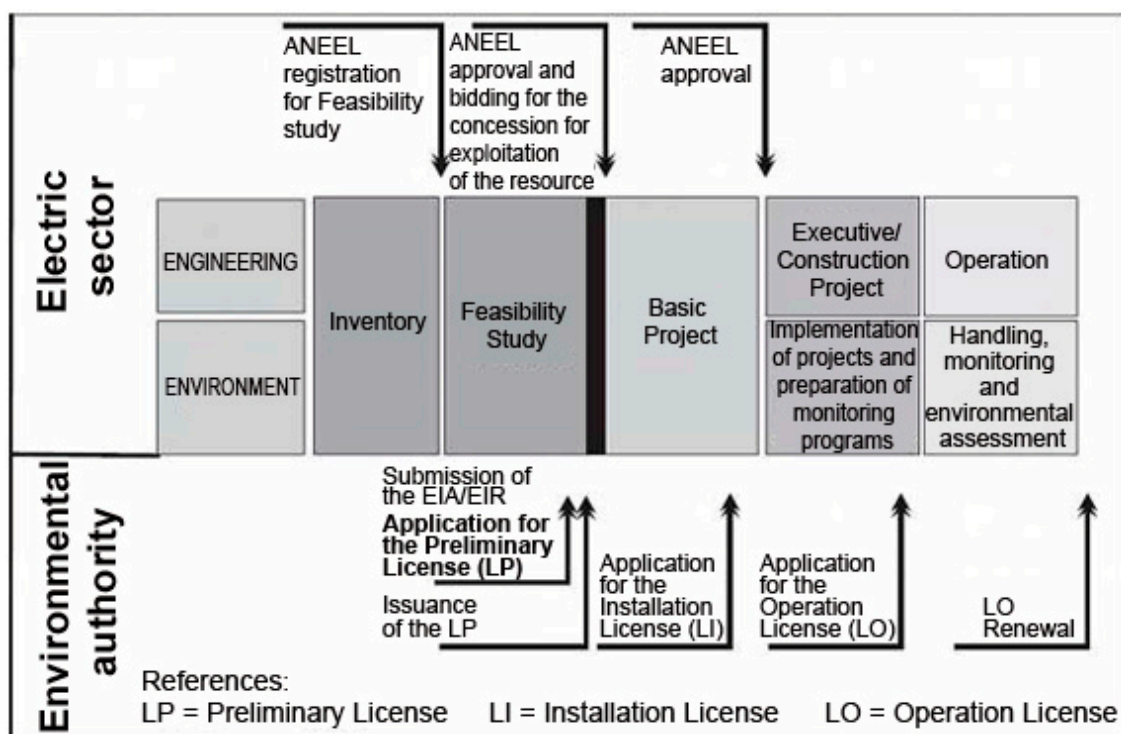


Figure 2 - Stages of the environmental licensing and of the engineering of a hydroelectric project. (source: Licenciamento Ambiental de Empreendimentos Hidrelétricos no Brasil: Uma Contribuição para o Debate (Environmental Licensing of Hydroelectric Projects in Brazil: A Contribution for Debate) – World Bank – March, 2008)

Installation License – LI

After bidding on the hydroelectric exploitation, detailing the initial project and defining environmental protection measures, an Installation License (LI as per the Portuguese acronym) must be

obtained. Said license authorizes the holder to start construction of the project and installation of the equipment.

The execution of the project must be done pursuant to the submitted and validated project. Any changes to the plant or the installed systems must be formally submitted to the licensing authority for assessment.

The documents supporting the assessment and technical analysis procedures for issuance of the LI certify that the constant environmental conditions of the Preliminary License and of the Basic Environmental Project (PBA) have been met.

The PBA is a technical and executive document stating the obligations and responsibilities of the company, which should contain the guidelines and specifications of the layouts, programs and projects pre-approved in the Preliminary license phase, such as control, mitigation and environmental compensation measures identified in the EIA, as well as of the conditioning elements submitted in the licensing process, including those related to the intervening authorities as well as of several entities, such as the FUNAI¹¹, IPHAN¹², Fundação Cultural Palmares¹³, the Federal Ministry of Health, the Public Ministry, and the state and municipal governments.

Operation License – LO

This license authorizes the operation of the activity or project upon verification of effective compliance with the requirements set forth in the preliminary licenses regarding environmental control measures and conditioning aspects determined for the operation.

The Operation License of the project should be renewed within the legal period set forth by the competent environmental entity to that effect, and may range from 4 to 10 years.

License Follow-up

Upon issuance of each of the environmental licenses, the licensed company shall initiate a follow-up phase of the activities inherent to each stage, in which environmental authorities may conduct regular audits in order to verify compliance with the requirements set forth in their respective licenses. In this case, failure to execute any environmental control activity, or the suspension of said activities shall be considered non-compliance and shall be subject to actions, penalties, cancellation of the license and prohibition of the activity, as applicable.

Therefore, environmental licensing is a legal requirement and a public authority tool to enforce environmental control. The company to be licensed is responsible, as set forth by law, for obtaining environmental licensing from the competent authority, from the initial planning and installation stages to effective operation.

Public consultation with indigenous communities

¹¹ Brazilian Federal Foundation for Indian Affairs (FUNAI as per the Portuguese acronym).

¹² Brazilian National Historical and Artistic Heritage Institute (IPHAN as per the Portuguese acronym)

¹³ Founded in 1988, the Palmares Cultural Foundation is a public institution under the Ministry of Culture that aims to promote and preserve the African-Brazilian culture.

(comments 1 and 2): *IBAMA issued environmental licenses without any process of free, prior and informed consultations with indigenous communities, violating rights guaranteed by article 231 of the Brazilian Constitution and ILO Convention 169, as well as other international agreements that Brazil has signed. Now, the government invites us to participate in meetings to discuss mitigation and compensation of the Teles Pires dam's impacts, yet how are we to do this if the impacts have not been duly studied and discussed, and the project was illegally licensed?*

PPs answer & comments

It is absolutely not true that environmental licenses were issued without consultation with indigenous communities.

The entire consultation process with the indigenous people during the Teles Pires HPP licensing was mediated by FUNAI, acting as the legal representative for the Indians.

The indigenous communities Kayabi, Mundukuru and Apiaká were always consulted by means of innumerable meetings and public hearings;

The licensing process and all the steps were met completely in regard to publicity requirements;

In addition to the Public Hearings, various specific meetings are being held solely with the indigenous community since 2009, as shown in the following table:

Date	Location	Purpose of the meetings	Observations
June 3 & 4, 2009	Village of Kururuzinho	Presentation of the Hydroelectric Power Plant projects	Technical Opinion 14210 COLIC (Bidding and Contract Coordination)/CGGAM (General Coordination of Environmental Management)/DPDS (Board to Promote Sustainable Development)/FUNAI (pg/5)
August 11 & 12, 2009	Village of Teles Pires		
May 18, 2010	Village of Kururuzinho	Presentation of the ECI (Indigenous Factor Study) research team.	
October 26 & 26, 2010	Village of Kururuzinho	Hydroelectric Power Plant Workshop (FUNAI)	Technical Opinion 14210 COLIC/CGGAM/DPDS/FUNAI (pg/7)
October 27 & 28, 2010	Village of Kururuzinho	Presentation of ECI	
March 26 & 26, 2011	Village of Kururuzinho	Presentation of the ECI team and the work plan	Technical Information 470/COLIC/CGGAM/11 (PG 2)
March 28 & 29, 2011	Jacareacanga/PA	Presentation of the ECI team and the work plan	
August 11, 12 & 13, 2011	Village of Kururuzinho	Presentation of ECI	

November 20, 2012	Paranaíta/MT	1 st Public Hearing for the Teles Pires HPP	Note that the attendance of the indigenous leaders is confirmed on the attendance lists, in addition to the records of the statements made by them [recorded by IBAMA (Brazilian Environmental and Renewable Natural Resources Institute)]
November 21, 2012	Alta Floresta/MT	2 nd Public Hearing for the Teles Pires HPP	
November 23, 2012	Jacareacanga/PA	3 rd Public Hearing for the Teles Pires HPP	

In summary, in addition to the exclusive and specific meetings held for the indigenous community, they were also invited to take part in an additional 3 days of consultations with the local population at the public hearings held in the Cities of Paranaíta/MT and Jacareacanga/PA.

As such, it is clear that the requirements of prior consultations with the indigenous people were met and that CHTP currently, and previously EPE (Energy Research Company), with FUNAI acting as a legal representative, always involved and listened to the Kayabi, Mundukuru and Apiaká ethnic groups during the licensing process.

Indigenous communities

(comments 1 and 2) *The indigenous component of the (Teles Pires) hydroproject, that should be part of the environmental impact study (EIA) has not yet been completed. Even so, IBAMA issued a Preliminary License in late 2010 and an Installation License for the hydroproject in August 2011 [part of the Kayabi's letter].*

The environmental licensing process of the Teles Pires Hydropower Plant has been marred by: i) grave deficiencies in the analysis of impacts on indigenous peoples and their territories, ii) political pressures on federal agencies responsible for indigenous rights and environmental protection (FUNAI and IBAMA, respectively) to illegally approve licenses and iii) lack of free, prior and informed consultations and consent among threatened indigenous communities.

PPs answer & comments

The environmental licensing process for the Teles Pires HPP took place between 2008 and December 2010, with the Preliminary License being issued by IBAMA. The Installation License was issued in August 2011, authorizing the start of construction.

Before the Preliminary Permit (LP) was issued, the consultation process with FUNAI was handled by EPE – Energy Research Company. According to the EIA consultation, the documents sent by EPE to FUNAI, and the Directives and Opinions issued by FUNAI during this timeframe, it can be seen that the consultation and approval process for FUNAI and the indigenous communities included the following actions:

- (i) Meeting on March 26, 2009 where EPE consulted FUNAI regarding the necessity to conduct a specific Indigenous Factor Study for the Teles Pires HPP project. According to the Meeting Minutes prepared by the Ministry of Mines and Energy, at that time it was agreed that a specific Reference Document for the Indigenous Factor at the Teles Pires HPP was not necessary, because the Indigenous Lands in question for this project were the same as those subject to

studies for the São Manoel HPP and the Foz do Apiacás HPP. Therefore, if FUNAI was asked to send IBAMA a formal stance on the project, FUNAI should consider the study that was conducted, as well as the assessment of possible interferences and any suggestions for specific actions.

- (ii) Submission of the Reference Document of the Indigenous Factor Studies by FUNAI regarding the environmental licensing process for the São Manoel and Foz do Apiacás HPPs (Directive 507/DAS/2009 dated October 2, 2009) and submission of information (Directive 512/DAS/2009 dated October 5, 2009) that the Teles Pires HPP project is approximately 30km in a direct line from Kayabi TI;
- (iii) EPE Directive for FUNAI after the meeting to discuss the licensing process for the Teles Pires HPP, in which EPE states that it is understood that there was no requirement for new specific studies on the Indigenous Factor for the Teles Pires HPP, due to its location and the distance to the Kayabi Indigenous Land (TI), since the same TI would be studied by the São Manoel and Foz do Apiacás HPPs, which are closer to the TIs (Directive 945/EPE/2009 dated November 5 2009);
- (iv) Request from FUNAI for studies regarding Kururuzinho TI, Pontal do Apiaká and Munduruku, considering the synergy between the three projects in the Teles Pires Basin and other considerations (Directive 444/2010/DPDS-FUNAI- MJ dated July, 13, 2010);
- (v) Preparation of the Indigenous Factor Studies including a description of the Indigenous Lands Kayabi, Munduruku and Pontal dos Apiaká considering the potential impacts and synergetic effects of the 3 hydroelectric projects on the Teles Pires River (São Manoel HPP, Foz do Apiacás HPP and Teles Pires HPP.) According to the Report presented, the description of the Indigenous Land and lifestyle on Kayabi TI were based on field studies. The field study of this TI involved the Kayabi and Apiakás ethnic groups. Note that field work was not conducted at the Munduruku and Pontal do Apiaká TIs, however, a description of the lifestyle at the Munduruku TI was presented based on secondary data;
- (vi) Submission of the Indigenous Factor Studies for the São Manoel and Foz do Apiacás HPPs to FUNAI (Directive 1008/EPE/2010 dated August 31, 2010.)
- (vii) Negotiations between EPE and FUNAI on the Work Plan for the study on the isolated Indians in the São Manoel and Foz do Apiacás HPP region (Directive 106/2010/DPDS-FUNAI-MJ dated February 26, 2010; Directive 237/EPE/2010 dated April 8, 2010; Directive 328/EPE/2010 dated May 10, 2010);

In Directive N° 521/2010/PRES-FUNAI-MJ dated December 10, 2010, FUNAI stated that they did not have any restrictions for the issue of the Preliminary License, provided that the Indigenous Factor Studies were revised detailing a series of diagnostic aspects in order to subsidize the subsequent preparation of the Basic Indigenous Environmental Plan – PBAI.

After ANEEL Tender N° 004/2010 when CHTP assumed the responsibility for the project, a specialized team from JGP Consultoria e Participações Ltda was contracted to conduct the

complementary studies for the Indigenous Factor Study. During the timeframe after the issue of the LP, and already CHTP's responsibility, the following items were recorded:

- (i) Consultation with FUNAI to conduct the complementary studies of specific Indigenous Factors for the Teles Pires HPP. The Work Plan for the complementary studies for the Indigenous Factor were submitted for evaluation by FUNAI (January 25, 2011.) Later, a FUNAI team visited the TIs to request authorization to conduct these studies from the three ethnic groups. The Mundurukus refused to participate in the studies;
- (ii) Field surveys for the studies were conducted in the Kayabi and Apiaka villages between May 24 and June 10, 2011, where the team in charge of the studies supplied information about the project. Since the Munduruku group refused to participate in the complementary studies, their decision was respected, and the data used for this ethnic group were basically from secondary sources.
- (iii) Visit from the Kayabi, Apiaka and Munduruku leaders to the future dam axis on June 5, 2011, accompanied by the CHTP engineers and the anthropologist responsible for the ECI;
- (iv) Meeting to present the Indigenous Factor Study held in the village of Kururuzinho (Kayabi TI) on August 11, 12, & 13, 2011. It is worth noting that during the presentation at the village, no specific approval document was submitted on the project by the indigenous groups.
- (v) Invitation to the 3 ethnic groups for a meeting in Alta Floresta to present the proposal for the Basic Indigenous Environmental Plan – PBAI in December 2011. Since the indigenous leaders did not wish to participate, the meeting was cancelled.
- (vi) Meeting at FUNAI/Brasília on February 3, 2012 to discuss the additional details for PBAI-rev 1, in accordance with requests from FUNAI (Information nº. 47/COLIC/CGGAM/12 and Information nº38/COLIC/ CGGAM/12);
- (vii) Presentation of PBAI-rev 2 to the leaders of the three ethnic groups (including Munduruku) at a meeting held in Alta Floresta during the week of March 26 to 30, 2012. At this time, the PBAI was not approved by the attendees, who requested additional time to analyze the proposals.

From the above the PPs are the opinion it is reasonable to state that the indigenous component is being thoroughly considered in the implementation of the project activity and carefully monitored by the relevant host country regulatory agencies.

Host Party licensing procedures

(comment 6): *Perhaps the most disingenuous statement in the document is the claim (p. 41) [of the PDD]: “The growing global concern regarding the sustainable use of resources is driving a requirement for more sensitive environmental management practices. Increasingly this is being reflected in countries’ policies and legislation. In Brazil the situation is no different; environmental rules and licensing process policies are very strict in line with the best international practices.” There is a substantial literature examining the deficiencies in Brazil’s licensing system (e.g., Fearnside, 2006, 2007, 2011, Fearnside et al., 1996, 2006, Santos et al., 2009).*

PPs answer & comments

It is not possible for the PPs to respond such a broad comment without knowing to which “deficiencies in Brazil’s licensing system” the stakeholder refers and how they would be applicable to the project activity.

With respect to the seriousness, transparency, thoroughness and appropriateness of the Brazilian environmental rules and licensing process, see “introduction” above.

Environmental impacts

(comments 1 and 2): *The Environmental Impact Study (EIA) for the project simply sidestepped...the cumulative impacts with four other large hydroprojects slated for construction along the Teles Pires river.*

The dam cascade itself is linked to the opening of an industrial waterway (hidrovia) along the Teles Pires-Tapajos rivers (including navigation locks on dams) aimed at increasing exports of large-scale mechanized soybeans from the agribusiness frontier in Northern Mato Grosso state - a further stimulus to clearing of the cerrado (tropical savannah) and Amazon forest biomes which play key roles in carbon storage and regulation of the regional and global climate system.

PPs answer & comments

The Environmental Impact Study meets Brazilian Environmental Laws and the reference document issued by IBAMA to prepare the study. The other approved project, Colíder HPP, is upstream of the Teles Pires HPP dam and is not part of the indirect area of influence of the project. The projects mentioned above are currently limited to Brazilian Government measures and during their specific licensing process they should consider the integrated evaluation of each project which are not part of the impact matrix of the Teles Pires HPP.

Social impacts

(Comment 1 and 2) *The construction of this hydroproject, drowning the rapids of Sete Quedas, polluting the water and drying up the Teles Pires river downstream, would eliminate the fish that are the basis of our sustenance [part of the Kayabi’s letter].*

PPs answer & comments

The indigenous communities do not use the area of the Sete Quedas rapids as a fishing area. Also remember that the Sete Quedas rapids are submerged during the Teles Pires natural river runoff period.

The construction of the Teles Pires HPP will not dry up the river downstream of the project and there is no possibility of extinction of the fish fauna.

The possible impacts encountered during the EIA/RIMA for the fish fauna, were considered during the preparation of the Fish Fauna Monitoring Program, the Fish Fauna Genetic Investigation Program and the Fish Fauna Transposition Program, all approved programs by IBAMA.

Historical heritage

(Comment 1 and 2): *Sete Quedas is a sacred place for us (Apiacas and Mundurucu indigenous communities) where the “Mãe dos Peixes” and other spirits of our ancestors live...All this is already being destroyed by explosions of dynamite at the Sete Quedas rapids as the construction of this dam of death has commenced [part of the Kayabi’s letter].*

PPs answer & comments

When preparing the complementary studies for the Indigenous Factor Study, the Salto do Sete Quedas (waterfall), located beyond the boundaries of the indigenous lands, was mentioned as an historical and cultural landmark for the Kayabi people, even though currently it is not an area that is frequented or used. The Apiakás did not give the same importance to this location during the field surveys. In regard to the Mundurucu ethnic group, that refused to participate in the complementary studies, the bibliographical sources consulted that involve all the ethnographic studies on this ethnic group do not mention the Sete Quedas waterfall as a location with sacred importance. Nevertheless, the leaders have recently made statements during demonstrations and to the press, confirming that it is a sacred location for the Mundurucus and Kayabis. Based on this, the subject has become relevant, and the location has been included in a specific Ethnoarcheological program in order to save this area as historical and symbolic location before any changes are made by the construction. This program is part of the PBAI which is being discussed with FUNAI and the ethnic groups involved, and IPHAN is managing and conducting follow-up on the subject.

The Sete Quedas Waterfall will not be destroyed by blasting or excavations, the dam is located between the first and second waterfall, the Sete Quedas waterfall will be submerged in the Teles Pires HPP reservoir.

The existing vegetation on the islands that comprise the Sete Quedas Waterfall will be partially suppressed, due to the natural risks and difficulties of this formation.

GHG emissions from hydropower reservoirs

Summary of received comments

(Comments 1 and 2) *Despite growing scientific evidence attesting to the major significance of GHG emissions from hydroelectric dams in the tropics (Fearnside, 2011), the Environmental Impact Study (EIA) for the project simply sidestepped this fundamental question.*

(6) *The document [PDD] begins by stating (p. 3) that “The Project will make use of the hydrological resources of the Teles Pires River in order to generate greenhouse gases (GHG) emission free electricity”. No literature is cited here or anywhere in the document to substantiate the claim that Amazonian hydroelectric dams such this one are emissions free...The [PDD] considers the dam’s greenhouse-gas emissions to be zero. Unfortunately, the fact that Amazonian dams produce large amounts of greenhouse gases, especially during their first ten years of operation (the time horizon for the current CDM project), has been shown in many peer-reviewed studies in the scientific literature (e.g., Abril et al., 2005, Delmas et al., 2004, Fearnside, 2002, 2004, 2005a, 2006a, 2008, 2009a, 2011).*

The same table [table 3 of the PDD] also states that emissions of CO₂ and N₂O are zero, each of these being only a “minor emission source”. Unfortunately, both of these gases are also produced (see Guérin et al., 2008).

Creating the reservoir will kill forest trees in the flooded area, and these generally remain projecting out of the water, where the wood decays in the presence of oxygen, thus producing CO₂. The quantities are quite substantial over the ten-year time horizon of the current CDM project (see Fearnside, 1995).

The project proponents choose to ignore the scientific evidence for greenhouse-gas emissions from Amazonian dams and take advantage of a CDM regulation that allows zero emissions to be claimed if the power density is over 10 W/m²

Unfortunately, having a high power density does not, in fact, result in zero emissions... The amount of water in the river, however, has the opposite effect: the more the streamflow the more the emission that will result from water passing through the turbines and spillways... The water with high concentrations of methane, under pressure at the bottom of the reservoir, is released to the open atmosphere below the dam, and the most of methane quickly emerges as bubbles. Note that the only valid means of measuring these emissions is by the difference in concentration of methane in the water above the dam (at the depth of the turbines) and in the river below – not by floating chambers to measure flux through the surface of the river some distance downstream, as has been done in several studies that claim only small emissions from “degassing” at the turbines (see Kemenes et al, 2011).

[from the PDD] “The project’s reservoir area under the normal maximum water level of 220 m is 135.4654 km², of which 40.6 km² is part of the normal river bed and, therefore, the increased flooded area is 94.8654 km².” The assumption is that the water over the “normal river bed” is not emitting methane. Unfortunately, this water also emits methane, as shown by numerous studies that have measured reservoir surface fluxes at a variety of monitoring points in Amazonian reservoirs. Perhaps the proponents think that the same area of water in the natural river would be emitting the same amount of methane. If so, they are mistaken, since methane emissions from a free-flowing river are much lower than those from reservoirs. Rivers do not normally stratify, especially in the fast-flowing stretches that are appropriate for building hydroelectric dams.

While such a calculation may be “not required”, the proponents could have opted to make such a calculation based on the best available evidence had they wanted to do so...The claim of displacing almost 25 million tons of CO₂-equivalent over ten years represents 6.8 million tons of carbon. Much, or possibly even all, of this represents “hot air” that will contribute to further climate change. Brazil, as one of the countries expected to suffer most from projected climate changes, cannot afford to contribute to such a scheme.

PPs answer

GHG emissions are considered in the approved methodology¹⁴ as follows:

¹⁴ ACM0002, version 12.3.0

- Applicability condition: the project activity results in new single or multiple reservoirs and the power density of each reservoir... is greater than 4 W/m² after the implementation of the project activity.
- For hydro power project activities that result in new single or multiple reservoirs and hydro power project activities that result in the increase of single or multiple existing reservoirs, project proponents shall account for CH₄ and CO₂ emissions from the reservoirs, estimated as follows:
 - (a) If the power density of the single or multiple reservoirs (*PD*) is greater than 4 W/m² and less than or equal to 10 W/m²

$$PE_{HP,y} = \frac{90 \cdot TEG_y}{1000}$$

Where:

$PE_{HP,y}$ = Project emissions from reservoirs of hydro power plants (tCO₂e)

TEG_y = Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads (MWh)

- (b) If the power density of the project activity is greater than 10 W/m²:

$$PE_{HP,y} = 0$$

The power density of the project activity is calculated as the installed capacity of the power plant in W divided by the area of the reservoir in m².

As a result, according to the applicable approved methodology ACM0002, emissions from reservoirs may be attributed to the project activity depending on the size of the reservoir and installed capacity of the project. Under the approved methodology the project activity may:

- Be not eligible if the power density of the project activity is smaller or equal to 4 W/m²
- Have to include GHG emissions from the reservoir as project emissions if the power density of the project activity is greater than 4 W/m² and smaller or equal to 10 W/m².
- Consider GHGs emissions from reservoirs minor and disregard them as project emissions if the power density of the project activity is greater 10 W/m².

Therefore, the PPs are confident to state that the project activity meets all applicable CDM requirements including those specified in the project standard, relevant methodologies, tools and guidelines. Additionally it is relevant to mention that such applicability has to be confirmed by the validating DOE in accordance with VVS, version 02.0, paragraph 17c.

PPs comments

With respect to the consideration of GHG emission from reservoirs, according to a recent IPCC (2011)¹⁵ report, “characterizing a reservoir as a net emitter of GHGs implies consideration of emissions

¹⁵ Kumar, A., T. Schei, A. Ahenkorah, R. Caceres Rodriguez, J.M. Devernay, M. Freitas, D. Hall, Å. Killingtveit, Z. Liu, 2011: Hydropower. In IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation

that would have occurred without the reservoir, which is an area of active research and currently without consensus... the assessment of man-made net emissions involves a) appropriate estimation of the natural emissions from the terrestrial ecosystem, wetlands, rivers and lakes that were located in the area before impoundment; and b) abstracting the effect of carbon inflow from the terrestrial ecosystem, both natural and related to human activities, on the net GHG emissions before and after impoundment”.

Concerning GHG emissions from hydropower reservoirs in tropical regions, more specifically in Brazil, in a recent peer-reviewed study Demarty and Bastien (2011)¹⁶ confirm that “*the only exhaustive [experimental] study made in tropical or equatorial regions is the one carried out by Rosa et. al. (2002)¹⁷... [which] can be considered a first step in the characterization of GHG emissions from reservoirs in Brazil*”. The authors also recognize that P.M. Fearnside (2002)¹⁸ “pointed out certain misconceptions regarding GHG emission from tropical reservoirs” but base his conclusions “on desk, not experimental studies” and “no field measurements were carried out to confirm calculated results, and major assumptions are made to extrapolate from the little data available to the reservoirs as a whole.”

Additionally the PPs call the attention to the fact that Fearnside’s desk studies are based on gross figures - not net emissions - drawn essentially from only two reservoirs, Balbina and Tucuruí, which, if built today, would not be eligible under the CDM (both reservoirs with power density remarkably smaller than 4 W/m², see Table 1).

In order to confirm the conservativeness of the procedure prescribed in the approved methodology, Table 1 is prepared using the most recent available literature compilation data for Brazilian hydropower plants (Demarty and Bastien, 2011).

Table 1 – Greenhouse gas gross emissions from hydropower plants

Dam/reservoir	Total annual emissions (10 ⁶ tCO ₂ eq)	Reservoir age (years)	Reservoir area (km ²)	Installed capacity (MW)	Power density (W/m ²)	Reservoir annual gross emission factor (gCO ₂ eq/m ²)
Miranda	0.15	1	70	408	5.83	2.14
Serra da Mesa	2.14	1	1,784	1,275	0.71	1.20
Xingo	0.16	4	60	3,000	50.00	2.67
Tucuruí	9.94	5	2,875	8,370	2.91	3.46
Segredo	0.09	6	82	1,260	15.37	1.10
Itaipu	0.20	7	1350	12600	9.33	0.15
Samuel	2.60	11	560	216	0.39	4.64
Balbina	2.43	16	2,360	250	0.11	1.03
Barra Bonita	0.57	35	334	141	0.42	1.71
Três Marias	4.21	36	1,155	396	0.34	3.65

[O. Edenhofer, R. Pichs Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

¹⁶ Demarty, M., J. Bastien (2011). GHG emissions from hydroelectric reservoirs in tropical and equatorial regions: Review of 20 years of CH₄ emission measurements. *Energy Policy* 39 (2011) 4197-4206.

¹⁷ Rosa, L.P., Matvienko, B., Santos, M.A., Sikar, E., Xavier, A.E., Santos, E., Menezes, C.F., Luorenc-o,R.S.M., 2002. Carbon dioxide and methane emissions from Brazilian hydroelectric reservoirs: background report. Brazilian Ministry of Science and Technology.

¹⁸ Fearnside, P.M. (2002). Greenhouse gas emissions from a hydroelectric reservoir (Brazil’s Tucuruí Dam) and the energy policy implications. *Water Air and Soil Pollution* 133 (1–4), 69–96.

From the available numbers it is clear that under certain scenarios there is the potential for large gross quantities of GHG emissions. Nevertheless all gross CO₂e-intensive plants would not be eligible under the CDM because their power densities are smaller than 4 W/m². Using the applicability conditions from the approved methodology, the only eligible plants would be Miranda, Xingo, Segredo and Itaipu. Using the numbers from the would-be eligible plants the upper annual emission factor is 2.67 gCO₂e/m² and the average emission factor is 1.51 gCO₂e/m².

From the results one can conclude that the approved methodology ACM0002 is conservative with relation to reservoir emissions for the vast majority of the eligible cases.

Nevertheless, the PPs acknowledge the existing efforts towards a unified measurement protocol for greenhouse GHG emissions from water bodies, see for example the UNESCO/ International Hydropower Association GHG Research Project¹⁹, recognizes that there is room for improvement in the approved methodology and, encourages stakeholders to propose revisions to the methodology as soon as the scientific knowledge is well established.

¹⁹ UNESCO/IHA GHG Research Project (<http://www.hydropower.org/iha/development/ghg/index.html>).