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Comments on the Santo Antônio Hydropower Project
Submitted to the Perry Johnson Registrars Carbon Emissions Services

March 21, 2012

We are writing to express our concerns over the application for validation of the Santo Antônio Hydropower Project in Brazil. The Project Design Document (PDD) for this project is deeply flawed and inaccurate. In addition, CDM validation of this project would reward not only a clearly non-additional project, but also one of the most socially and environmentally destructive dams in the Amazon Basin.

Summary of Key Concerns

- **The project clearly does not meet criteria for additionality.** The 3,150 MW Santo Antônio project is at an advanced stage of construction, with initial turbines already becoming operational. In addition, reports about the project have stated a much higher IRR than what is used in the PDD, which is a serious contradiction and raises questions about whether the PDD's investment analysis was manipulated to generate a lower IRR in order to appear additional.

- **The project has devastating and irreversible environmental and social impacts**. The Environmental Impact Assessment (EIA) upon which the PDD bases its information is deeply flawed and overlooks the devastating and irreversible social and environmental impacts of the project and the Madeira Complex, which includes the Jirau Dam (under construction) and additional dams and industrial waterways for the expansion of mining and agribusiness activities. The Santo Antônio Dam has already caused irreparable damage to the livelihoods and cultures of riverine populations, indigenous communities, urban populations, and family farmers – with problems becoming progressively worse.

- **The project will not contribute to emissions reductions, as claimed.** The PDD underestimates the reservoir size; the actual reservoir size would disqualify the project from the CDM. In addition, the PDD ignores current research on greenhouse gas (GHG) emissions from hydroelectric dams in the tropics. The Santo Antônio project will emit significant amounts of methane (CH_4) as well as CO_2, from its reservoir and spillways. Moreover, recent increases in deforestation in the area of the project due to increased migration and land speculation associated with dam construction have been documented. This destruction of the Amazon rainforest, a critical global climate regulator, has major implications for the carbon footprint of the project, which are simply ignored in the PDD.

- **There are serious examples of inconsistencies with applicable laws.** The planning, licensing and construction of the Santo Antônio project has been marred by repeated violations of Brazilian legislation and international agreements regarding human rights and environmental protection.

2150 Allston Way, Suite 300, Berkeley CA 94704,1378, USA | Tel: + 1 510 848 1155 | Fax: + 1 510 848 1008
info@internationalrivers.org | internationalrivers.org

(1) Lack of Additionality

Operation

According to Brazilian and industry sources, the Santo Antônio hydroelectric project has already entered an initial phase of operation.[1] Commercial generation is expected to begin in May 2012 according to the developer's current timeline.[2] Clearly, the project did not require CDM credits in order to be developed and begin operation.

Investment analysis

According to the PDD, the project's IRR is estimated at 5.63%. However, it is unclear how the developers arrived at this number, which contradicts prior estimates made by members of the dam consortium itself. For example, according to investor reports and the media, consortium member CEMIG publicly stated that the project's IRR was 12+%, well above the WACC benchmark of 10.35%. [3] The CDM requires the PDD to show that a project's IRR be less than 8% without CER revenues in order to qualify for carbon credits. Based on an IRR of 12% (not including CER revenues), the project would clearly not require CDM financing to be economically feasible, and would not be eligible for CDM credits. The developer should be required to further clarify the 5.63% given previous estimates of dam consortium members that the IRR would be above 12%.

Common Practice analysis

The PDD claims there are no similar projects to Santo Antônio, given the new electricity market model created in 2003. This is simply untrue. The PDD states that only projects that fall within 1,575 to 4,726 MW range and constructed after 2003 should be considered similar. The Jirau Dam, which forms part of the Madeira Complex and has an estimated generating capacity of 3,300 MW, is currently under construction. The first-phase environmental license for both the Jirau and Santo Antônio dams was issued by the federal environmental agency, IBAMA, in July 2007.[4] A "partial" installation license for Jirau was issued by IBAMA in November 2008, and a full installation license was approved in June 2009. The Jirau project is expected to begin initial operations in 2012.[5] Thus it fulfills both criteria. In addition, the 1,820 MW Teles Pires hydropower project, which has also applied for CDM financing, [6] is already being planned.

Regardless of such narrowly defined criteria, Brazil is clearly one of the world's leading dam–building nations and is already highly dependent on hydropower for its electricity, with about 80% of its electrical energy coming from hydroelectric dams. It has at least 63 dams either under construction or planned, which means hydropower cannot be considered an uncommon technology in the country.

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[1] "First turbine operational at Brazil's Santo Antonio hydro plant," February 28, 2012; "Usina Santo Antônio Entra em Operação até Março," February 22, 2012.
[2] Santo Antônio Energia, S.A, construction timeline
[3] "Cemig: Santo Antônio to offer 12% IRR," December 26, 2007.
[4] Switkes, G. 2008. "The Madeira Hydroelectric and Hidrovia project – Cornerstone of IIRSA," page 3.
[5] Jirau Dam, Dams in Amazonia Database, accessed March 7, 2012.
[6] Comments to PJRCES on the Teles Pires Hydropower Project, International Rivers, 23 Feb 2012.

In general, the common practice analysis should be strengthened because the ability to argue that a project is "essentially distinct" from other similar projects can easily be abused. Projects under construction and in the CDM pipeline should be included in the common practice assessment.

Alternatives

Section B.5 of the PDD fails to mention an options assessment of other strategies for meeting Brazil's energy needs. The justification provided is apparently that because the developer is a hydro company, the only alternative would be either not to register Santo Antonio as a CDM project or continuation of the current situation. This is an extremely weak argument that simply disregards alternative energy strategies – including energy efficiency and other renewable generation sources such as wind and solar, where there are tremendous underexploited opportunities in Brazil.

A recent study by Greenpeace on alternative energy scenarios in Brazil concluded that: (1) energy losses in the country's transmission system are an estimated 20%, a phenomenon largely related to a heavy dependence on extremely long-distance transmission lines, such as those planned for the Santo Antônio and Jirau dams; (2) Brazil's potential for wind power generation is at least 143,000 MW and may easily surpass 300,000 MW; and (3) considering an average annual level of solar radiation of 1.742 -2.300 KWh/m^2, tapping only 5% of the Brazil's solar potential would produce of the equivalent of the energy demands of the entire country.[7]

When the Santo Antônio project was first included in the federal government's Accelerated Growth Program (PAC), its total estimated cost was R$ 9.2 billion. By late 2007, it was estimated that the total projected cost had increased from R$ 9.7 billion to R$ 13.5 billion in only two years.[8] The dam consortium SAESA currently estimates total project costs at $ 15.1 billion.[9]

Considering the recurring increases in estimated project costs of Santo Antonio, the enormous social and environmental impacts of this large dam project in the Amazon (see below) and the increasing economic attractiveness of investments in energy efficiency and alternative renewable such as wind power (with much lower social and environmental footprints, including GHG emissions), the CDM should require evidence of a serious assessment of investment options.

Financing

The PDD makes blatantly false statements when it claims in A.4.5 and in the Annex that the project has received no development assistance or public financing.[10] This project secured major public financing at highly favorable rates from the Brazilian National Development Bank (BNDES), through a R$ 6.1 billion loan approved in December 2008 and largely disbursed in 2009. The BNDES loan (the largest ever at time of approval) accounted for 46.6% of all project

[7] [R]EVOLUÇÃO ENERGÉTICA, Greenpeace, 2007.
[8] Projeção do custo de energia da usina de Santo Antônio sobe mais de 80%.
[9] Santo Antônio Energia, access in March 18, 2012
[10] This statement is contradicted within the PDD itself on page 26 and 27 of the timeline, where it states that financing was secured in March 2009. This occurred before the developers initiated contact with the CDM in May 2009.

costs at project initiation in 2008, and together with co-financing reached 65.7%.[11] The project also benefited from a R$ 503 million loan at well-below market rates from the Bank of the Amazon - *Banco da Amazônia, S.A.* (BASA) using public funds that originated from a federal "constitutional fund" for the Northern region (FNO). A 5% stake in the dam consortium was acquired by the public retirement fund FI-FGTS, and parastatal pension funds such as PREVI and FUNCEF have generously complemented project financing.

The Santo Antônio project consortium's shareholders include the parastatal energy companies Furnas (39%) and CEMIG (10%) of the Eletrobras group, the investment fund *Fundo de Investimento e Participações Amazônia Energia – FIP*, including the public FI-FGTS fund (20%), and private investors Odebrecht Investimento em Infraestrutura (17.6%), Andrade Gutierrez (12.4%) and Banco Banif (1%).[12]

According to article, six of the project's third contract revision, dated 23 August 2010, the Santo Antônio Energia Consortium will be paid R$ 379,267,353.60 by the Federal Government for public use of the electricity generated by the project, upon commencement of operation of the first turbine.[13]

With a project so close to completion, it is possible that the developer is seeking additional financing from the CDM to help cover cost overruns associated with such factor as underestimated social and environmental impacts. However, major shortcomings in project planning related to under-estimations of construction costs and the megadam's social and environmental footprint should not be used to justify CDM funding.

Finally, it is extremely problematic to remunerate the environmental services of an infrastructure project with net social and environmental impacts that are clearly negative. Even if the Santo Antônio dam project were to promote a reduction of GHG emissions (which would only be possible to ascertain with a serious analysis of the project's carbon footprint and a comparative analysis of alternative sources of energy generation, neither of which currently exist), any such remuneration used to resolve problems of economic viability of the project would constitute a type of subsidy that favors the negative impacts of the project. This means that from the point of view of society, it only makes senses to remunerate environmental services of any project if the aggregate result of all social and environmental impacts is positive. This is a characteristic that the Santo Antônio dam project clearly does not possess.[14]

(2) Environmental Impacts

The PDD refers to the project's Environmental Impact Assessment (EIA), carried out by the parastatal energy company Furnas and private construction company Odebrecht, without

[11] "BNDES aprova financiamento de R$ 6,1 bilhões para hidrelétrica Santo Antônio, no rio Madeira," BNDES, 12 Dec 2008. Accessed 18 March 2012.
[12] União e Investimento, Santo Antônio Energia. Accessed 18 March 2012.
[13] According to the project's concessionary contract and subsequent contract revisions, it are located on the website of ANEEL, at the following links: Contrato de Concessão MME nº 001/2008; 1º Termo Aditivo ao Contrato de Concessão de Geração nº 001/2008; 2º Termo Aditivo ao Contrato de Concessão de Geração nº 001/2008; and 3º Termo Aditivo ao Contrato de Concessão de Geração nº 001/2008
[14] Marcos Amend, Executive Director of the Conservation Strategy Fund, Brazil (personal communication)

mentioning the overwhelming evidence of significant underestimations (during the planning and licensing process) of the project's true social and environmental impacts and associated risks.[15]

Prior to the issuing of environmental licenses, the EIA was widely criticized by a group of renowned scientific experts that identified serious errors and omissions. In a report issued in early 2007,[16] these independent experts raised serious questions about the quality of the EIA in relation to such key issues as: (i) uncertainties over the impacts of the Santo Antônio and other planned dams on sediment flows of the Madeira river,[17] (ii) the true extent of areas to be flooded over time, (iii) impacts of the Santo Antônio and other planned Madeira dams on fisheries essential to the local populations and economies, especially migratory catfish, due to barriers posed by the dams and reservoirs, destruction of habitats and alterations in water quality, (iv) impoverishment of the Madeira's unique biodiversity and aquatic ecosystems, including floodplain forests (*várzeas*), and (v) public health risks associated with malaria and other water-borne diseases, and absorption of mercury into the food chain.

With regard to biodiversity, the experts concluded that impacts on the Madeira's unique ecosystems were largely overlooked by the EIA. The Madeira basin supports an estimated 750 fish species (including important migratory species), 800 bird species, and other endangered rainforest wildlife. According to the independent experts, the dams could easily lead to the devastation of ecologically and economically important fish species, such as the *dourado* and *babão,* while legally protected areas, including the Guaporé/Itenez Ecological Corridor, would be seriously threatened. The project would seriously impact high priority regions for biodiversity protection, such as the habitats of 33 endangered mammal species.[18]

One of the key shortcomings in the EIA, flagged by independent experts, was the lack of analysis of the cumulative impacts of the series of four large hydroelectric dams and industrial waterway (*hidrovia*) planned for the Madeira Complex. This would necessarily require an analysis of impacts at the level of the hydrographic basin of the Madeira (including Bolivia and Peru) as required by Brazilian environmental legislation and international agreements – a key issue that the EIA completely ignores.[19]

The general conclusion of the independent experts' report was that the EIA was highly inadequate and that additional studies should be undertaken to seriously evaluate the project's social and environmental impacts, including implications for economic viability of the project and opportunity costs for the local economy and society, in terms of the fisheries, agricultural production, forest management, tourism, etc.

As described in section 6, technical staff of the federal environmental agency, IBAMA, flagged fundamental deficiencies of the project's EIA. However, IBAMA authorities, operating under

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[15] "As hidrelétricas do rio Madeira e os impactos socioambientais da eletrificação no Brasil"

[16] Switkes, G. 2007. "Independent Experts Find Amazon Dam Studies Don't Hold Water"; "Analise do EIA-RIMA dos Aproveitamentos Hidrelétricos de Santo Antonio e Jirau, no Rio Madeira, no Estado de Rondônia"; and Minstério Público do Estado de Rondônia.

[17] The independent experts found the EIA's data on sediment accumulation in reservoirs to be "inconsistent" and "unreliable." See *Sobre el Relatório Preliminar de Sultam Alam*.

[18] Santo Antônio Dam, Dams in Amazonia Database; **"**Com quase 800 espécies, Madeira é rio com mais peixes no mundo.**"**

[19] *Effects of Energy and Transportation Projects on Soybean Expansion in the Madeira River Basin* (CSF, 2007)

intense political pressure from the highest levels of government, granted environmental licenses despite a clear lack of evidence of environmental and economic viability, and non-compliance with environmental conditions required for dam construction to commence.

During the accelerated construction of the Santo Antônio megadam project, the warnings of independent experts, indigenous leaders, social movements, NGOs and the technical staff of IBAMA itself are rapidly becoming a reality in the region impacted by the project. One of the main examples of the intensifying environmental impacts of the Santo Antônio project has been the disappearance of socially and economically-important fish species, as a result of barriers to migratory species and impacts on water quality and riverine ecosystems. The loss of value fish species is directly linked to losses of income, skyrocketing prices of fish in cities such as Porto Velho, and negative impacts on the diet of local populations.[20]

Recently, another major environmental consequence of the Santo Antônio project has been a sharp increase in deforestation within the area of influence of the project, associated not only with clearing of vegetation in the reservoir areas, but also a wave of land speculation and migration simulated by dam construction.[21]

(3) Social Impacts

The PDD provides a weak overview of the potential social impacts of the project. In contrast, the independent experts report, echoing concerns of social movements and NGOs, called attention to the project's devastating implications for the livelihoods and rights of indigenous communities (including isolated groups), other traditional populations and family farmers in the region. Particular concerns with regard to the impacts of the project on the Karipuna, Karitiana, Oro Win, Uru-eu-wau-wau, Amondawa, and Warí tribes. In addition, the experts noted lack of due analysis of potential impacts of the Madeira dams to areas of immense archeological and historical importance, including 25 prehistoric sites and 17 archeological sites.

Many of these projected impacts have already materialized, especially in terms of damage to the livelihoods and cultures of indigenous communities, riverbank populations and family farmers. One of the most tragic aspects of the Santo Antônio and Jirau projects concerns the enormous disparity between the project developers' rush to build the dams as fast as possible with the goal of maximizing profits, and the extremely slow pace of efforts to protect the territories and livelihoods of isolated indigenous groups. Recent reports indicate that explosions of dynamite for dam construction caused isolated indigenous groups to flee to more remote locations, only to encounter conflicts with wildcat miners (*garimpeiros*).[22]

The consequences of the Santo Antônio project for traditional riverbank populations along the Madeira River and tributaries have also been dramatic. Livelihoods and cultures based on small-scale fishing, floodplain agriculture and forest management along the Madeira River

[20] "Peixes do Madeira desaparecem como os cientistas previram. Depois vem Belo Monte," Observador Político. 18 Jan 2012; "MORTES ANUNCIADAS...," Sem Fronteiras, 16 Dec 2011.
[21] http://www1.folha.uol.com.br/ambiente/879988-hidreletricas-do-rio-madeira-fazem-desmatamento-voltar-a-crescer.shtml
[22] "Indígenas isolados da região do rio Madeira estão desprotegidos," A Critica, 12 Jan 2011; "Indígenas isolados na região das usinas do Madeira tinham sido detectados em 2009," Telma Monteiro Blog, 8 Jan 2012; and "Funai vê indícios de tribo isolada perto de área de construção de usinas," Rondonia Dinamica, 13 Jan 2012.

have disappeared with the privatization of territories and expulsion of traditional populations. The devastating consequences of the dam for these riparian communities (*ribeirinhos)* have been the subject of several news reports and recent video documentaries.[23]

Many displaced *ribeirinhos* and small-farmers from the Santo Antônio reservoir area received "compensation" in the form of credits for purchasing modest houses in the periphery of Porto Velho and other urban areas. These dam-affected groups have experienced a process of disfranchisement in which families are transformed from skilled managers of territories with a diversified subsistence base and strong cultural identities into unskilled urban laborers, dependent upon a monetary economy for the basic necessities of survival. For the minority of families included in resettlement schemes, a recurring issue is a significant downgrading in their quality of life due to the impoverished resource base and precarious conditions in which they have been resettled.[24]

The Santo Antônio and Jirau projects have also inflicted major damage in urban areas such as Porto Velho and Jaci-Paraná, where dam construction has been accompanied by a wave of real estate speculation, increasingly overstretched health, education, public security, transportation and sanitation services, as well as an intensification of such problems as violent crimes and child prostitution.

One of the most unfounded claims of the PDD is that no opposition to the project has been voiced by civil society. This claim is absolutely false, considering continued historical and ongoing resistance to the project by such groups as the Movement of Dam-Affected Peoples (MAB), Instituto Madeira Vivo, Instituto de Defesa Etnoambiental Kanindé, Amigos da Terra, COIAB and local indigenous organizations.[25]

(4) Emissions reductions

Power density

The PDD erroneously states that the reservoir is a "minor emission source" of CO_2 and N_2O, and that CH_4 does not have to be considered. This ignores current scientific evidence[26] (much of which is based on dams in Brazil), which shows that dams in the tropics are significant sources of greenhouse gas emissions especially during their first ten years of operation – the time horizon for this CDM project.

The calculations for reservoir emissions rely on a power density calculation as the justification for using a value of zero for the project's emissions. However, this calculation is seriously flawed. The PDD uses just only the additional flooded area of 190.40 km^2 instead of the full reservoir surface area, which the PDD states as 354.40 km^2, to calculate the power density. If the

[23] "Reportagem do SBT mostra a devastação produzida pela barragem da Usina de Santo Antônio";
"Para Onde o Destina Mandar" Part 1 and Part 2; "Complexo Madeira expulsa ribeirinhos" and the short documentary "Ilha do Jacó."
[24] The PDD does not mention how many people were actually resettled. The Brazilian Movement of Dam Affected People (MAB) estimates that 5,000 families will be directly affected by the Madeira Complex.
[25] Rio Madeira Vivo, Intenrational Rivers; and Instituto Madeira Vivo.
[26] Bibliography of Key Scientific Articles and Publications on Greenhouse Gas Emissions from Dams and Reservoirs, International Rivers.

full reservoir figure is used, since emissions will come from the entire surface area and from turbines and spillways, the power density would be 8.89 W/m^2 instead of 16.55 W/m^2. This figure is less than 10 W/m^2 and thus should be considered significant. If the maximum reservoir area is used (546.0 km^2), the power density is even lower at 5.77 W/m^2. This is close to the lower range acceptable for CDM project power densities. The power density has clearly been manipulated to reach a higher number in order to downplay the significance of reservoir emissions from this project.

In addition, the area to be flooded may even be twice as high as the maximum reservoir area reported, according to the independent 2007 study.[27] If this is the case, then the power density calculation alone would disqualify the project for the CDM.

The PDD chooses to neglect the project's leakage emissions, even though these may be significant and beyond just emissions from construction. These include the project's role in promoting greater industrial output and emissions by supply electricity and transport to carbon-intensive industries. Recent increases in deforestation in the vicinity of the project due to increased migration and land speculation associated with dam construction have been documented. The Madeira Complex will stimulate the advance of cattle ranching and soy plantations in the Amazon rainforest and surrounding tropical savannas. Transmission lines will further contribute to overall net increases in emissions associated with deforestation. Such negative impacts on the Amazon rainforest, given its vital functions as a regulator of regional and global climate systems, has major implications for the carbon footprint of the project that are simply ignored in the PDD.

(5) Violations of legislation

In sharp contrast to the PDD's claim that the project is consistent with national laws, the planning, licensing and construction of the Santo Antônio has been characterized by repeated violations of Brazilian legislation and international agreements regarding human rights and environmental protection. [28] Some of the key examples of this are outlined below:

- In March 2007, IBAMA's technical staff analyzed the EIA and agreed with the independent expert's report in terms of errors and omissions of the EIA regarding the project's social and environmental impacts of the two dam projects. In March 2007, the serious deficiencies and omissions in the EIA provoked the filing of a civil action suit (Ação Civil Pública no. 2007.41.00.001160-0) by the Federal Public Prosecutor's Office (Ministério Público Federal). Among fundamental deficiencies of the EIA, the lawsuit cited the lack of analysis of the project's impacts on indigenous peoples and other traditional riverbank populations and those of a new 2.375 km transmission line to transport electricity from the Madeira dams to Araraquara (São Paulo state) in southeast Brazil. The lawsuit was essentially stalled in the Brazilian judiciary system and its merits never received due appreciation.[29]

[27] Switkes, G. 2007. "Independent Experts Find Amazon Dam Studies Don't Hold Water."
[28] "Violações de Direitos Humanos Ambientais no Complexo Madeira," Plataforma Dhesca, April 2008. Accessed 20 March 2012.
[29] Status of the lawsuit in Brazilian district federal court TRF1.

- The irregular circumstances surrounding the approval of the first phase license (LP) for the Santo Antônio and Jirau projects led to the filing of a civil action lawsuit in December 2007 by the NGO Friends of the Earth – Brazilian Amazônia (Amigos da Terra – Amazônia Brasileira).[30] However, similar to the case of the MPF lawsuit, this legal action of Friends of the Earth was also stalled in lower Brazilian federal courts.

- On 8 August 2008, IBAMA's technical staff issued an analysis of the Santo Antônio Dam consortium's request for an Installation License (LI) to initiate dam construction, including the extent of compliance with 33 conditions of the first phase license (LP). The document issued by IBAMA's technical staff (Parecer Técnico n.º 45/2008 – COHID / CGENE / DILIC / IBAMA) concluded that various conditions of the first phase license had not been met, and that the installation license could not legally be granted by IBAMA. However, once again reflecting political pressures to accelerate dam construction despite non-compliance with relevant legislation, the incoming President of IBAMA, Roberto Messias Franco, granted an Installation License (Licença de Instalação 540/2008) only five days later on 13 August 2008, with an additional 48 conditionalities.

- This politically-motivated decision provoked the filing of yet another civil action lawsuit by Friends of the Earth-Brazilian Amazônia in conjunction with the indigenous rights NGO Kanindê and the Coordination of Indigenous Peoples of the Brazilian Amazon (COIAB). They demanded the immediate suspension of the Installation License of the Santo Antônio project, given illegalities in the licensing process leading to an imminent "environmental disaster" (Processo no. 2009.41.00.3928-2). In its arguments, the lawsuit observed that the approval of the installation license (LI), despite non-implementation of conditions of the first phase license (LP), constituted a gross violation of relevant Brazilian legislation, including article 8 of Resolution 237 of Brazil's National Environmental Council (CONAMA) and IBAMA's internal regulation (article 27 of *Instrução Normativa* no. 184/2005). Furthermore, the lawsuit questioned the legality of the installation license in the absence of prior consultations with affected indigenous populations and subsequent Congressional authorization, as required by article 231 of the Brazilian Constitution. Finally, the legal action raised questions concerning non-compliance with regulations that require prior analysis of potential conflicts over the use of water resources, given the status of rivers as a public good under Brazilian legislation (Federal Law 9.433/97). Similar to its predecessors, this legal action by Friends of the Earth, Kanindé and COIAB was stalled in the Brazilian court system, never receiving due analysis of its merits.[31]

- The issuing of an operating license for the Santo Antônio dam by IBAMA on September 14, 2011 (*Licença de Operação* 1044/2011) was immediately preceded by the hurried reduction of state and federal protected areas slated for flooding in the project's reservoir area. Such acts were considered illegal by the Federal Public Prosecutor's office, provoking lawsuits that are currently under review in the Brazilian Supreme Court.[32]

[30] Processo no. 2007.34.00.042523-7
[31] Processo no. 2009.41.00.3928-2
[32] "Dilma muda limite de unidades de conservação para abrigar hidrelétrica," Estadão, 16 Aug 2011; "PGR questiona alteração de unidades de conservação na Amazônia," Ministério Público Federal, 9 Feb 2012.

- While less visible than the worker revolts in Jirau, there have been serious cases of violations of workers' rights in the construction of the Santo Antônio Dam.[33]

One of the most alarming characteristics of the Santo Antônio dam project is the chronic lack of systematic monitoring of the project's social and environmental impacts, compliance with human rights and environmental legislation, and application of relevant safeguards of financial institutions such as BNDES and the Equator Principle banks.

Conclusion

In conclusion, the PDD for the Santo Antônio project is clearly flawed and manipulated to downplay its social and environmental impacts. The project is non-additional, unsustainable and more likely to increase emissions than reduce them. We request that validation for this project be rejected. The approval of this project would set an extremely dangerous precedent for the CDM.[34]

Contacts for additional information:

Brent Millikan
Amazon Program Director
brent@internationalrivers.org

Zachary Hurwitz
Policy Coordinator
zachary@internationalrivers.org

Katy Yan
Climate Program
katy@internationalrivers.org

Co-signatory Organizations:

Amigos da Terra Brasil, BRAZIL

Amazon Watch, USA

Angikar Bangladesh, BANGLADESH

Associação de Preservação do Meio Ambiente e da Vida, Apremavi, BRAZIL

Both Ends, NETHERLANDS

[33] "Superexploração dos trabalhadores na maior obra do PAC"

[34] For further analysis, see the separate submission by Dr. Philip M. Fearnside (National Institute of Amazonian Research – INPA) entitled: "The Santo Antônio Dam's CDM proposal Comments on the Project Design Document" (March 20, 2012)

CDM Watch, BELGIUM

Comissão Pastoral da Terra - CPT (Sertão Paraíba), BRAZIL

Comitê Metropolitano Xingu Vivo para Sempre, BRAZIL

Conselho Indigenista Missionário (Cimi), BRAZIL

FASE Amazônia, BRAZIL

Fórum da Amazônia Oriental – FAOR, BRAZIL

Forum Mudanças Climáticas e Justiça Social, BRAZIL

Grupo Carta de Belém, BRAZIL

Grupo de Pesquisa Energia Renovável Sustentável - GPERS, BRAZIL

Indigenous People's Cultural Support Trust, UK

Instituto Brasileiro de Desenvolvimento, BRAZIL

Instituto de Educação Popular de Rondônia, BRAZIL

Instituto Madeira Vivo – IMV, BRAZIL

Instituto Mais Democracia, BRAZIL

Instituto Socioambiental – ISA, BRAZIL

Lernen – Helfen – Leben e.V, GERMANY

Merou Développement, DEMOCRATIC REPUBLIC OF CONGO

Movimento Banzeiro, BRAZIL

Movimento de Mulheres Camponesas - MMC Brasil, BRAZIL

Organização Coletiva dos Pescadores Tradicionais de Jaci-Paraná – PIRÁ, BRAZIL

Participatory Research & Action Network-PRAN, BANGLADESH

Paryavaran Mitra, INDIA

Rede Brasil sobre Instituições Financeiras Multilaterais, BRAZIL

Sociedade Paraense de Defesa dos Direitos Humanos – SDDH, BRAZIL

S.O.S. Amazônia, BRAZIL

Terra de Direitos, BRAZIL

Volta Basin Development Foundation, GHANA