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BLAMING THE WEATHER, BLAMING THE PEOPLE: SOCIO-ENVIRONMENTAL GOVERNANCE AND A CRISIS ATTITUDE IN THE BRAZILIAN ELECTRICITY SECTOR¹

VANESSA BOANADA FUCHS²

Introduction

The governance of natural resources is intrinsically linked with the governance of people. Natural environments only become ‘resources’ when people attribute to it value that can be associated to its immediate use, future or derivate utility, aesthetic or immaterial attributes. Resources only exist when people recognize them as valuable, useful, and when they organize socially to exploit them (STEWART, 1955; RAPPAPORT, 2000; MORAN, 2006).

Take water, for example. It can be used for immediate consumption, for sanitary purposes, for drinking, and washing. It can be used for its secondary utility in transportation, leisure or sports; it can be stored for irrigation in agriculture, used in mills to grind grain, or to produce electricity. It can also serve for its aesthetic or immaterial attributes: a crystalline lake (natural or artificial) in front of a condominium of houses may increase real estate value; certain places by the sea or rivers are praised for their spiritual value and considered to be sacred by different groups of people. As such, water cannot be considered one ‘natural resource’ but a plurality of natural resources. All of these overlapping uses require governance (OSTROM, 1990).

Even in a world of growing homogenization of consumption culture, it is not uncommon that the same natural element receive distinct importance and value by different groups of people or even inside the same group. Accessing and managing these different resources, which have the same material basis, is a matter that speaks to environmental governance as much as it speaks to the governance of people. It corresponds to questions such as: Where is and who has access to the material basis of the resource? What kind of norms controls the access and sets the rules of management? How are disputes settled? How does one protect the natural resource? What parameters are used to describe and

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define the optimal use of resources and to establish limits for sustainable use? These are technical, but also socio-political questions.

The concept of environmental governance is often defined as “the means by which society determines and acts on goals and priorities related to the management of natural resources. This includes the rules, both formal and informal, that govern human behavior in decision-making processes as well as the decisions themselves” (IUCN, 2015). Linked with an overall theoretical framework or effort that aims at the preservation of natural resources for future generations, “environmental governance” also implies a more equitable sharing of the benefits of natural resources’ exploitation between different groups of the society, being therefore often related to the concept of ‘sustainable development’ and the normative idea of ‘good governance’ (HUFTY, 2011). In sum, environmental governance puts in place rules that organize the multiple forms of exploitation, use and conservation of natural resources in all its competing meanings. Ideally, it should make use of the best available technology (including regulations) to ensure sustainability and equity between the different demands within a society.

In practice, however, most of the time technical issues come before, or prevail, over social ones in the implementation of projects that entail the management of natural resources. The construction of dams for electricity generation in Brazil is a case that exemplifies the unequal weight given to those two aspects. This inequality is clearly represented in the mismatch between the projects’ timeframes: the pace of the technical schedule (project planning, engineering, construction) often outruns the pace of the associated social policies that are meant to ensure participation in decision-making by the interested parties and the mitigation of possible negative impacts that burden the affected population. Furthermore, a permanent sense of urgency - to avoid imminent crisis - also seems to expedite socio-environmental impact studies.

When social protests emerge as a consequence of this mismatch and delays in the licensing process occur, the problem is further aggravated: the affected people and the environmental protection agencies in charge of the licensing process get blamed for those delays that affect key infrastructure works of the sector (especially dams). They have become the new scapegoat for an eventual electricity sector’s crisis, and new laws start being proposed to “revise” and “expedite” the licensing process.

This article aims to show that policies addressing electricity crisis are not new to the sector, and certainly nothing that has been caused by social participation and environmental protection laws. On the contrary, in order to avoid two extreme “either/or” scenarios - the curtailing of democratic and environmental safeguards or a major electricity crisis - social considerations have to start being taken seriously by the sector’s planners, and preferably early into the licensing process.

1. Democratic Water Governance and the Electricity Sector in Brazil

Infrastructure works related to the expansion of the electricity sector are representative of the mismatch between technical and social issues in Brazilian development

planning. The recent case involving the construction of the Belo Monte dam is but one example of this trend.

The generation of hydroelectricity, depends on infrastructure that causes a variety of interventions in rivers, such as the deviation of the watercourse, the construction of a dam and its reservoir, deforestation, impacts on the fish population, among others (LA ROVERE and MENDES, 2000). It is estimated that 70 percent of the hydroelectricity potential of Brazil is located in Amazonian rivers (Plano Nacional de Energia: 2030, 2008). The Amazon is also known for its socio-bio-diversity: indigenous, *quilombola*, riverine people, extractive and rural communities live there; all of them make different uses of the same sources of water, competing with other interests such as mining and electricity generation. Competition in the governance of resources in the Amazon is nothing new, but there is a growing number of socio-environmental conflicts especially related to the rights of such groups.

In the 1980s, after more than two decades of documented impacts of large infrastructure projects in the Amazon (including the displacement of entire indigenous populations by roads, dams and mining projects) national and international movements mobilized for greater governmental accountability regarding the social and environmental impacts caused by development projects (VIOLA, 1986; HOCHSTETLER and KECK, 2007). These social pressures led to the development of new democratic governance mechanisms and regulations for socio-environmental protection. In 1981, the National Environmental Policy (Política Nacional do Meio Ambiente, or PNMA)ⁱ was established with the aim to preserve and improve environmental quality, while guaranteeing socio-economic conditions for the development of the country, the promotion of national security and human dignity. According to this policy, any activity or project potentially hazardous to the environment should be preceded by an environmental licensing process. Environmental Impact Assessments (Estudos de Impacto Ambiental, or EIA) and the associated Reports of Environmental Impact (Relatórios de Impacto Ambiental, or RIMA) became mandatory steps in licensing processes. CONAMAⁱⁱ Resolutions regulating EIA established the basic criteria to guide these studies which include not only attention to environmental impacts but also to socio-economic aspects, including uses that local communities do of the soils, the water, and other related natural resources.ⁱⁱⁱ

The debacle of the dictatorial regime and the constitutional process of 1988 insured that decision making, in relation to water governance, be considerably democratized. For example, water resources inside indigenous lands cannot be exploited (including hydropower plants) without the prior approval of the National Congress after hearing the affected communities (art. 231, Federal Constitution). Another mechanism, also created in 1988 foreseeing greater popular participation in water governance include the River Basin Committees encompassing members of the civil society, representatives of water users and public agents. For more information on the many challenges regarding their implementation, see Jacobi and Fracalanza (2005), Abers (2010), Martins (2015).

In addition, Brazil ratified in 2002 the International Labor Organization Convention No. 169/ 1989 on the Rights of Indigenous and Tribal peoples, guaranteeing that all indigenous and traditional peoples be consulted prior to the implementation of projects

(but also laws and policies) that affect their lands and ways of life. The Brazilian Institute for Renewable Resources (Instituto Brasileiro de Recursos Naturais Renováveis, or IBAMA) is the state body in charge of carrying out environmental licensing processes. IBAMA has – in general – delegated all matters that concern establishing a relationship with the local affected indigenous communities to the Fundação Nacional do Índio, or FUNAI. The procedures according to which these people should participate, including hearings and consultations, remain to be further detailed by infra constitutional legislation; for that purpose, an inter-ministerial group was formed in 2012 in order to debate such regulation (Interministerial Ordinance No. 35, 2012). However, FUNAI and IBAMA have meanwhile established, in the daily practice of their attributions, that the licensing process would be the locus and the timeframe in which the participation of these affected people would occur.

In the case of hydroelectricity generation, the licensing process is, supposedly, the moment when the needs of the electricity sector are met and balanced by the needs of the local affected population. However, due to a period of relative economic stagnation, ranging roughly from the 1980's to the 1990's, these participatory licensing mechanisms were not further developed nor put to test given a general retraction in public spending that cancelled major infrastructure projects in the Amazon. Recently, these still under-developed legal provisions have been running against time facing a continental-wide developmentalist impulse that granted incentives to the large-scale exploitation of natural resources. One can talk here, starting from 2000, of the Initiative for the Integration of the Infrastructure of South America (or IIRSA) that planned among other things to integrate the energy sector in the sub-continent. IIRSA combined with other national development programs, such as the Program for the Acceleration of Growth (or PAC) in Brazil, includes in their portfolio dozens of hydroelectricity dams that target socially and environmentally sensitive areas and change the geography of the Amazon.

One current example included in PAC's portfolio is the Belo Monte Dam. According to the electricity sector, Belo Monte would be the third largest dam in the world, strategically relevant for the integration of the National System (which connects the electricity grid from the North to the South), providing for the growing needs of the national industry and offering affordable electricity to residential users; the expansion of hydroelectricity provision is, therefore, necessary to ensure economic growth and avoid electricity blackouts (ANONYMOUS. MME Officer, 2012). On the social aspects, Belo Monte had also been reported to be the first large-scale attempt at the implementation of a consultation process with the affected indigenous communities and, as such, a laboratory to develop a new institutional democratic governance framework with impacts on future development projects (ANONYMOUS. FUNAI Officer No. 1, 2012).

I arrived in Altamira, the city most affected by the Belo Monte Dam, in 2011 right after the construction license had been granted by IBAMA. Back then, it was already clear that the implementation of the EIA and the consultation with the affected population were both being severely questioned, despite apparent efforts by public agents to fulfil the legal requirements concerning minimum social and environmental safeguards (at least pro-forma). The Belo Monte case had then already become the object of legal

battles domestically and internationally. Twenty-five law suits were presented against the project by the Federal Office of Prosecutors (Ministério Público Federal) until the first trimester of 2016^{iv} and the Inter-American Commission on Human Rights analyses a petition presented by civil society organizations in 2011 (OAS, ano). One of the main problems referred to by all actors involved in the licensing process was an internal mismatch between different timeframes: the urgent ‘needs’ of the electricity sector and its fast paced capacity to technically implement a complex infrastructure project, *versus* the time needed to conduct a thorough environmental and social impact assessment, including the meaningful participation of the affected people.

2. Time is of the essence

The resurgence of infrastructure and hydropower construction in the Amazon, relatively recent but intense and fast paced, has not been accompanied by the parallel development of mechanisms that operationalize on the ground the precepts of democratic governance set forth by the Constitution of 1988 and other international conventions. As such, the rules and the procedures according to which the agents intervening in environmental licensing processes should act are still being developed on a case-by-case basis.

“We are still testing; Belo Monte is kind of a laboratory, because what happens in Belo Monte serves as a mirror to other projects, given its visibility, its importance for the federal government.” (ANONYMOUS FUNAI Officer No.1 2012)

Recent attempts to implement social and environmental safeguards have so far been met with resistance and faced several constraints, most pressingly: time. In the Belo Monte case, FUNAI was invited by IBAMA to get involved in the licensing process in 2007. FUNAI then became in charge of the elaboration of “terms of reference” (Termo de Referência, or TR) that should guide part of the EIA studies. In this process, time was - from the outset - an issue in meeting the new democratic governance requirements.

FUNAI tried to develop a TR methodology to reflect, later in the EIA, the dam’s different forms and degrees of impacts over geographically, ethnically and culturally distinct people. These were accordingly divided into three different groups (FUNAI, 2009). FUNAI officers organized a field visit to the first group (in the Xingu’s Volta Grande or “Big Bend”), but groups two and three were not visited. FUNAI officers recall that, upon their return to Brasília (the country’s capital and headquarters of FUNAI), the environmental licensing process had been “accelerated”. Following “top down internal understandings”, the officers in charge of the TR were obliged to do their work based on the interrupted visit to the first group of affected people only. The initial idea of using different methodologies and TRs for the study of the distinct impacts over the three different groups was abandoned. Given the time constraints, the first group’s TR was extended identically to all other groups despite the initial terms that argued for the distinctiveness of their cultural and human-environmental relationships.

That was only the first occasion in the Belo Monte case in which the timeframe of other parts of the environmental licensing process subsumed the studies pertaining to social evaluation and participation. The actual EIA studies concerning the affected indigenous people (using incomplete or inadequate TR) finally started in August 2008 and the final written analysis and evaluation was already delivered by FUNAI in July 2009. The time available for on the ground studies and later interpretation of data was also considered to be insufficient. According to many FUNAI officers, at least one year would have been required to study the Xingu River cycles, known for its seasonality, in order to adequately evaluate the consequences that a dam would bring in each period to the different social uses and practices of the affected communities.

Similarly to the time constraints that affected the completion of the TR, FUNAI's evaluation of the studies seems to have been hurried up by the fact that other parts of the EIA – more technical or at least not related to the social dimension – had been concluded much earlier. How did that happen? Studies concerned with other parts of the EIA, including the technical assessment of feasibility and desirability of building a dam at that location, seem to have informally started even before the terms of reference of their own areas of study had been prepared:

“Since the terms of reference for the physical and biotic environments are always very similar [in all large-scale projects], they [the consultancy companies in charge of the studies] already knew what to study; so they went ahead, studying those things one year before the research with the indigenous communities could even start. Once they were done, FUNAI got under pressure to resolve the ‘indigenous issue’ faster” (ANONYMOUS, FUNAI Officer No. 2, 2012)

What was the inexorable force that exerted pressure over FUNAI and the time needed to address the social aspects in the EIA? Why were the project managers so much in a hurry to finish the EIA? This example shows a glimpse of the initially mentioned problem of mismatch between different timeframes involved in the EIA (the technical and the social); however this aspect has also affected other steps of the licensing process with one clear pattern: social dimensions, including the late participation of the affected population in the decision-making, were always running behind or even sidelined by the deemed more technically-based decisions in order to meet the urgent and ever growing energy demands of the nation.

If, on the one hand, the relatively recent memory of the major national electricity blackouts that took place in 2001 still plays a part in the self-justification regarding the expedited expansion of the electricity sector; on the other hand, the population affected by dams and some governmental agencies point to a general lack of political will in the implementation of supposedly legally binding social and environmental safeguards. The opposing expectations regarding the ways the licensing process should be carried out have fuelled several conflicts in the region, including protests that have caused the suspension of Belo Monte's construction due to multiple worksite occupations, and the above mentioned lawsuits supported by the claims of unheard and unsatisfied affected population.

To most people involved in the electricity sector, the sense of urgency to expedite licenses comes from the fear of yet another energy crisis - a rhetoric which seems to drive great part of the actions within the electricity sector in Brazil, including the ways in which EIAs are conducted. In fact, not only does the sector exert pressure to expedite environmental licenses, but it has also been instrumental to shape a discourse that externalizes blame for possible electricity shortages precisely to these democratic and environmental safeguards and to social protests. For example, faced with the possibility of having to pay a fine for delays in the construction of the Belo Monte Dam, the Norte Energia Consortium in charge of its construction, issued several statements and initiated defense administrative procedures alleging that the delays were mainly caused by IBAMA, FUNAI, and the local social manifestations (REVISTA VEJA, 2015).

Trying to understand if one can really blame the recently established democratic and environmental safeguards for delays in the expansion of the electricity sector and a possible new electricity crisis, I ventured into the long-term study of the sector's policies in Brazil. The study reveals that since the 19th century the expansion of the sector has been prompted by the very real need to provide electricity for growing industrial demands and the accompanying changes in residential consumption patterns. In response, Brazilians have developed over the years a national expertise focused on the construction of hydropower plants - a knowledge base that is at present even exported. Nevertheless, it is striking to notice that a permanent rhetoric of crisis seems to have historically underlied the ways in which reforms have been proposed and implemented; at present this same rhetoric impacts the forms according to which EIAs and social participation are perceived and complied with (or not) in the continuous expansion of dams towards the Amazon.

3. Structural Obstacles for a democratic socio-environmental governance in the Brazilian Electricity Sector

Individual practices and policies cannot be understood in isolation from the context in which they are embedded. It is relevant to understand the electricity sector and its modes of operation to better situate the challenges faced by socio-environmental licensing procedures regarding the construction of dams.

As a technology of the second industrial revolution, electricity is a manifestation of modernity and of the social transformations of that historical period (CMEB, 2001). At the same time, electricity can be perceived not only as a product of this modernity, but also as an inductor of modernization in society. It has engendered changes in social practices and patterns of production and consumption. Consequently, the expansion of the electricity sector became a symbol of industrial, economic, and social development. In Brazil, due to the abundant natural occurrence of water, hydroelectricity emerged as the nation's "natural vocation" and became one of the bastions of the Brazilian modern paradigm. Accompanied by the development of a body of national technical expertise, the gradual expansion of the sector also required parallel instruments of governance - reason why the sector is closely related to the regulation of the territory and the necessary

negotiation between different interests disputing the uses of water (as the material basis of natural resources).

3.1. Crisis as a driving force

Without exhausting the matter, one can observe even through a birds-eye view that the electricity sector in Brazil has been institutionalized, and subsequently reformed to ensure the expansion of the appropriation of water for the purposes of electricity production, responding to the growing needs of Brazilian economic activities and residential consumption.

The use of electricity in Brazil started in experimental form during the 19th century to light up few public buildings in the capital (then, Rio de Janeiro) using power derived from dynamos triggered by motion (CMEB, 2014a). The initial impulse for hydroelectricity use, however, was borne by private investors who incorporated its use into their production processes. Hydroelectricity, using a local and abundantly available resource, quickly took the place of imported coal as the primary source of energy for the national industry. The first hydropower plant was built in Diamantina, Minas Gerais, in 1883 to provide electricity for the extraction of diamonds; in 1885 and 1887, two other plants were built to support the textile and gold-mining industries, respectively (GOMES et al., 2003). The residential use of electricity remained circumscribed to some of the villages neighboring these industrial hubs, benefiting from surplus production.

Electricity provision only became a service when foreign investors, interested in the growing market of potential consumers in Brazilian fast-flourishing cities, gathered financial means and technology to buy the local private dams and expand its distribution. The electricity sector soon became a foreign monopoly; Light (English) and Amforp (American) controlled 80% of the electricity market (CMEB 2014b; BASTOS, 2007; GOMES and VIEIRA, 2009) that, between 1907 and 1919, grew more than 600 percent in installed capacity, relying mainly on the use of hydropower (GOMES et al., 2003). However, the electricity grid was limited to the larger urban centers like Rio de Janeiro and São Paulo, as expansion to other regions was deemed unprofitable (CMEB, 2001). By the end of the 1920's, a first supply crisis was faced by the infant electricity sector unable to answer to the needs of demographic^v and industrial growth (CMEB, 2014b). In addition, after the international economic crisis of 1929, the prices of electricity (indexed by the foreign companies according to the gold standard) skyrocketed: within two years, prices charged by Light had tripled (BASTOS, 2007).

The crisis served as justification for the development of a modern state apparatus that would come to regulate electricity services, protect the federal exchange reserves and the income of residential and industrial electricity users. Among other provisions, new concessions for the private exploitation of water were interrupted, the "gold standard" was broken, and the Federal Union (not the federated states) became the steward in charge of negotiating concessions for electricity generation through the Service of Waters of the Ministry of Agriculture (*Serviço de Águas do Ministério da Agricultura*) (LIMA, 1995; CMEB 2014c).^{vi}

The institutionalization of the sector in Brazil was, thus, stimulated by a situation of crisis. The shortages also prompted the Federal Government to create the Commission

for Electricity Rationing in 1939 (Comissão de Racionamento de Energia Elétrica) - the first of its kind in Brazilian history). The Commission ordered a general 20 percent consumption reduction and imposed fines on overconsumption. The industrial sector had to reduce working hours, and as a consequence the economy was affected. The Commission also suggested the transition from a localized and expensive provision of electricity to an interlinked national system with the creation of a state-owned electricity company to better manage the expansion of the sector.

In a context of precarious and still expensive service, a parcel of the population manifested in favor of the nationalization of the sector, protesting via electricity bills' payment boycotts. With limits imposed on profits and consumption, and amidst social protests, the private investors remained risk averse and the sector stagnated. Intermittent periods of shortages and rationing followed from the 1930's to the 1960's.

In the meantime, the sector started to transition: activities of generation would slowly fall under the control of the state (via federal or local state-owned companies). This period of investments closely controlled by the state identified with national developmentalism ideals, spanning roughly from 1946 to 1962, contributed to an increase of 326.9 percent in the electricity installed capacity (GOMES and VIEIRA, 2009). Eletrobrás (the state-owned company suggested by the first Commission for the Management of Crisis) was finally inaugurated in 1962 enacted under the Ministry of Mines and Energy. It became responsible for carrying out studies, construction projects, operation of power plants, lines of transmission, and substations (SILVA, 2011).^{vii} It also placed under its umbrella, as subsidiaries, some of the state companies created by the local governments, such as Furnas and CHESF. Distribution, however, in key profitable areas remained in the hands of the private sector (CASTRO, 1985).^{viii}

State participation via public companies was further intensified during the military regime after the coup of 1964. Several state-owned electricity companies were created during this period, all of which were placed under the umbrella of Eletrobrás: Eletrosul in 1968, Eletronorte in 1973, and the bi-national Itaipú in 1973. The nationalization of the sector was soon accomplished with the acquisition of the Amforp group in 1964 and the Light group in 1979.

Taking advantage of a moment of abundant and available international financial resources, coupled with the centralization of decision-making at the domestic level, large funds were channeled into massive infrastructure developments that started to reshape the landscape in the Amazon (during the "Brazilian Economic Miracle", 1968-1973). As mentioned earlier, the sector has close ties with the regulation of natural resources' uses and also with the governance of people. As part of an effort to secure the frontiers and the control of natural resources, the military regime undertook large infrastructure projects in an attempt to permanently occupy lands considered as "demographic voids" - especially the Amazon.

As described by Moran in this special issue, during this undertaking many roads (such as the Transamazônica) and hydropower plants were built and several agricultural colonies were founded. The initial objective was to provide access and the means of survival so that men could effectively settle (physically and economically) the land: "integrar para não entregar" was the slogan of the Brazilian government. The provision of electricity was equally vital to the national strategy of attracting commercial and industrial activities

to Amazonian poles of development. Several dams were thus planned in the Amazon, including: Tucuruí and Balbina (which were constructed), and the first attempt to build the Belo Monte dam (then named Kararaô, part of a larger Altamira hydropower project).

The rapid expansion of the sector started losing speed in the 1970's. Following the two international oil crises (1973 and 1979), the government tried to give incentives for the construction of dams (and develop a national oil industry) in order to decrease international fossil-fuel dependency. The government again ordered a tighter control of electricity prices to limit the effect of high rates of inflation on the purchasing power of residential and industrial electricity users^{ix}; in turn, the infant public electricity companies lost financial returns for the investments they had incurred in the past decade. Not able to rely on intra-sector resources, infrastructure works started to increasingly depend on external investment, which combined with the devaluation of the national currency, plunged the sector into unsustainable debt. The situation was further aggravated during the so-called "Lost Decade" by the suspension of international loans to Latin America after the Mexican moratorium of 1982. The general situation of economic crisis halted new public works for the expansion of the electricity sector. In this light, the suspension of Kararaô in the 1980's was not only an effect of social protest or a sign that the government had heard the people but, more importantly, it was a consequence of economic impediments (HOCHSTETLER, 2011; ANONYMOUS MME 2012).

With the transition to democracy and the constitution of 1988, decentralization claims of local state governments gained momentum (GOMES and VIEIRA, 2009). Backed by the new institutional ambience and making use of political influence, local distribution state companies running on surplus, especially from the South and Southeast, refused to pay the intra-sector compensation transfers that financed the expansion of electrification to other regions and boycotted payments to generation companies controlled by Eletrobrás (GOMES et al., 2003). By 1992, an "institutionalized default" accumulated twenty-six billion U.S. Dollars in intra-energy-sector debts, roughly 20 to 25 percent of the domestic debt at that time (VELLOSO, FREITAS, and ABBUD, 2014, p. 99).

The new electricity crisis prompted more sector reforms, this time inspired not by a national developmentalist ideal, but by a global movement of retracting state intervention (GOLDENBERG and PRADO, 2003; LANDI, 2006). In 1988, the privatization of public services was authorized^x and in 1990 the National Plan of Privatization was approved.^{xi} Nevertheless, because specific regulations had not yet been developed, it was not until 1995 that concessions for new hydropower plants were granted (PIRES and PICCININI, 1999). The five-year regulatory gap did not inspire the confidence of private investors and, again, stalled the growth capacity of the sector.

In 1995, the Law of Concessions^{xii} established the criteria for concession of public services to private actors. In the case of hydroelectricity generation, concession for the use of the public good (water) should be granted to the highest bidder in a public proceeding (VELLOSO, FREITAS, and ABBUD, 2014). Other institutional innovations included: in 1996, the creation of a special autarchy named National Agency of Electric Energy (Agência Nacional de Energia Elétrica, or Aneel) with autonomy to regulate and oversee the electricity sector^{xiii}; in 1997, the opening of a market for negotiation of electricity (Mer-

cado Atacadista), and the creation of a National System Operator (Operador Nacional do Sistema, or ANS) the entity responsible for the technical regulation and integration of the national electricity system (FERREIRA, 2000; PIRES, GIAMBIAGI, and SALES, 2002; FARIAS, 2006; Agência Nacional de Energia Elétrica, 2014; CMEB, 2014f).

Despite the privatization, the installed electricity capacity grew only 36.2 percent between 1997 and 2002 (GOMES and VIEIRA, 2009). This increase was insufficient to meet the expanding residential consumer market and industrial demands. The picture became grim as natural limits imposed by periods of drought affected the water reservoirs of many dams, decreasing their generation capacity. The precarious situation of the sector culminated in regional and nation-wide blackouts, including the infamous 2001 “Apagão”. During the years preceding this crisis, energy analysts had warned the government that the privatization plan had not anticipated the need for appropriately regulating provision expansion and that it had failed to make arrangements insuring that the private sector would invest reliably (ROSA, 1995).

Figure 1 - Newspaper and Magazines Depicting the Energy Crisis in 2001



Left hand side: Warning about possible energy deficits that would affect economic growth. Experts accuse the government of relying on “rainfall” to ensure electricity supply (Source: *Jornal do Brasil*, 26 Sept. 2000); Right hand side from top to bottom: Magazine cover declaring “Prepare yourself: it is going to shut down: the economy will grow less, there will be layoffs, exports will be cancelled and inflation will grow” (Source: *Isto é* Magazine of May 16th 2001); Veja Magazine covers: “What else needs to happen?” Calling readers’ attention to the new mandatory measures imposed on users to save energy and “Without light – get ready: rationing will turn your life into hell, slow down the economy, and it can destroy the governments’ image” (Source: *Veja* Magazine, May 2001)

As a reaction to the “Apagão”, the government created the second Chamber for the Management of the Electricity Crisis (Câmara de Gestão da Crise de Energia Elétrica, or CGCE) on May 10th 2001^{xiv} and a Commission for the Analysis of the Hydro-thermal System of the Electric Energy Sector.^{xv} The Commission concluded that the imbalance between the sectors’ planning and investment, the delay in infrastructure works, and the consistent growth of residential and industrial consumption had been the main causes of the electricity crisis (KELMAN, 2001). Responding to the urgent need for action, even though the system had been partially privatized, in 2004 Eletrobrás was excluded from the Privatization Plan and resumed its role as leading public company in the promotion of the sector’s expansion.

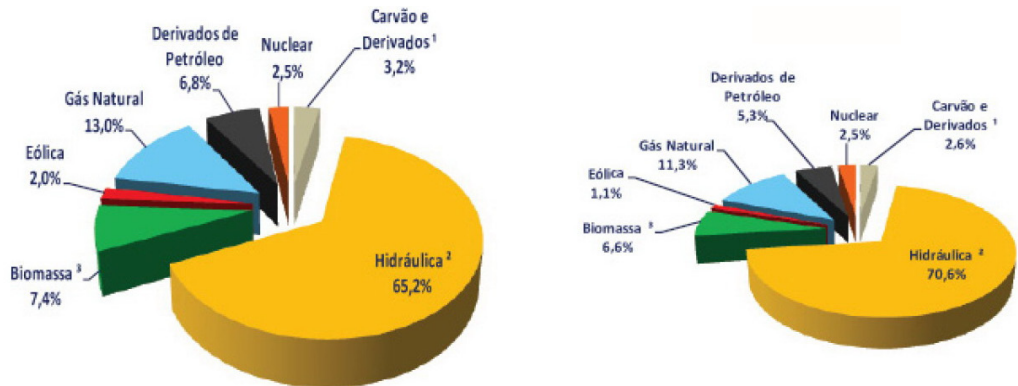
Besides the participation in publicly-owned companies, nowadays Federal Government’s involvement influences the electricity sector in two chief ways: (i) through the control of electricity prices and expansion of electrification (Programa Luz para Todos) to stimulate consumption and industrial productivity, and (ii) through financial incentives via the National Development Bank (BNDES) to large infrastructure works included on the Program of Acceleration of Growth (Programa de Aceleração do Crescimento, or PAC) for the expansion of generation capacity. Amongst the 10 largest (and most expensive) PAC works in 2013, only one was not directly associated with energy production via oil-, thermo-, nuclear-, or hydro-power generation (PAC, 2013).

Since 2004, the government enacted laws to guarantee the affordability of electricity.^{xvi} Simultaneously, it strove to guarantee the just remuneration of companies to ensure their commitment to service expansion. In 2013, electricity prices to final users were reduced by 20 percent, a measure that has been difficult to maintain. One of the measures to achieve this reduction involved changing the procedures of public bids for concessions concerning the use of water for electricity generation: the winning bid was no longer chosen by the higher price paid for the use of a public good, but by the lowest price of kilowatt-hour produced. In turn, some experts point out that the lower energy prices stimulated higher consumption levels even when the reservoirs of hydropower plants were at their lower side (VELLOSO, FREITAS, and ABBUD, 2014, 184).

The problem lies in the fact that, since the crisis of 2001, whenever the production capacity of hydropower plants is low due to seasonal changes of the volume of river water or the “bad hydrology of the past years” (Balanço Energético Nacional 2014), thermoelectricity generation steps in to respond to the constantly growing demand and avoid the risk of new electricity shortages. Recently, the percentage of hydropower generation has decreased in relation to the corresponding increase in thermo power.

Because thermoelectricity is more expensive than hydroelectricity (by nearly double), and given that concessionaires were not authorized to pass the higher costs of production to final users, the government had been offering subsidies,^{xvii} which increased the overall debt of the sector. Finally in 2015, the strained economic situation led the government to cut the subsidies. The cutting of subsidies combined with the low water level of hydroelectricity plants’ reservoirs and the incremental use of thermo-power has reflected in increasing electricity prices. The Brazilian Central Bank has announced an estimated 38.3 percent price increase to be paid by final users in 2015 (BANCO CEN-

Figure 2 - “Brazilian Energy Matrix”



Source: Balanço Energético Nacional, 2015

The yellow slice of the pie-chart shows the percentage of hydroelectricity reliance in Brazil.

TRAL DO BRASIL, 2015). Even now, the shadow and the rhetoric of another electricity crisis have not yet been cast away and still populate the media and political discourses (BOADLE, 2013). Oftentimes, new “urgent” measures are suggested to avoid what some perceive as a new possible crisis.

Considering that the increased participation of thermo-electricity within the Brazilian’s energy matrix is criticized by its higher pollution levels and production costs, and the constant need to expand electricity production to keep up with economic growth and social inclusion through electrification, the government has been pressured to expedite the concession and construction of new hydroelectricity plants. Since the potential for expanding the generation capacity is now geographically focused in the Amazonian North, more sensitive political, environmental, and social issues have unavoidably become part of the electricity sector’s agenda, polarizing the debates around the construction of dams.

3.2. Blaming the weather, blaming the People

As history attests, the introduction of hydroelectricity in Brazil was related to the growing demands of national industries and the changing patterns of residential consumption. The widespread embrace of hydropower was an economic imperative based on abundant water resources availability (resulting in lower costs/higher profit margins) and the consequent comparative advantage over other sources of power at the time, such as imported coal. Hydroelectricity became structurally embedded in the development of the sector in Brazil. The argument that much later was put forward said that hydropower plants were also a renewable, clean, and sustainable source of electricity and this became incorporated into the discourse of the sector in parallel with the first discussions on climate change issues on an international scale. More precisely, Brazil began officially engaging and associating sustainability discourses to the hydropower industry during the

late 1970s and 1980s as a result of severe criticism regarding the social and environmental impacts of large dams:

Changing the quality of growth requires changing our approach to development efforts to take account of all of their effects. For instance, a hydropower project should not be seen merely as a way of producing more electricity; its effects upon the local environment and the livelihood of the local community must be included in any balance sheets. Thus the abandonment of a hydro project because it will disturb a rare ecological system could be a measure of progress, not a setback to development. Nevertheless, in some cases, sustainability considerations will involve a rejection of activities that are financially attractive in the short run (OUR COMMON FUTURE, 1987).

Ever since, Brazilian authorities have put forward hydropower plants as inductors of regional economic development, and as ‘sustainable’ because they derive energy out of a ‘renewable’ resource to produce “clean” energy (as opposed to fossil fuels). Rivers flow continuously and hydrological cycles are maintained through evaporation and precipitation, allowing the continual feeding of reservoirs for transformation into electricity. However, hydroelectricity is “renewable” only to the extent that hydrological cycles remain constant. Periods of scarcity have, as observed, affected the capacity of electricity production even of large dams. The weather is often blamed for the bad performance of the electricity sector.

However, sustainability is not only an environmental concern; it is also a social issue. As mentioned, the option of damming a river for electricity production competes with other possible water and river uses. Pinguelli Rosa, Brazilian physicist and member of the Intergovernmental Panel for Climatic Change (IPCC), speaking on the sustainability of hydropower dams, jokingly states that “even anthropophagy is sustainable if the ratio of people being born is kept higher than the amount of people getting eaten.” However, he adds, “sustainability it is not a matter of numbers only: it is a moral issue revolving around the kind of society we choose to become” (ROSA, 2011).

Since, historically, the electricity produced by dams - especially in the Amazon - has largely benefited industrial and extractive activities and urban centers (Bermann, 2014), the social inception of such large-scale projects needs urgently to be re-thought. If expansion of electrification to rural areas is a recent and still far from accomplished policy; if dammed water serves virtually to benefit industries and places with no connection to (or benefits for) the impacted areas (EMPINOTTI and WARNER, 2012), losing touch with its territory and social constituency, then, the appropriation of this water also becomes socially questionable. In this regard, thorough impact studies and the participation of those directly affected become paramount to legitimize any external form of appropriation of disputed natural resources.

Despite partial sector privatization, water remains being considered to be a “public good”. If, legally speaking, water is a public good under federal protection, interventions to modify the watercourses, its forms of control, transformation, and appropriation of

value, must therefore include the interests of the people, directly or through rightful representatives. Long-term planning becomes the most important way of ensuring that electricity provision responds to national needs while allowing enough time for meaningful deliberation and sound socio-environmental impact assessments. Planning and meaningful deliberation, as highlighted in this brief discussion, have partly been prevented by an on-and-off-again rhetoric of crisis that has stressed all sector reforms thus far: institutional innovation and hydropower projects have mostly been implemented under the pressing rhetoric of urgency in a crisis management situation.

In the history of the sector, the social impacts of hydropower plants were already acknowledged by the first comprehensive piece of legislation. In 1934, the Code of Waters^{xviii} already mentioned on article 143 that: “In all uses of hydraulic energy, cautionary requirements of public interest shall be satisfied: (i) Of nutrition and needs of the riverine populations; (ii) Of public health; (iii) Of irrigation; (iv) Of navigation; (v) Of protection against floods; (vi) Of conservation and freedom of circulation of fish; (vii) Of disposal and elimination of water”.

These early concerns were only developed into legal mechanisms for social and environmental impact assessments (EIAs) in the 1980's and 1990's. However, sound studies of socio-environmental impact, the establishment of oversight agencies, and effective citizen participation, especially those directly affected, remain short of implementation. The sector has accustomed, throughout the years, to a mode of expansion that generally disregards the wishes of the affected people. It takes time to deliberate. Cases such as Itaipú, Balbina and Tucuruí dams, for example, each had substantial local impacts in terms of flooded forest area and population displacement, but had no citizen participation. As discussed in relation to the Belo Monte case, these social and environmental safeguards are far from being a *fait accompli*: they still suffer from hasty, “under pressure” expedited implementation.

The recent attempts to implement socio-environmental assessments and citizen participation mechanisms in licensing processes in Brazil, more than just being incomplete, already face obstacles that threaten their very existence. They have become the new scapegoat for problems related to sector planning (BOANADA FUCHS 2015). Some key-figures of the Electricity sector, such as Márcio Zimmermann, former Mines and Energy Minister and Executive Secretary, have made open media statements attributing responsibility for delays in PAC works (including hydropower plants) to the slowness of the environmental-licensing processes (JORNAL NACIONAL, 2014). Concessionary-companies of the electricity sector, such as Norte Energia (in charge of Belo Monte), also follow the same argument (REVISTA VEJA, 2015). Instead of furthering the development of democratic instruments of governance, public statements like these lay the foundation for externalizing blame for any possible sector failure to the agencies of environmental protection and the affected populations themselves.

It is an exaggeration, if not an intentional diversion from the mismanagement and investment choices of the sector, to blame the recently established democratic forms of governance for the possible energy shortages that may occur in the future. The rhetoric of crisis is not novel to this sector; on the contrary, the sector has always been affected by it.

Expedited execution of works exerts pressure on all those involved in the implementation of a dam, and hasty progress fails to allow sufficient development and consolidation of these instruments. Curtailing the further development of EIAs and democratic participation mechanisms will only contribute to the proliferation of social conflicts, producing negative impacts and delaying even more the much necessary expansion of the sector.

Concluding Remarks

It was precisely a sense of urgency, prompted by the electricity sector's crisis-driven rhetoric, which compressed the time allowed for the socio-environmental studies and the democratic participation of the affected people in the Belo Monte dam's licensing process. The social frustration that followed, combined with the adverse impacts in the region, lack of responsiveness regarding the negotiations with the local population involving issues of displacement, indemnifications, impacts on the livelihoods, etc., plunged the region into numerous conflicts. Protests and repeated occupations of the worksites have halted the construction of Belo Monte (and many other dams across the country) several times. At the time this article was being concluded, the Belo Monte dam was already partially finished and started its operations, filling up its reservoir. Yet, several fishermen and indigenous peoples were occupying the entrance to the remaining worksites to protest the absence of clear answers regarding compensation schemes and mitigation of impacts, including high fish mortality – the main source of nutrition and income for many (BRITO, 2015;).

The National Electricity Agency (ANEEL) had earlier pressed the Norte Energia Consortium in charge of the construction of the dam, threatening to fine it when there would be delays in the delivery of the contracted electricity. In line with what had earlier been stated by the Mines and Energy former Minister, the consortium's defense was that "delays were caused by strikes, occupation of the worksites, court decisions, and the slow issuing of licenses by the public authorities" (AMARATO, 2014).

As mentioned earlier, democratic and environmental safeguards, as well as social protests, have become the official scapegoat for justifying any delays in the expansion of the sector. The link between these protests and overlooking social participation (with clear mitigation and compensation plans) is not even being considered by the sector.

The rhetoric crisis has again been picked up by the media in recent years. Instead of offering sound socio-environmental studies and involving the affected population, accommodating their specific needs, fears fuelled by this rhetoric have also given space for proposals that curtail even further these still embryonic mechanisms. Some suggest the revision of the legal framework that regulates EIAs in order to "expedite" the process even more.^{xix} In the same vein, other legislative proposals want to revise article 231 of the Constitution which protects indigenous lands and ensures their participation in cases of hydrological and mining exploitation inside their lands.^{xx} Less, not more, information and participation is being advertised as a solution to reform the sector. No one in the sector seems to have noticed that the medicine, in this case, is likely to be causing the patient's disease.

If the history of the sector, and of Belo Monte, teach us anything is that energy crises are nothing new to the sector (and nothing that is directly caused by environmental or democratic laws). Besides the need for expansion to meet growing demands, the rhetoric of crisis throughout the years (either real or rhetorically constructed) has been one of the driving forces of the sector. Given a perceived abundance of water resources, each time, more dams are proposed to provide electricity to the growing needs of the country and counter the fear of electricity shortages (ironically, even when the problem is related to rain scarcity). Dependence on water for energy production, besides offering obvious comparative advantages given the country's natural abundance, unfortunately also allows for shifting blame for each crisis from the management of the sector and the efficiency of its actors to external variables such as the weather or the people.

The electricity sector needs to recognize its over-dependence on hydroelectricity, particularly in a world that we know will experience ever more frequent precipitation shifts and higher temperatures. The fluctuations of hydrological cycles, together with the problems of planning and investments discussed previously, has already exposed the system to several imbalances. The response to these imbalances have invariably adopted a rhetoric of crisis that oversteps social and environmental safeguards fuelling the hasty adoption of policies favoring the expansion of the sector towards more sensitive areas, without the simultaneous effective implementation and further development of the appropriate protective frameworks. When the sector progressively advances over the Amazon, over previously protected areas, social frustration is bound to arise. In fact, the present disregard for social and environmental procedures in the construction of dams in the Amazon is at the root of most conflicts. It is, therefore, a self-inflicted disease that only contributes to perpetuate the longer-term conflicts surrounding the expansion of the electricity sector.

We are now standing at a crossroads. Will we deepen and develop environmental and social safeguards or will we succumb to the rhetoric of fear and crisis and keep doing business as usual in the more than 60 dams already planned to be built in the Amazon? One of the ways of countering the lobby based on the permanent rhetoric of crisis is of course to remember and learn from the past. Crises were not introduced by democratic or environmental safeguards. They are a consequence of growing demands, combined with poor planning, over-reliance on hydropower, lack of diversification, and by inconsistent investment over the years — ills that plague other areas of public planning in Brazil as a whole. More proactively, however, one could also suggest that there is an urgent need to finally institutionalize and develop the participation of the affected populations into the licensing process and to reinforce the role of agencies in charge of socio-environmental impact studies (such as IBAMA, FUNAI and associated researchers): they should not be dependent on invitation, and not subsumed to the timeframe of other “technical” parts of the EIA; on the contrary they should become independent processes with their own adequate timeframes for action. It is time to talk about a truly *socio-environmental* licensing process that respects the democratic governance of public goods such as the water use for electricity generation.

Notes:

- i Law No. 6.938/1981
- ii CONAMA is the National Environmental Council created by the same law that established the National Environmental Policy. It is an organism for deliberation and consultancy concerning the implementation of the National Environmental Policy.
- iii CONAMA Resolutions No. 01/1986 and No. 237/1997.
- iv Copies of all law suits can be accessed at: www.mpf.mp.br/pa. Webpage last visited on March 08th, 2016.
- v The Brazilian population grew from seventeen million to thirty-one million in twenty years (1900-1920) (Gomes et al., 2003).
- vi Decree No. 20,395 of September 15th 1931; Decree Law No. 23,501 of November 27th 1933.
- vii Law No. 3,890-A of April 25th 1961.
- viii The agreement allowed for the private sector to continue operating in an area that required less initial investment but provided higher financial returns. It also increased the generation capacity and control of the sector by the state, slowly developing a strong national expertise in the field.
- ix Decree No. 83,940, of September 10th 1979.
- x Article 175, Brazilian Federal Constitution (1988).
- xi Law No. 8.031/1990, later replaced by Law No. 9.491/1997.
- xii Law No. 9.074/1995.
- xiii Law No. 9.427/1996.
- xiv Interim Measure No. 2.198-3; later Decree No. 4.261.
- xv Presidential Decree on May 22nd 2001.
- xvi Laws No. 10.847 and 10.848 of March 15th 2004.
- xvii Law No. 12,839 of 2013.
- xviii Decree No. 24.643, 1934
- xix Two specific law projects being proposed to expedite environmental licensing in Brazil are: the PL 3729/2004, and the for PLS 654/2015.
- xx Proposal to Amend the Federal Constitution No. 215.

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BLAMING THE WEATHER, BLAMING THE PEOPLE: SOCIO-ENVIRONMENTAL GOVERNANCE AND A CRISIS ATTITUDE IN THE BRAZILIAN ELECTRICITY SECTOR

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Abstract: The governance of natural resources is intrinsically linked with the governance of people. However, in practice, social aspects are often viewed as secondary to more technical and pressing issues in the implementation of projects such as dams. The use of water for electricity production in Brazil is a *cas d'excellence* that exemplifies how the bypassing of socio-environmental safeguards and democratic participation of affected people leads to conflicts. These conflicts delay infrastructure works, such as the Belo Monte Dam, that are found to be crucial for the equilibrium of electricity supply. Recently, social manifestation have become the scapegoat for the sector's crisis. This article discussed the "electricity crisis" from a historical policy analysis perspective. It concludes that the present disregard for social and environmental procedures is a self-inflicted disease that only contributes to the longer-term state of conflicts in the expansion of the electricity sector in Brazil.

Keywords: Electricity sector, dams, crisis, democratic governance of water.

Resumo: A governança de recursos naturais está intimamente ligada com a governança de pessoas. No entanto, na prática da implementação de projetos como barragens, aspectos técnicos são priorizados como mais urgentes em detrimento das questões sociais. O uso da água para a geração de eletricidade no Brasil é um caso de excelência que exemplifica como a desconsideração das salvaguardas socioambientais e da participação social leva invariavelmente a conflitos. Estes atrasam os trabalhos de infraestrutura que são considerados essenciais para o equilíbrio do sistema elétrico nacional, como ocorreu em Belo Monte. Recentemente, manifestações sociais se tornaram o bode expiatório para justificar crises no sistema. Este artigo visa a discutir o conceito de "crise" desde uma análise histórica das políticas públicas do setor. O artigo conclui que a presente desconsideração dos procedimentos sócio-ambientais é uma doença auto-infligida que contribui para um estado de permanente conflitividade na expansão do setor elétrico brasileiro.

Palavras-chave: Setor Elétrico, barragens, crise, governança democrática da água.

Resumen: La gobernanza de los recursos naturales está estrechamente vinculada con la gobernanza de la gente. Sin embargo, en la práctica de proyectos como represas, aspectos técnicos se priorizan a expensas de los sociales. El uso de agua para la generación de energía eléctrica es un caso de excelencia que ejemplifica cómo el incumplimiento de salvaguardias sociales y ambientales y de la participación social, conduce a conflictos. Estos retrasan obras de infraestructura consideradas esenciales para el sistema eléctrico nacional, como ocurrió en Belo Monte. Recientemente, manifestaciones sociales se han convertido en el chivo expiatorio para justificar todas las crisis del sistema. Este artículo tiene como objetivo discutir el concepto de “crisis” desde un análisis histórico de políticas públicas del sector. El artículo concluye que este desconocimiento de los procedimientos socio-ambientales es una enfermedad auto-infligida que contribuye a un estado de tensiones permanentes en la expansión del sector eléctrico brasileño.

Palabras-clave: Industria Eléctrica, represas, crisis, gobernanza democrática del agua.
