

Chapter 2

Sustainable Dam Development in Brazil: The Roles of Environmentalism, Participation and Planning

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Abstract The chapter explores the reforms of Brazil's environmental and resettlement policies and the influence of domestic and external actors on its dam-related legislation and practices. It analyses two hydropower plant projects: Itaparica, built during the military regime; and Santo Antonio, a public-private project still under construction. The analysis begins with an overview of the relevance of hydropower to Brazil's development plans since the military regime and of the central administration's strategy of developing the country's hydropower potential by maintaining a clean mix of energy sources for the supply of electricity. Domestic opposition to the authoritarian regime had culminated in the promulgation of a highly participation-oriented Constitution in 1988. The chapter then analyses decision-making processes in Brazil's dam-related bureaucracy and the role allotted to civil society since then. By singling out two problem areas—Environmental Impact Assessment and resettlement—the chapter addresses changes in the normative framework and in practice. Case studies then consider these processes, taking Itaparica as a case where planning and participation did not lead to satisfactory implementation in resettlement terms; and Santo Antonio as a possible example for future projects as regards the involvement of affected people at earlier stages of the project cycle.

2.1 Introduction

Brazil differs from the majority of countries in terms of electricity supply in that it relies on renewable energy sources. Although biomass has undergone significant growth in recent years compared to other sources, hydropower remains the key electricity generation technique. In 2007 85.2 % of Brazilian power was generated

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mainly in large hydroelectric power plants, most of which relied on large reservoirs with multi-annual storage capacities. The operation of the transmission and generation facilities by a centralised operation system observes an optimisation rule that takes the storage level at each reservoir and the different hydrological regimes throughout the country into consideration.

Most of the existing reservoirs were built during the military regime (from 1964 to 1985), which means that, given the development and growth policies at that time, decisions to build large dams and flood large areas of land did not necessarily consider the resulting social and environmental impacts. Such decisions were normally taken on a sectoral basis. However, with the re-establishment of democracy and the promulgation of the Federal Constitution (1988; “CF/88”), which requires public participation in decision-making processes, decisions on the construction of dams and the flooding of land are now taken jointly by society, a number of government institutions and especially the population affected.

Furthermore, environmental legislation and standards have developed significantly since the promulgation of the CF/88. As hydropower is still considered necessary to meet growing demand and so to enable economic growth to continue in the country, more new dams are expected to be built but their construction will be subject to a comprehensive Environmental Impact Assessment (EIA), addressing social as well as environmental impacts (i.e. resettlement issues, too) and forming part of a rigorous three-stage environmental licensing process.

As the decision-making on and construction of dams before and after CF/88, during the liberalisation phase and after the reform of the electricity industry in 2003/2004 have different characteristics, the degree to which environmental and social norms were observed differed in each case. As a consequence, two dams have been chosen: the first was planned and built before 1988; the second was planned and built after CF/88.

The next section addresses the strategic role of dams in Brazil. [Section 2.3](#) then conducts a country-level analysis, depicting the decision-making framework for dams in Brazil, identifying actors and networks involved in this process and indicating political opportunities. [Section 2.4](#) presents the two dams in their historical context, while the final section links the two levels of analysis and discusses whether and how the findings relate to and substantiate the three hypotheses.

2.2 The Strategic Role of Hydropower in Brazil

The Brazilian electricity market has been growing at a sustained annual rate of 5 %, requiring the annual addition of 4,500–5,000 Megawatt (MW) of installed generation capacity to maintain economic growth. After the energy rationing in 2001, guaranteed energy supply was one of the main political priorities of the administration headed by President Lula, who was in office between 2002 and 2010.

The 10-Year Energy Plan 2007–2016 (MME 2008a) refers to the development of 90 projects by 2016 (including 19 already under construction), adding more than 36 Gigawatt (GW) of installed capacity to the system. Although the National Energy Plan 2030 (MME 2008b) indicates that hydropower capacity is expected to decrease in comparison to other sources, it should still play a dominant strategic role.

Electricity supply in Brazil is dependent on existing hydropower plants and on large reservoirs with multi-annual storage capacities. The origin of the Brazilian hydropower-based electricity mix is linked to the operation of the state-owned Eletrobras (Centrais Elétricas Brasileiras) and its subsidiaries, but the construction of recent hydropower plants results from both public and private investments and from a stable economy.

Brazil's economically viable hydropower potential is estimated at 260 GW, of which only 30 % is either operational or under construction (World Bank 2008). This means that, if this potential is to be developed at levels similar to those in more developed countries, the subject of sustainable dam construction must be addressed.

The strategic role of hydropower in Brazil and the central government's confidence in the comprehensiveness of the way this issue is being addressed has led officials to call for the recognition of hydropower as a renewable and sustainable source of energy. One commonly recognised¹ event illustrating this political positioning is the role played by the former Minister of Mines and Energy and now President Mrs Dilma Rousseff, head of the Brazilian delegation to the International Conference for Renewable Energies, which took place in Bonn in 2004. In that it included large hydropower plants in the category of renewable energy sources (CEPEL 2004), her intervention was decisive for the outcomes of the Conference. The Political Declaration (Programa Chile Sustentable 2004) agreed by government officials makes no reference to hydropower plants, while the Resolution for the International Parliamentary Forum on Renewable Energies (2004) explicitly refers to hydropower as renewable.

However, the government has encountered strong resistance to the implementation of this strategy. A sign of this political difficulty is the growing number of thermal generation plants contracted to supply the market in the years to come, since the government has been having difficulty obtaining the environmental licences needed before hydropower projects can be handed over to project developers. Yet, at the same time the increasing role of thermal plants has been sharply criticised by society in general (Goldemberg 2009; IRN 2009; Novaes 2009), thus producing a paradoxical behaviour of Brazilian society.

¹ As mentioned in several interviews (I05122008; I26122008; I30012009; I06022008; I12032009b; I13032009; I25032009; I22042009; phone call T11032009).

2.3 Changing Policies and Decision-Making Frameworks for Dams in Brazil

2.3.1 *Triggers of Change*

Political developments relating to the construction of dams in the periods discussed in this chapter contributed to and were affected by global trends. While a new democracy confident of its participative and decentralized foundations was built in 1988 as a reaction to 20 years of dictatorial military regime, the successor governments were constrained by the changes in the global political economy caused by response to the oil crises of the 1970s and the “Washington Consensus”. This is the political and economic context in which the decision-making framework began to evolve.

2.3.1.1 Democratization of the Country: The Federal Constitution of 1988

The worst examples of Brazilian hydropower projects in terms of environmental and social impacts were built during the military regime. It was argued that they were crucial for the country’s development, which was based on the growth of the economy and industrial activity. A supply of cheap electricity was considered essential for the success of this strategy.

Brazil faced a slow transition from military to civilian government (from 1974 to 1989) at a time of economic slowdown, which, on one hand, strengthened the opposition to the regime and to its development strategy and, on the other, enabled a positive association of concepts related to democracy, such as participation and decentralization, with those related to environmental protection. The reinforcement of democratic values began with an amnesty in 1979, which prompted the return of activists with new ideas and strategies. This was followed by the publication of a law on the protection of “diffuse interests”,² which was passed in 1985 (Law 7347). This movement culminated in the promulgation of a participation-oriented Constitution in 1988 (Hochstetler and Keck 2007). The Constitution’s longest article is devoted to the protection of the rights of the individual (Article 5).

According to Hochstetler and Keck (2007, p. 13), democratisation was also the origin of the Brazilian concept of socio-environmentalism, since it convinced environmentalists:

(...) to broaden the social bases of their appeal to be able to influence newly democratic decision-making processes in a context of economic crisis (...) Based on this experience, many environmental movements in Brazil have focused as much on social equity and participation as on protecting the environment.

² Diffuse interests or rights are those interests or rights shared by a group, class or an indeterminate category of individuals in the same situation.

The Constitution itself was a result of a participative process. 122 popular amendments were presented to the constituent assembly, 83 of them being adopted. The gains achieved by these popular amendments included the recognition of the rights of the Indian,³ the entitlement of associations to submit acts of unconstitutionality to the Supreme Court and the creation of the popular initiative of drafting laws (Lopes 2008, pp. 55–58).

The 1988 Constitution altered the framework for decision-making on the construction of dams. Two problem areas covered by CF/88 should be highlighted as possibly having the greatest impact on this framework: (i) the distribution of powers under the federative pact and (ii) the protection of the environment.⁴

Brazil's federal system has three constitutionally designated levels of political authority: the federation (usually called the Nation, the Union or the State), the states and the municipalities. Each has elected executive and legislative branches.

Because of the 20 years of dictatorial military regime, which concentrated many of the decisions and resources at federal level, CF/88 guarantees that responsibilities, resources and powers were shared among the three levels. The powers of the states are known as residual powers, since they are the powers which the Constitution does not explicitly prohibit the states to exercise (Article 25(1)), resulting in vague constitutional mandates, as pointed out by Hochstetler and Keck (2007, p. 14).

As a result of decentralised principles and consequent jurisdictional conflicts, Brazilian Federalism, known as the “federative pact”, has been trying to find a way to deal with decision-making on projects or policies that have national repercussions, such as the construction of new hydropower plants. Thus, at national level, this decision-making process must consider the distribution of powers throughout the federation, the many actors who may have conflicting interests and rights of veto in certain subject areas.

The drafting of the legislation specifically concerning the environment, which is also covered by CF/88, began in the 1980s, when shared powers became a principle: Article 10 of Law 6938/81 (which created the National Environmental Policy) and Articles 4 and 5 of Resolution 237 of the National Council on the Environment (CONAMA) of 29 December 1997 form the legal bases for the shared powers of the three levels of government.

CONAMA laid down general rules defining the jurisdiction of the Brazilian Institute for the Environment and Natural Renewable Resources (IBAMA). IBAMA is responsible for the licensing and inspection of potentially or effectively polluting activities that have a national or regional impact, concern two or more states or are located on the border with other countries, on Indian lands or on areas protected by the Union and activities involving nuclear materials. CONAMA

³ A whole chapter of CF/88 (Title VIII, Chapter VIII, Articles 231 and 232) is dedicated to this subject.

⁴ Article 5 (LXXIII); Article 23 (VI); Article 24 (VI); Article 24 (VIII); Article 129 (III); Article 170, VI; Article 174, § 3°; Article 186 (II); Article 200 (VIII); Article 220 (II) and the whole of Chapter IV of Title VII (Article 225).

assigned to the environmental agencies of the states, the federal district and to implementing bodies the authority to license and inspect potentially or effectively polluting activities affecting two or more municipalities or forests and other forms of natural permanently protected vegetation. Furthermore, CONAMA made the municipal level responsible for the licensing and inspection of projects with a local impact.

One consequence of federalism as applied to the environment is the considerable variation in subnational environmental policies and practices accompanied by conflicting norms. This may make for greater flexibility and consideration of local specificities but also, in processes involving the construction of hydropower plants, for example, differences in the standard and quality of environmental licensing processes and studies. In some cases, this is solved in practice in a rather informal way, as observed by Hochstetler and Keck (2007), with IBAMA sometimes asked to take over the environmental licensing process that is the responsibility of a state environmental agency.⁵ This causes further delays in the issuing of environmental licenses, increasing associated risks and costs.

As for water resources, CF/88 assigns the ownership of rivers that flow through two or more states or along or across borders with neighbouring countries to the Union (cf. Article 20). Article 21 also delegates to the Union responsibility for creating the National System for the Management of Water Resources, i.e. the institution ruling water resources issues in view of the federative pact.⁶

With respect to indigenous communities, Article 231 (1) of CF/88 recognises the indigenous groups' original right to the lands traditionally occupied by them (those used for living, for production activities and for their cultural and physical reproduction). Nevertheless, indigenous lands are federal lands forming part of the Union's exclusive domain, and, as stated above, the exploitation of water resources on these lands is subject to previous legislative authorisation, which entitles indigenous communities to be heard at specific public hearings (Article 231(3)). Considering that much of Brazil's remaining hydropower potential lies in the Amazon region (MME 2008b), where the majority of indigenous groups live, the role of the National Congress in dam decision-making is expected to grow in the years to come.

The protection of indigenous groups' rights is the responsibility of the Ministry of Justice, its associated foundation, the Brazilian National Indian Foundation (FUNAI) and the *Ministério Público*. In civil society, the indigenous organisations that fight for indigenous rights include the Indigenous Missionary Council (CIMI),

⁵ Also addressed by I30012009 and World Bank (2008, p. 37), which mentions the case of the UHE Itumirim, the Preliminary Licence for which was issued by the environmental agency of the state of Goiás, in view of the vagueness of the term "local/regional environmental impact". Following a question by the *Ministério Público* the judicial authority decided in favour of this Ministry, and the process had to be restarted, this time conducted by IBAMA.

⁶ Kelman and Veras (2008) point to the most important constitutional provisions with respect to hydroelectricity and the construction of dams: Article 20 (VII); Article 21 (XXII (b)); Articles 21 and 175; Article 22 (IV); Article 49 (XVI); Article 176.

which is linked to the Catholic Church, the Pro-Yanomami Commission (CCPY) and the Coordination of Indigenous Organisations of the Brazilian Amazon (COIAB). Nevertheless, some claim that indigenous groups are easily manipulated⁷ by preservationist non-governmental organisations (NGOs) seeking to block the construction of such infrastructure as hydropower plants, given their constitutional prerogatives. The preservationist NGOs' fight for indigenous rights also attracts international attention in view of the sensitiveness of the indigenous rights issue in the global arena.

The *Ministério Público* is the State institution responsible for ensuring the effectiveness of legislation. Where legislation is violated by State organs, the *Ministério Público* is required to enforce (usually through the judiciary) compliance with the law (Lopes 2000). The *Ministério Público* is frequently referred to as the fourth branch of the Brazilian State because, although legally bound to the executive, it is not legally subordinate to it. As its task is to ensure that public agents respect the law, the members of the *Ministério Público* are entitled to functional independence, which also means that each prosecutor (procurador) is able to bring forward legal actions. The structure of the *Ministério Público* conforms to the distinction made by Brazilian federalism between the Union and the states, meaning that there is a *Ministério Público Federal* (at the level of the Union) and several *Ministérios Públicos Estaduais*, at the level of the states.

Although civil society organisations do not need the intervention of the *Ministério Público*, they choose in most cases to address their claims to the *Ministério Público's* prosecutors, who then file the public civil actions (Lopes 2000; I04032009). One of the reasons for this approach may be that, of all the players involved in the environmental licensing process, the *Ministério Público* has the best educated staff, significant resources and a broad mandate (World Bank 2008; Lopes 2000; I04032009).

The *Ministério Público* does not need to be called upon by other agents to act. Prosecutors may bring a public civil action based on a newspaper article, for example. In this respect its relationship with civil society is qualified in two ways: it is open to demands from civil society, thus constituting an agency that vocalises socially relevant issues as well as giving them political relevance; and it frequently induces demands, favouring specific societal dynamics. The *Ministério Público* is thus an institution whose activities reduce the cost of organising the process of bringing social concerns to the attention of the public sphere and of society in general (Lopes 2000).

Despite the relevance of its role of vocalising social demands and giving them political importance and of acting as a monitor of public decisions and policies, the *Ministério Público* is frequently criticised for the action it takes, especially in the case of the environmental licensing process of hydropower projects. Considering the delays the prosecutors cause in the licensing process, the World Bank (2008)

⁷ I25032009; I04032009; Costa (1997).

claims that licensing agency employees fear penalties which may be imposed on them by the *Ministério Público* under the Environmental Crimes Act and the Administrative Improbability Act, which hold officials personally and criminally liable even when they act in good faith in complex circumstances. They therefore keep raising new demands concerning the scope of EIA as a means of deferring the need to take a decision (whether or not to issue the environmental licence). Many interviewees confirmed this perception, and the press has sometimes referred to cases where officials have been sued or intimidated by the *Ministério Público*.

The concern of the legislative branch for the environment is generally welcomed by society.⁸ One visible consequence is that the environment has been taken up by all the parties of the political spectrum⁹ and that the Environmental Parliamentary Front (*Frente Parlamentar Ambientalista*)¹⁰ is composed of 12 (of the 80) senators and 465 (of the 513) deputies.

On the other hand, although Congress members may share environmental concerns, they may also welcome projects that have the potential to attract new investment to their regions. Hydropower plants are under a constitutional obligation to pay financial compensation. This is ruled by the Brazilian Electricity Regulatory Agency (ANEEL), and in 2009, 22 states and 634 municipalities were entitled to financial compensation, which amounted to R\$ 1,647 million (this amount comprises also the royalties paid by the binational Itaipu hydropower plant, which are governed by another, similar distributive rule) corresponding to almost 0.1 % of Brazil's gross domestic product in that year. The interest of the legislative branch in these projects must not therefore be overlooked, even if the resources are in fact managed by the executive branches at each level of the federation. Even elected representatives from political parties which are in opposition benefit from having supported a project that increased government revenues.

One important issue to be addressed following the changes caused by CF/88 to the decision-making framework for the construction of hydropower plants is the relationship between social movements and NGOs and the apparatus of state, in view of the behaviour of individuals of organised civil society who constantly migrate from the governmental to the non-governmental sphere and so form a symbiotic relationship between NGOs and social movements on the one hand and the administration on the other, especially in the environmental field. Bernardo (2001, pp. 51–52) mentions that the Ministry of Environment (MMA) is usually regarded as a large NGO right in the middle of the State, an impression corroborated by some interviewees.¹¹ She argues that the proximity of civil society organisations to the State and to the formulation of environmental policies grew in the 1990s, when the State

⁸ I05122008; I06022009.

⁹ I05122008.

¹⁰ See <http://www.frenteambientalista.com>. Accessed 04 July 2010.

¹¹ I06022009; I12032009b; I29042009; I13032009; I12032009c. On the other hand, because personnel shortages in the State grew during the 1990s, the fact that the State looked for experts in specific fields where this know-how already existed is not a peculiarity of the environmental field.

also backed sustainable development in environmental policies. Until then the concept of command and control had persisted in environmental policies, this being inconsistent with the State's limited capacity to exercise control and impose penalties. Bernardo points out that the approximation of the State and NGOs occurred mainly because of changes to the requirements of the providers of international resources. This type of resource has been critical not only for Brazilian (environmental) NGOs, but also, as Bernardo emphasizes, for the expansion of public environmental institutions, which have historically relied on foreign resources.

International funding became vital for the implementation of environmental policies in Brazil after 1992, when the State began to play a decisive role in the circulation of foreign resources in the environmental field, since large sums had accumulated in programmes in which it acted as intermediary between the funding source and NGOs (Bernardo 2001, p. 52). The leading financial institutions were the World Bank, the Inter-American Development Bank (IADB) and the United Nations Development Programme. Bernardo argues that it was mainly due to these institutions that consultation mechanisms were consolidated and public participation in environmental policies was ensured, these being made conditions for the loans they allocated. Financial institutions realised that integrating NGOs into the implementation of the funded programme was a way of avoiding the inefficiency of the official use of resources since it ensured that they reached the target group and contributed to the achievement of local goals. NGOs thus became instruments of public policies at the target, which the aforementioned financial institutions and the administration were virtually incapable of reaching directly. The partnership with NGOs was also advantageous to the State as a means of satisfying financial needs in the environmental sphere.

With the passage of time, however, the link between the State and NGOs in this field became more complex because of individual relations and combinations of events. In other words, the individuals who deal with environmental policies in Brazil may be found in different positions at different times: they may be working within the administration, for the administration (as consultants), in NGOs as partners of the administration, or in NGOs opposed to certain activities of the administration.

In addition, this "democratic bureaucratic regime" (Lopes 2008) may also help to explain why the public administration is still present in situations that could be left to private actors. The administration has been playing an important role as an intervening and mediating agent in negotiated agreements between project developers and affected people since 2003. The role played by the *Ministério Público*, which is a public institution as well as an intervening and mediating agent, and its use of Protocols for Adjustment of Public Conduct (TACs) also demonstrate that the presence of a public entity is important in giving validity to negotiated solutions. In this regard, the complaint¹² about the administration generally intervening in or coordinating discussions (not encouraging, therefore, the free membership drive—*associativismo*) may be considered pertinent.

¹² I13022009a.

2.3.1.2 From Economic Liberalisation and Privatisation to Energy Rationing (1995–2001)

The 1990s were marked by fundamental changes in Brazil's economic policy aimed at establishing a new currency (*Plano Real*, from 1994), opening markets to competition and reducing national indebtedness. The administration also tried to implement the liberal concept of the State: as policy-maker and regulator rather than the owner of economic assets. Consequently, one of the main results in this period was a major transfer of economic assets from the State to the private sector under the National Privatisation Programme (PND) created by Law 8301 in 1990.

Until the privatisation programme of 1995 the main investor in the hydropower industry had been Eletrobras, a semi-public holding company controlled by the Union. As the “Concessions Act” of 1995 satisfied the constitutional requirement that tenders be organized for all new public service concessions, including new hydropower plants, private companies began investing in these projects. They included such international companies as Tractebel (from the Belgian group SUEZ), Endesa and Neoenergia¹³ (both of Spanish origin). Some of the private investors are also of Brazilian origin, an example being the CPFL Energy Group. From 2003 to 2009 installed capacity in generation projects (different sources) grew 22,384 MW at a total investment of R\$ 31,995.5 million, with private investors accounting for 81 % of this amount.

Other relevant private agents are the machinery and supply industries and contractors companies of national and foreign origin. They dominate in the construction of dams for hydropower generation, and their participation in such projects as shareholders is gaining ground. Other investors whose role has been growing since the 1990s are pension funds and *BNDES Participações*,¹⁴ the investment company of the Brazilian National Bank for Economic and Social Development (BNDES).

BNDES, which is linked to the Ministry of Development, Industry and Foreign Exchange, played a major role in financing privatisations during the National Privatisation Programme and is now the main long-term source of finance for investment in all branches of the economy. The bank is the main financial institution for hydropower plants in Brazil, offering the cheapest loans in the market. BNDES is also engaged in indirect financing through *accredited financial institutions* (almost entirely financial institutions operating in the Brazilian banking sector), which means that private banks as well as other state-owned banks are involved in the financing of new hydropower projects, but usually with resources from BNDES. It is important to realise that many of these banks are signatories to the Equator Principles (Cardoso 2008). Nevertheless, it is possible to identify a few recent projects partially financed by multilateral agencies or regional development banks, such as the Cana Brava and UHE Campos Novos hydropower

¹³ Banco do Brasil and Previ (Banco do Brasil's pension fund) are also Neoenergia shareholders.

¹⁴ BNDES Joint-ventures.

plants (UHEs), which relied on resources from the IADB and began operating in 2002 and 2007, respectively.

It was also during the 1990s that the restructuring of the regulatory model of the Brazilian Electricity Supply Industry (ESI) began. In practice, the goals were to replace the previous vertically integrated model, based on natural monopoly concepts, with a new system founded on free price formation, competition and separation of generation, transmission, distribution and commercialisation activities. This first phase of the sectoral reform featured the implementation of the Restructuring the Brazilian Electricity Supply Industry Project (RESEB).¹⁵

This first market-oriented reform led to a supply crisis that lasted from June 2001 to February 2002. It culminated in an electricity rationing plan, caused by low rainfall, which had reduced reservoir levels (at that time, hydropower plants produced 90 % of the electricity supply), by the depletion of the reservoirs in the 1980s, but mainly by a lack of expansion of the installed capacity of power generation projects.¹⁶ The rationing highlighted the need for the revision of the institutional model of the Brazilian ESI, which was reformulated by President Lula's administration (2003).

2.3.1.3 New Government and New Role for the State in the Brazilian Electricity Supply Industry from 2003

The energy rationing of 2001 and the consequent reduction of economic growth caused changes to policies affecting dams. The New Model of the Electricity Sector of 2003/2004 resulted in the resumption by the State of its planning role, and led the Ministry of Mines and Energy (responsible for this function) to become proactively involved in such related areas as the environment and water resources and to interact more frequently with the Presidential Staff Office (responsible for the coordination and integration of government action) and the Ministry of Environment (with its associated institutions), among others.

As a consequence, since March 2004¹⁷ the electricity policy has changed substantially,¹⁸ primarily to attract the investment needed to guarantee the

¹⁵ The most important institutional innovations under the RESEB Project were the creation of the National Council for Energy Policy, with responsibility for proposing national energy policies, of the Brazilian Electricity Regulatory Agency as an independent regulatory entity, of the National Power System Operator, with responsibility for controlling power generation and transmission activities in the interconnected electricity system through a tight pool dispatch system, and of the Wholesale Electric Energy Market, responsible for undertaking all electricity purchase and sale transactions and for promoting the accounting of agents' transactions in the multilateral short-term market under market rules.

¹⁶ For more details on the electricity supply crisis in Brazil, see Melo et al. (2009).

¹⁷ For more details on this new phase of the reform at the Brazilian ESI (and of the reform as a whole), see Correia et al. (2005, 2006), Melo et al. (2007), Melo et al. (2009), Araújo et al. (2008).

¹⁸ With the publication of Law 10848 and Decrees 5081, 5163, 5177 and 5184.

development of the sector. To attract investment in generation, long-term power purchase agreements (PPAs)—15 and 30 years (in which the delivery period of the energy is fixed, as well as the day on which the project must start operating)¹⁹—have been auctioned with a view to controlling energy contracting by the distribution utilities. The aim of this scheme is to reduce the risks to investors (who can then raise long-term loans for their projects with the backing of their PPAs). The auction by least/lowest price stimulates economic efficiency and in principle gives correct signals for the cost of expanding the system through competition.

The long-term PPA made BNDES the major financier of hydropower plants in Brazil. Interviewees²⁰ gave several reasons for this development:

- Multilateral financial institutions had been the major financial backers of infrastructure projects implemented by the State in Brazil until the 1970s, but they have refrained from financing new infrastructure projects since then because their new agenda has focused on market reforms and because of pressure from NGOs.²¹
- After a decade of sectoral adjustments and reforms (the 1990s), a period in which investment in new infrastructure was unsuccessfully left to private investors (with great hopes of foreign investment) and in which macroeconomic stabilisation was achieved, the State was ready to reestablish its goals and propose its own agenda.
- The reform of the ESI in 2003 identified and solved a major problem created by the previous reform, which had been based solely on the self-organising capacity of the free market: the need for a predictable cash-flow for hydropower plants, which are highly dependent on long-term capital. The energy sales auction, which resulted in a 30-year Power Purchase Agreement for the energy-selling agent (and, in this case, the developer of the new hydropower plant project), made it possible for BNDES to finance these projects by a “project finance” procedure (adding an alternative to the standard corporate financing)²² for the least expensive resource on the market.
- BNDES trusts the environmental licensing process. It also controls and monitors the use of resources to satisfy the conditions set out in the environmental licences (concerning compensatory and mitigating environmental and social measures to be taken by the investor) since the bank’s employees are considered personally liable for the environmental crimes defined in the environmental legislation.²³

¹⁹ Agents who do not meet these requirements are liable to severe penalties.

²⁰ The financing of hydropower plants was discussed with a total of 12 interviewees.

²¹ For more information, see da Costa (2002), Mallaby (2004).

²² In a “project finance” procedure, the loan guarantee accepted by the banks is the project cash flow, whereas in the case of “corporate financing” banks ask project developers for corporate guarantees, such as stocks. In view of the size of this type of project, the more project developers become involved in different projects, the fewer corporate guarantees each has to provide.

²³ I13022009b; T23072009 (see Law 9605/1998 and Law 6938/1981).

- BNDES is, moreover, one of the world's largest development banks and one of the few institutions in the world that can afford exposure to the risk inherent in such large individual projects as hydropower plants. Being a development bank, it has operational policies that may favour investments with long maturation periods, unlike commercial banks, which may prefer short-term returns.

As to the administration's call for feasible projects, the main change introduced by this model was that only projects equipped with a preliminary environmental licence might be included in the portfolio of projects to be auctioned. This requirement was introduced to avoid reliance on energy which could not be offered as a consequence of environmental (and social) problems. When President Lula's administration took office in 2003, it inherited a long list²⁴ of unbuilt hydropower plants and of dissatisfied investors (holding the concession rights) complaining about an unpredictable environmental licensing process.

The projects proposed by the administration also reveal a major change in the planning and study phases for hydropower projects. The previous, more liberal model permitted any agent interested in studying and planning a hydropower project to seek authorisation from ANEEL to carry out inventory and feasibility studies. ANEEL was able to issue study authorisations to more than one agent, having, at the end of the study phase, to choose the best study (the criterion being the best development of hydraulic potential)²⁵ on which to base the standards for the auction²⁶ and for future construction.²⁷ The innovation introduced by the "New Model" was that the Energy Research Company (EPE, linked to the Ministry of Mines and Energy), a specialised technical and public institution created in 2004 with the main objective of conducting the necessary research and planning in the energy sector, has since been permitted to study and propose future hydropower plants. In this context, decision-making on future plants is expected to become more coordinated and integrated from the earliest stages, with the public interest becoming the target function of the decision (which was not necessarily the case when almost all stages of the process were conducted by agents of the industry/investors).

In the former framework, investors played the predominant role, being responsible for studies and for applying for all sorts of permits and licences. The new framework, on the other hand, gives the government a more important role, allowing the investor to act from the basic project phase onwards. While this may make for a more centralised decision-making process in the hands of the government, it also means that the decisions are to be taken in a more coordinated manner, given the involvement of different areas and levels of government.

²⁴ According to I06022009, this list consisted of 45 projects.

²⁵ In accordance with Article 5 of Law 9074/1995.

²⁶ In respect of expected costs, budget and prices.

²⁷ I06022009. In this case, the cost of all alternative studies is reimbursed to the agents who financed them.

Moreover, this trend may preclude conflicts of interests, since investors usually put a great deal of effort into minimising costs in order to improve project profitability. It also makes the government more accountable for its decisions.

2.3.2 Specific Decision-Making Processes in Dam-Related Policy Arenas

In Brazil decisions on the construction of hydropower dams are governed by legislation and policies in three public policy areas: energy, water resources and the environment.

Energy policies are framed in a multi-level policy area whose main institutions have been created since the first market-oriented reform (Fig. 2.1).

In this regard, one important function of the Ministry of Mines and Energy (MME), with the support of the EPE, is to assess options on different planning horizons through the development of plans for the expansion²⁸ of Brazil's energy and electricity industries, such as the National Energy Plan (PNE), studies of Brazil's future energy mix, the Hydroelectric Inventory of Hydrographic Basins and the 10-Year Energy Expansion Plan (PDEE), which are submitted for public discussion.

As to the participative feature of energy planning in Brazil, provision is made for public consultations, although they are a recent innovation and may have room for improvement. The *Ministério Público*, for example, recommended MME to extend the period of public consultation under PDEE 2009 and to make further public announcements, since the original period was set to begin on Christmas Eve 2008 and to end in January of the following year.²⁹ Although this recommendation was accepted, the *Ministerio Público* nevertheless promoted a public hearing on the PDEE at its headquarters in Brasília.

It should be realised that the discussion of energy planning still attracts the attention only of organised civil society, including universities,³⁰ and that Brazilian society as a whole is still not³¹—or is only just becoming³²—interested in participating in this kind of debate, although it may take an interest in the consequences of the decisions made.³³ Although the final impact of participation in the planning phase may be considered low, the pressure exerted by society has already proved capable of changing such projects as the UHE Belo Monte (auctioned in 2010).

²⁸ For more details, see MME (2007, 2008a, b) and EPE (2006).

²⁹ I04032009.

³⁰ I13022009b; I13032009.

³¹ I26122008; I04032009; I06022009; I30012009.

³² I16012009; I12022009.

³³ I05122008.

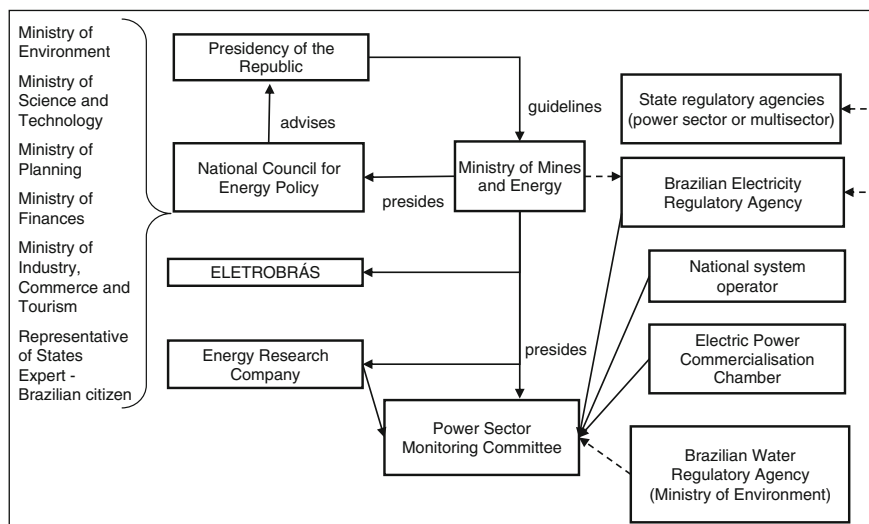


Fig. 2.1 Multi-level policy arena in the electricity sector (2010) (author's own compilation)

The energy sector has more experience of planning than other industries.³⁴ It began considering the socio-environmental variable in its studies in the 1980s, in response to the questioning of the environmental impacts of hydropower projects implemented in the 1970 and 1980s and to pressure from international bodies, and especially financial institutions.³⁵ The EPE is also responsible for conducting the studies that lead to the Integrated Environmental Evaluation (AAI)³⁶ of hydrographic basins, with the focus on hydropower development. This responsibility resulted from a Protocol for Adjustment of Public Conduct issued by the *Ministério Público* as a condition for the continuation of the licensing of the UHE Barra Grande. The EPE developed the first AAI in 2005, for the Uruguay river basin. Since then, a further thirteen river basins have been the subject of an AAI. This is, however, very limited coverage, when it is remembered that Brazil has 12 hydrographic regions and 56 planning units.

An AAI thus enables a basin to be described, its fragilities and potentialities to be identified (temporal and spatial evaluation of cumulative and synergic impacts), directives to the power sector which must be borne in mind in the environmental licensing of new and the management of existing hydro plants to be defined and detailed and complementary programmes to be recommended to other sectors. AAIs are also subject to at least two public hearings, the first being held when potential conflicts are being identified, the second when the preliminary

³⁴ Previously undertaken by Eletrobras and now by MME/EPE.

³⁵ For more details, see EPE (2006).

³⁶ Given the differences between AAI and Strategic Environmental Evaluation, an AAI would be what the World Bank considers to be a sectoral Strategic Environmental Evaluation (I12022009).

conclusions and directives are presented.³⁷ The AAI of the Uruguay river basin entailed sixteen public consultation seminars.³⁸

Taking the water resource and environmental policy areas into consideration, Fig. 2.2 shows that related decisions take place in the same arena.

The management of water resources follows a unique pattern that extends beyond the Brazilian federative system. If river basins are viewed as spatial units (based on the French system),³⁹ each with its own committee and plan, a new paradigm in terms of decentralisation and participation in decision-making processes emerges. The National System for the Management of Water Resources,⁴⁰ provided for in Article 21 of CF/88 and set up under Law 9433 of 8 January 1997,⁴¹ is composed of the following organisations with shared powers:

- The Ministry of Environment and state secretariats are responsible for formulating water resource policies.
- The Brazilian Water Regulatory Agency and state water resource agencies are responsible for implementing the system, for granting rights to use water resources and for monitoring.
- Basin Committees, which are highly participative in composition, are responsible for deciding on water resource plans (which must be drawn up at central, state and basin levels) and on how to charge for the use of water resources.

Finally, it is worth mentioning that it is not yet clear what effects the water policies are having. While the current legislation requires decisions on dams to be based on basin plans, prepared by the appropriate river basin committee, plans have not yet been generally developed.

2.3.2.1 A Three-Stage Environmental Licensing Process

Brazil's environmental legislation dates back to 31 August 1981, when the Brazilian Environmental Policy (PNMA) was adopted⁴² and the National Environmental System (SISNAMA) and CONAMA were established. As the Ministério público (2004) points out, Brazilian environmental legislation was formulated in a context of growing environmental concerns in the 1970s and of increasing demands from the World Bank and IADB, for example, for environmental studies on projects which they were financing (including the Tucuruí and Sobradinho

³⁷ For more details, see EPE (2007).

³⁸ I12022009.

³⁹ A sign of international norm diffusion, in this case mainly through environmentalists who worked in the administration.

⁴⁰ More information about National System for the Management of Water Resources may be found in Braga et al. (2008).

⁴¹ Known as the "Water Law", which also instituted the National Policy for Water Resources (PNRH).

⁴² Law 6938/1981.

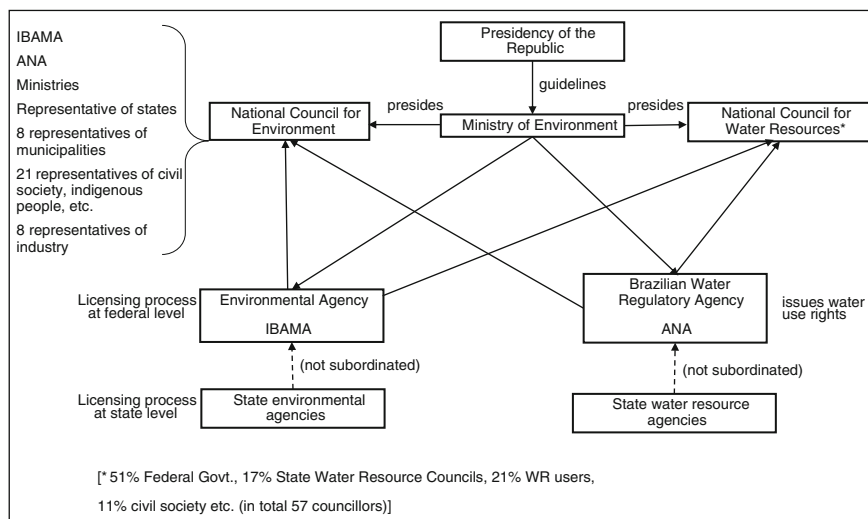


Fig. 2.2 Multi-level policy arena for the environment and water resources (2010) (author's own compilation)

hydropower plants). This was also a time of greater social mobilisation against the social and ecological consequences of major development projects implemented by the military regime, the reaction to these projects constituting a focus of opposition to the regime itself.

The CF/88 maintained this concern. Following the promulgation of the Constitution, IBAMA, the environmental agency at the federal level, was created in 1989.⁴³ In the same year the National Environmental Policy was updated.⁴⁴ It now requires prior environmental licensing together with environmental impact assessments of projects. Environmental licences are granted by the environmental agencies and bodies composing the National Environmental System (at federal, state and municipal levels). But even though IBAMA is required to issue these licences, it is also meant to consider technical assessments provided by municipal or state environmental agencies and by the Brazilian National Indian Foundation and the National Institute of Historical and Artistic Heritage (IPHAN). As a rule, states are entitled to elaborate their own sets of environmental laws and norms but, without contravening this principle, the central administration may also establish general licensing norms through CONAMA, standardizing procedures at national level.

As regards environmental licensing, the World Bank (2008) claims that "Brazil is one of the very few countries (if not the only one) to employ a three-stage process (Preliminary License, Installation License and Operating License), with

⁴³ Law 7735/1989.

⁴⁴ Law 7804/1989.

separate procedures for granting licenses at all three stages” (Summary Report 2008, p. 19). The Preliminary Licence is issued by the licensing agency for the planning phase of a project’s implementation, modification or expansion. The Installation Licence then authorises the beginning of the construction or installation of the project. Finally, the Operating Licence is required before project operation and may need to be renewed.

In the case of projects expected to cause significant environmental harm, such as hydropower plants,⁴⁵ the granting of the Preliminary Licence depends on the approval of both the EIA and the corresponding Environmental Impact Report (RIMA, a summarised version of the EIA), which present an environmental diagnosis for the influence area of the project, an analysis of environmental impacts of the project and alternatives, a list of measures designed to mitigate negative impacts and an indication of survey and monitoring programmes.⁴⁶ Investors are expected to bear the cost of environmental licensing, the most relevant components of which are environmental studies (EIA; RIMA, etc.), the arrangement of public hearings, the publication in the press of actions related to the licensing process, the implementation of the programmes for which the licences provide (mitigation measures) and environmental compensation.⁴⁷

Prior to EIA/RIMA, terms of reference are usually proposed by the project proponent and must be approved by an environmental licensing agency, which also submits them to the National Institute of Historical and Artistic Heritage and FUNAI for its appraisal.⁴⁸ These terms of reference define the scope of investigations to be undertaken and set out other requirements concerning, for example, the qualifications of the technical team responsible for drafting the studies. Although there is no federal legislation obliging the environmental licensing agency to comply with the terms of reference, it normally does so. As regulations on the environmental licensing process vary among the states, the enforcement of terms of reference also varies (MPF 2004).

Brazilian legislation⁴⁹ has also institutionalised a public participation mechanism as part of the environmental licensing process. Public hearings may be held whenever the environmental agency or the body responsible for issuing the licences sees fit or when called for by a civil society entity, by the *Ministério Público* or by 50 or more individuals. This means that public hearings usually take place before the issue of the Preliminary Licence, since the complaints and concerns voiced by local communities usually lead to the inclusion in the license of mitigation or compensatory measures to be taken by the project proponent, the

⁴⁵ Resolutions CONAMA 01/86 and 11/86.

⁴⁶ Resolution CONAMA 237/97.

⁴⁷ The payment of this compensation is obligatory for projects deemed to be responsible for significant environmental impacts. It is allocated to the financing of conservation areas/units from the integral protection group which may also be created as a result of the licensing process.

⁴⁸ According to I06022009, although the *Ministério Público* (MPF 2004) argues that these institutions and others (e.g. Cultural Foundation Palmares) should be more involved at this stage.

⁴⁹ Article 2 of Resolution CONAMA 09/87.

penalty for failure to do so being the withdrawal of the environmental licence. However, as public hearings may be called for at any moment of the decision-making process, they may also be held before the terms of reference are approved by the environmental agency. IBAMA demands announcements of public hearings to be made on the radio and on banners and published in the official press and in major local or regional newspapers. As the location must be easily accessed by the interested parties, more than one public hearing on a single project may be held. Even so, criticism continues to be levelled at the ineffectiveness of the local population's participation due to a lack of information on the project plans and a lack of people with appropriate technical skills (Fearnside 2006).

In 2008 the World Bank undertook a thorough and critical analysis of the environmental licensing process for the construction of hydropower plants, its main observations being:

- Most of the problems associated with environmental licensing in Brazil occur at the first stage of a three-step process owing to a lack of adequate planning at government level; a lack of clarity about which level of government (federal or state) has the legal authority to issue environmental licences; delays in issuing the terms of reference for the environmental impact assessments (EIAs) required by law; the poor quality of the EIAs submitted by project proponents; the subsequent uneven evaluation of the EIAs (by the government); the lack of a suitable dispute resolution system; the absence of comprehensive rules on social compensation for populations affected by hydropower projects; and the shortage of qualified social development specialists within the government's federal environmental agency (World Bank 2008, (I), p. 9).
- The preparation of the terms and the subsequent analysis of the EIA/RIMA are not always carried out in a competent, interdisciplinary fashion or within a reasonable timeframe as a result of insufficient financial and human resources of licensing bodies considering Brazil's growing need for energy (World Bank 2008, (I), pp. 24–25).
- Public prosecutors (Ministério Público) enjoy virtually unlimited autonomy in Brazil. This power has no parallel in any of the other countries examined in the study⁵⁰ and plays an important role in the lack of predictability and timeliness of the environmental licensing process. This allows prosecutors to be involved in technical or administrative acts related to the environment, which would otherwise fall under the mandate of the environmental agency (World Bank 2008, (I), p. 10, author's footnotes).
- "The licensing process offers few opportunities for dispute resolution. As a result, disputes related to environmental licensing tend to proliferate and are rarely resolved. This has led to a widespread perception that excessive environmental regulation exists in Brazil. The absence of regular revisions to the environmental licensing rules has led to an increase in political and social

⁵⁰ Norway, Colombia, Indonesia, Germany, China and Canada.

disputes; these disputes have created serious complications and delays for infrastructure projects” (World Bank 2008, (I), p. 20).

In this context, Hochstetler and Keck argue that “individual licensing decisions often become crucibles for the airing of giant social conflicts that really should be settled in other ways” (Hochstetler and Keck 2007, pp. 45–46).

This perception was also shared by some interviewees, who emphasised that the process is used to discuss energy planning options rather than the impacts of specific projects (indicating that society is not using the discussion forums created at planning level).⁵¹ One possible reason for this may be that licensing processes attract more attention from society as a whole than the planning phase and that this process suits those interested in a broad ideological discourse in a sphere where the focus should be on technical data and information.⁵²

The weakness of the environmental licensing process lies therefore in the lack of implementing capacities and resources of the licensing bodies (at federal and state levels). The considerable variation in subnational environmental policies and practices (along with conflicting norms) is an inevitable consequence of federalism applied to the environmental sphere in a country marked by strong economic disparities among regions.

The main steps in the overall decision-making on the construction of a hydropower plant within the current legal framework are shown in Fig. 2.3.

2.3.2.2 Resettlement

Resettlement policies and practices form part of the environmental licensing process. Discussions on resettlement are initiated through EIA/RIMA, which establishes the area that will be directly affected by the reservoir (comprising both flooded areas and areas that will be isolated by the reservoir),⁵³ indicating the number of people who will be displaced and possible solutions.⁵⁴ Once the Preliminary Licence has been granted, the concessionaire must draw up the Basic Environmental Plan (PBA), in which it must give more details about the specific measures it intends to take.⁵⁵ IBAMA encourages concessionaires to resolve conflicts and to begin implementing its resettlement and compensation programmes during the validity of the Installation Licences, 6 months before the reservoir is filled.⁵⁶

The second observation concerns the reasoning behind this procedure: it is a characteristic of the Brazilian environmental culture that it addresses social and

⁵¹ I30012009.

⁵² I25032009; I06022009.

⁵³ I30012009.

⁵⁴ I16012009; I30012009.

⁵⁵ I30012009; I13022009b.

⁵⁶ I30012009.

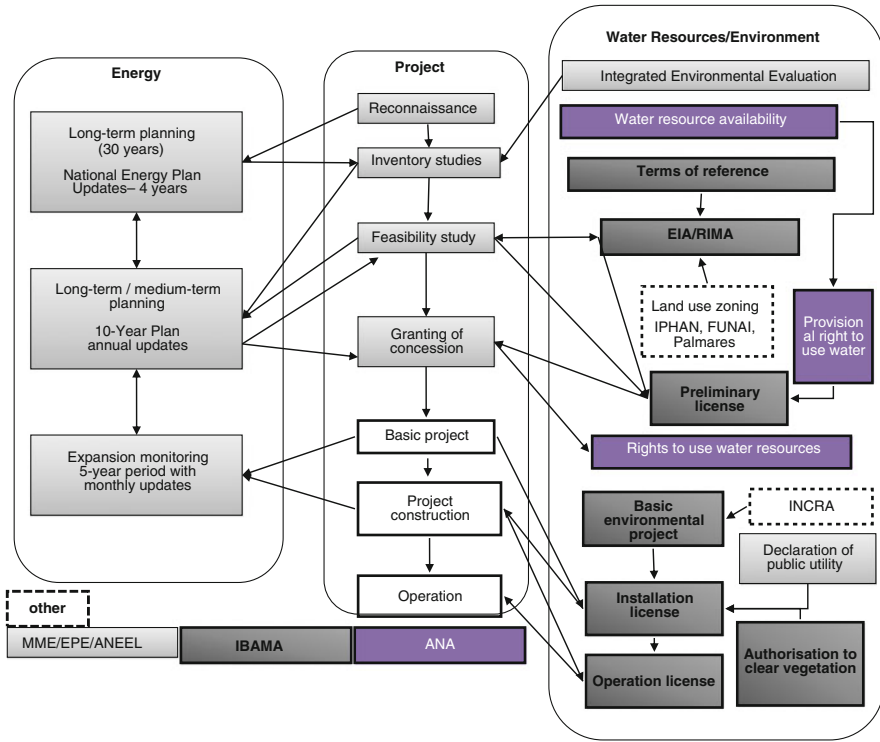


Fig. 2.3 Stages in water-/energy-related decision-making (author's own compilation)

environmental problems together, since they exacerbate each other. This includes a guarantee of the various rights of communities whose livelihoods depend on the environment (Hochstetler and Keck 2007, p. 109). This concept was officially adopted by the Ministry of Environment in 2003, when President Lula chose Marina Silva, a senator from the state of Acre and a symbolic leader of the rubber-tapper movement,⁵⁷ to be the head of the MMA.⁵⁸

Nevertheless, it must also be pointed out that Brazil does not have a specific set of laws and norms that address infrastructure-related resettlement, including hydropower plants.

As for other sets of laws and norms relating to resettlement, while CF/88 guarantees property rights, it also gives the State the right to expropriate private

⁵⁷ More details about the rubber-tapper movement may be found in Hochstetler and Keck (2007).

⁵⁸ I29042009.

property in the public interest. Article 5 (XXIV) called for future legislation⁵⁹ to establish the procedures for expropriation in cases of *public need*, *social interest* or *public utility*, with fair and previous pecuniary compensation. In the case of hydropower plants, ANEEL is entitled to issue a Declaration of Public Utility (DUP) at the request of the concessionaire in order to effect the expropriation of land or administrative easement (*servidão administrativa*).

Notwithstanding the constitutional right to compensation for land expropriated, social movements frequently question these processes, since they address only those who can prove ownership of the land rather than all those who live on and from that land.

Some of these social movements, whose anti-capitalist approach is closely linked to demands for agrarian reform, frequently oppose the construction of new dams, examples being the Landless Workers Movement (MST), Via Campesina and Movement of Dam-Affected People (MAB). The lack of information available to affected communities and their lack of political engagement have led social movements to claim the right to act as intermediaries in negotiations for compensation between affected people and project developers.⁶⁰ What these movements have in common is the rural land struggle.

On the general subject of the legitimacy of Brazilian NGOs, it is worth mentioning that they have all responded to changes in political opportunities: during the democratisation period and with the reinforcement of participative mechanisms and with NGOs acting in the 1990s as instruments of public policies at local level, which the State was unable to reach efficiently, NGOs were clearly recognised as representatives of society as a whole. But, as time passed and they became better organised, having established a wide network of allies, the presence of the same individuals in different organisations, networks, forums and councils⁶¹ and their ambiguous relationship with the State led to the NGOs' representativeness and legitimacy being questioned, since they were faced with the same problem as the State: it became more difficult for them to keep in touch with the grass-roots movements while representing them in every instance. In other words, people who had their origins in grass-roots movements became—paradoxically—remote from them as their involvement in all the newly created participative bodies grew.

This prompted the NGOs to change their support base: they do not seek to defend a cause as representatives of society, which would then legitimise their action. Their source of legitimacy is now the cause itself: the preservation of a certain species of fish or a certain biome or education in resettlement areas.⁶²

⁵⁹ Law 9785/1999; Provisional Measure 2183-56/2001; Law 11977/2009 updating Decree-Law 3365/1941; Law 2786/1956; Law 4686/1956; Decree-Law 856/1969; Law 6071/1974; Laws 6306 and 6602/1978.

⁶⁰ I06022009; I12032009a.

⁶¹ This problem of over-representation was also addressed by I22042009.

⁶² This reflection can be attributed to the discussions with I29042009.

Possibly because of the legacy of the pre-2002 administration (more than 40 hydropower projects approved but not constructed) or again because of common origins in the democratisation period, the Workers' Party administration began engaging in regular round table discussions with the MAB⁶³ to address this movement's claims and to set up an interministerial working group (GTI) in October 2003 to analyse those claims and propose solutions to problems of people affected by dams. The GTI is recognised (Casa Civil da Presidência da República 2004) as the first attempt ever in the history of Brazil's electricity industry to include this matter in the federal administration's official agenda. The GTI's report referred to the basic need to define who, in addition to the land-owners, is entitled to compensation for the effects of resettlement programmes, thus demonstrating that in Brazil everyone living in the area and from its resources is considered to be affected by a dam. The work of the GTI culminated in the publication of a presidential Decree⁶⁴ which established an official social and economic cadastre for the identification, the qualification and the public registry of dam affected people and created an inter-ministerial committee to work on the means to implement the referred cadastre. This committee will probably deal with the problem of establishing a starting point for social auditing procedures, since a growing number of dispossessed people are attracted to such areas in the hope of eventually benefiting from any resettlement, compensation or social programme or even from recently created job opportunities.

While there was clearly an absence of a specific set of norms relating exclusively to resettlement, it is nevertheless possible to detect a change in the way this issue has been addressed since the adoption of CF/88 and by President Lula's administration. Interviewees attributed the evolution of resettlement practices to several factors, such as a reaction to (and lessons learnt from) past experience,⁶⁵ the process of democratisation,⁶⁶ the role played since then by NGOs and social movements,⁶⁷ by the media⁶⁸ and by the *Ministério Público*,⁶⁹ and the reinforcement of environmental legislation and EIA/RIMA since CF/88,⁷⁰ since these procedures are addressed during the environmental licensing process.

The interviews revealed a wide range of instruments commonly used under resettlement policies to assist affected people and of goals pursued, although it was also said that concessionaires preferred pecuniary compensation (usually in the form of letters of credit), which causes severe social damage (such as the loss of valued neighbourly relations) and is therefore discouraged by federal

⁶³ Installed in April 2004 (Casa Civil da Presidência da República 2004).

⁶⁴ Decree 7342, of October, 27th 2010.

⁶⁵ I12032009b.

⁶⁶ I30012009; I25032009.

⁶⁷ I05122008; I30012009; I16012009; I13022009b; I25032009.

⁶⁸ I16012009; I30012009.

⁶⁹ I05122008; I30012009.

⁷⁰ I16012009.

administrations and by the *Ministério Público*.⁷¹ While compensation is still paid in the form of letters of credit, concessionaires are also expected to offer the options of collective resettlement, individual plots of land and land in areas close to cities, as people or families affected choose.⁷² Although it has become common practice to celebrate agreements, concessionaires are not (and could not be) encouraged to negotiate with social movements: they are meant to deal directly with affected people, they being entitled to select (or not to select) a representative to engage in the negotiations. Social movements tend to feel neglected when negotiations take place between the concessionaire and individual families or groups of people.⁷³

Living conditions in the resettlement areas are better than in the previous living areas,⁷⁴ since they have better infrastructure (access, public transport, sanitation, connection to the electricity grid, education and health care systems).⁷⁵ If they are in rural regions (as they usually are), there must be access to technical assistance,⁷⁶ since resettlement programmes must ensure not only the maintenance of livelihoods⁷⁷ but also economic inclusion.⁷⁸ Consequently, concessionaires are also expected to offer income programmes and replacement jobs.⁷⁹ In the latter case, they are required to provide a temporary income until the new land starts producing⁸⁰ and compensation for lost profits.⁸¹ The continuation of neighbourly relations should be ensured.⁸²

However, people who do not have property rights are also eligible to participate in resettlement and compensation programmes.⁸³ They include people with links to the affected area, such as employees, sharecroppers and tenants,⁸⁴ who are known as “children of the land” (*filhos da terra*)⁸⁵; and even those earning a temporary income from the work at the construction site (such as people selling snacks in the area) are eligible.⁸⁶ The environmental agency is, however, expected

⁷¹ I06022009; I04032009.

⁷² I30012009; I13022009b.

⁷³ I30012009; I06022009; I12032009a.

⁷⁴ I12022009.

⁷⁵ I05122008; I16012009; I26122008.

⁷⁶ I16012009.

⁷⁷ I06022009; I12022009.

⁷⁸ I12032009b.

⁷⁹ I05122008.

⁸⁰ I16012009; I13022009b.

⁸¹ I30012009; I06022009.

⁸² I12022009; I13022009b.

⁸³ I05122008; I26122008; I12022009; I13022009b; I12032009b.

⁸⁴ I30012009.

⁸⁵ I06022009.

⁸⁶ I30012009.

to set a minimum time for people to be considered bound to the land and so entitled to the benefits.⁸⁷

Even people whose income previously came from informal or illegal⁸⁸ activities are eligible for resettlement and compensation. Two possible reasons were cited by the interviewees⁸⁹: these programmes are not intended to be discriminatory,⁹⁰ but are designed to provide for social compensation rather than the mere disbursement of financial resources.⁹¹ It may be inferred that the administrations are adopting this lenient position because it is thought that these people had no choice before the dam but to engage in informal or illegal activities, a situation which should be changed with the economic resources created by the construction of the hydropower plant.

The selection rules on the acquisition of new land require the concessionaire to offer the affected people more than one option to choose from.⁹² The land is to be close to the original location,⁹³ have similar qualities,⁹⁴ be productive, be reasonably flat,⁹⁵ have good infrastructure and ensure easy access.⁹⁶ How much compensation is paid depends on the value of the assets (comprising not only the land but also machinery and equipment)⁹⁷ and revenue lost.⁹⁸

The renewal of licences and the issue of the next ones are considered to be opportunities for the environmental agency to perform its task of determining whether the agreed social compensation measures have been taken.⁹⁹ The withdrawal of an environmental licence or its non-renewal is the penalty imposed on concessionaires if they fail to take the agreed measures.¹⁰⁰

Recent efforts to cope with the social aspects of dam construction are also recognised by the World Bank (2008, (I), p. 27, author's footnote):

In discussions with government agencies we noted that the social problems associated with hydropower projects, which tended to outweigh the purely environmental issues, were duly recognized. Considerable interest was shown in seeking solutions. It should be mentioned that the many social demands arising during the licensing stages of hydropower developments are essentially social ones. Many of these are often unrelated to the project

⁸⁷ I16012009.

⁸⁸ Like illegal mining or sand removal.

⁸⁹ I05122008; I12022009; I16012009; I30012009; I06022009.

⁹⁰ I12022009.

⁹¹ I05122008.

⁹² I13022009b; I12032009b.

⁹³ I05122008; I16012009; I26122008.

⁹⁴ I16012009; I12032009b.

⁹⁵ I30012009.

⁹⁶ I16012009; I30012009.

⁹⁷ I16012009; I12022009; I13022009b.

⁹⁸ I16012009; I06022009; I12022009.

⁹⁹ I05122008; I26122008.

¹⁰⁰ I12022009; I13022009b.

and generally precede the project itself. The burden of costs to satisfy these demands cannot be borne entirely by the project proponent. The Government could play a more effective role in the licensing process as a partner and meet demands of this type. Based on Conta 10,¹⁰¹ the present study has estimated that the costs involved in addressing the social issues linked to environmental licensing are of the order of US\$ 94 per installed kW on average.

From inventory data the World Bank concluded that the figure observed for social and physical environmental costs in relation to total plant costs (both measured in terms of installed kW) may be “estimated at an average of 12 %. Outlays for social aspects, such as population resettlement, support to communities and municipalities and supplying infrastructures, represents the major part of these costs (about 80 %), whereas the costs associated with the physical environment represent only 2 % of the total cost” (World Bank 2008, p. 26).

2.4 Case Studies

Now that the current regulatory framework, the agents and networks involved in the process and the structural and policy changes in recent decades have been presented, this chapter will analyse individual dam projects where these changes can be observed. Table 2.1 provides an overview of the project characteristics.

2.4.1 Dam Building During the Military Dictatorial Regime and the Newly Implemented Democracy (1974–1988): The UHE Itaparica

The best known projects built during this period, with the exception of the binational UHE Itaipu on Brazil’s southern border with Paraguay, were undertaken in the northern and northeastern regions of the country. One of the many projects is presented: the UHE Itaparica,¹⁰² a plant built in the northeastern state of Pernambuco on the River São Francisco. The plant is known for its controversial and expensive resettlement experience. Its extensive reservoir affected several municipalities in the densely populated São Francisco valley. As many people were displaced, the resettlement programme became a challenge for the military regime.

The UHE Itaparica was planned to increase electricity supply in the northeast (Salomão 2007), since links to other systems were poor and the strategy was to

¹⁰¹ Conta 10 is a component of the budget structure used by the EPE and Eletrobras to estimate the cost of future hydropower plants.

¹⁰² Its name changed to UHE Luiz Gonzaga, as a tribute to a regional and renowned musician.

Table 2.1 The dam projects investigated at a glance (author's own compilation)

Historical moment	Military dictatorial regime	Newly regulated environment
Hydropower plant	Itaparica	Santo Antônio
Region	Nordeste	Norte
State	Pernambuco	Rondônia
River	São Francisco	Madeira
Year of the concession contract	1945	2008
Equity holders	Chesf	Furnas, Odebrecht, Andrade Gutierrez, Cemig e investment fund
Origin	Public	Public and private
Planning studies	Enenorde, plano 90	Eneram
Year of the study	1973	1973
Beginning of construction	1979	2008
Operation (1st turbine)	1988	2012
Installed capacity (MW)	1480	3150
Reservoir area (km ²)	828	271
Reservoir volume (hm ³)	10782	2075
Maximum maximum level (m) ^a	305	70
Total investment	US\$ 1622 million	R\$ 13500 million
Major equipment suppliers	Gie, Siemens, Voith	Alstom Hydro, Bardella, Areva, Siemens, Va Tech, Voith Siemens Hydro
Financial institutions	International Bank for Reconstruction and Development, Eletrobras	BNDES, Santander, Banco do Brasil, Banco do Espírito Santo, Banco do Nordeste, Banco da Amazônia, Itaú BBA e Caixa Econômica Federal
Displaced population	41,200 (incl. 1,200 indigenous persons)	578 non-Indian families ^b
Environmental studies	EIA/RIMA not required, several studies undertaken	ToR, EIA/RIMA, Strategic Environmental Evaluation, four public hearings, 64 participative meetings
Licensing bodies: licences	IBAMA: LO	IBAMA: LP, LI, LO

^a above sea level^b resettled population as to 2009 (negotiations with affected population is still in progress)

ToR: Term of Reference

LI: Installation Licence

LO: Operation Licence

LP: Preliminary Licence

develop hydropower projects at a time of high oil prices. It would help to regularise the flows of water to the Paulo Afonso hydropower plants located on the river downstream. The 1,480 MW hydropower plant was built by Chesf, another subsidiary of Eletrobras, and was financed by the International Bank for Reconstruction and Development (of the World Bank Group) and by Eletrobras. Its construction began in July 1979 and it went into operation only in June 1988.

The Itaparica dam has a reservoir area of 828 km²,¹⁰³ having flooded three municipalities in the state of Bahia (Chorrochó, Rodelas and Glória) and four in the state of Pernambuco (Belém do São Francisco, Floresta, Petrolândia and Itacuruba) and displaced some 7,000 families (about 40,000 persons), including 200 families of Tuxá Indians (about 1,200 people) (Salomão 2007).

The news of the construction of a new dam in the densely populated region of Itaparica was spread by people contracted by Chesf to pave the way for the project and to identify all those to be resettled and by *pólo sindical* (an organisation representing different municipal rural workers' unions) (Scott 2006). The need to organise was a response to previous experience of resettlement in the area of the UHE Sobradinho (Lima 2007; Scott 2006). *Pólo sindical* was conversant with documents guiding the actions of the State and was well advised by people and institutions with experience of defending the rights of excluded people. The strength of *pólo sindical* and of other workers' unions during the negotiations with Chesf since 1986 is confirmed by Scott (2006), the entire resettlement process being a result of an agreement signed in 1986 between Chesf and the affected people, represented by *pólo sindical*.

Like the UHE Sobradinho resettlement programme and as the population of the UHE Itaparica area lived mainly from subsistence agriculture (Lima 2007), the resettlement programme for the UHE Itaparica focused on rural resettlement and on keeping the resettled people working in agriculture (Scott 2006). This was Chesf's response to the affected people's motto "Land for Land".

Lima (2007) argues that the São Francisco Valley Development Company, responsible for irrigation systems and technical assistance, and Chesf designed a self-management model entirely new to the resettled people, who were used to traditional agriculture. In other words, although instruments and technical assistance were generally available, the people did not know how to operate irrigation systems, leaving them feeling strange, vulnerable and incapable and having to relearn cultivation methods. Besides this, the use of agrochemicals and pesticides, common in modern farming at that time, caused new health problems (Scott 2006). The different completion times of the irrigation systems and the agro-villages gave rise to new social and economic differences among resettled families (Lima 2007).

With the construction of the villages and the resettlement programme delayed and indeed paralysed, Chesf created an additional mechanism to give the resettled families an income until they started producing on their own: the Temporary

¹⁰³ See http://www.chesf.gov.br/portal/page/portal/chesf_portal/paginas/sistema_chesf/sistema_chesf_geracao/conteiner_geracao?p_name=_Luiz_Gonzaga. Accessed 18 August 2010.

Maintenance Allowance (VMT). They are still receiving the VMT, since the construction of the agro-villages was not completed on the ground that they would not be economically viable. As a result, many resettled families are entirely dependent on Chesf (some families have benefited from such alternative income as pensions and wages), having failed to reestablish their farming activities (Lima 2007). Chesf, on the other hand, has not offered them the opportunity of developing any other economic activity in which the VMT could be invested to guarantee the continuation of their social position as workers (Scott 2006; World Bank 1998).

The World Bank's Independent Evaluation Group described the programme as a "costly misadventure": the cost of the programme presents a ratio of resettlement costs to dam and power plant costs of almost 1:1. It concluded that "the outcome would have been less likely if the Bank and CHESF had designed an effective compensation package," since "few of the resettled families were technically qualified or experienced commercial farmers," the handling of the VMT being the most delicate issue within the overall solution because it "(...) has been converted from a short-term palliative into a permanent component of families' household economies" (World Bank 1998, pp. 1–3).

Given the outcomes of the various resettlement programmes, Lima (2007) believes that the UHE Itaparica programme represented an advance in qualitative terms mainly as a result of social mobilisation by the workers' unions, which succeeded in obtaining compensation, a resettlement programme and VMTs for the resettled population. "Polo sindical's remarkably professional performance as a leader of an unorganised peasantry" was also highlighted by the World Bank (1998). Another recognised gain was the access to land granted to all farmers: landowners, employees, sharecroppers and tenants. Landowners were also entitled to compensation for flooded and lost assets. Lima accepts that the construction of the hydropower project created employment opportunities, that the new city has better infrastructure and access to public services and that there are now more dynamic commercial and farming activities. But he also emphasises that this development was not accomplished without affecting lives formerly based on friendship, neighbourhood and family ties, even if the planned resettlement had provided for the preservation of some community ties. Scott (2006), on the other hand, refers to the continuing dependence of resettled people on Chesf and its VMT, recalling that, before the dam, there had been almost no unemployment in the region and that, after the dam, these workers lost their production basis.

As regards the resettlement of the Tuxá, Salomão (2007) claims that the *Ministério Público* played an important role in defending their rights. In 1991, after FUNAI had denounced Chesf for failing to comply with targets and deadlines set in an agreement signed in 1987, the *Ministério Público* ensured that Chesf signed a new agreement in 1994, the first to involve the Tuxá community directly. In 2001, the *Ministério Público* also succeeded in granting new Tuxá families the right to the VMT. In 2006 it organised a meeting with the three Tuxá communities (Rodelas, Ibotirama and Inanjá) and Chesf, with the aim of ordering Chesf to allocate R\$ 1.4 billion to Tuxá resettlement for the acquisition of land, for the introduction of irrigation systems and for their operation, maintenance and any

technical assistance needed. By the end of the negotiations it had been decided that the irrigation system project should not be implemented and that the amount set aside for it should be shared among all 442 Tuxá families, who would receive approximately R\$ 110,000 each. This sum would be paid by Chesf in three (annual) instalments and the payment of the VMT would not be suspended until 2 years after the payment of the last instalment. Salomão (2007) concludes by recognising that, although these communities may be living in wealthier conditions since the construction of the dam, they miss several aspects of their former lives.

The case of the UHE Itaparica illustrates that even in an authoritarian political regime resettlement was considered. Also worthy of note is that resettlement is a continuous process which the project developer adjusts as time passes and circumstances change. It is not a watertight solution. On the other hand, projects like the UHE Itaparica that were affected by changing institutional frameworks, unfavourable macroeconomic policies and budgetary constraints are subject to various contingencies, for which no provision was made in this case, resulting in delays and failure to take planned and agreed measures. Consequently, as social liabilities become evident and as the public questioning of the companies' failure to comply with commitments becomes unavoidable and is even backed by the *Ministério Público*, companies have to allocate considerable economic and technical resources to deal with plans that have not been implemented.

2.4.2 Dam-Building in a Newly Regulated Environment (from 2003): Santo Antônio Hydropower Plant

The second case to be analysed is the 3,150 MW UHE Santo Antônio hydropower plant. The decision to construct the plant was made after President Lula took office. The act marking this fact was the publication of Resolution 4 of the National Council for Energy Policy (CNPE) on 28 September 2007. This resolution categorised the UHE Santo Antônio as an electricity generation project which was to be regarded as a priority¹⁰⁴ when it came to granting a concession after a public tendering procedure because of its strategic importance and public interest.

The planning of this project began in the 1970s with the studies of the hydropower potential of the Amazon region, Eneram, which identified the River Madeira as a possible site for hydropower projects (Switkes 2001). The Madeira is a transboundary river which is formed by a wide network of smaller rivers that flow through Brazilian, Bolivian and Peruvian territory (such as the Rivers Beni, Mamoré, Guaporé, Madre de Dios and Orthon) and eventually flow into the River

¹⁰⁴ This categorisation became possible with paragraph VI in the Article 2 of Law 9478/1997 under Law 10848/2004.

Amazon (Leme 2005a). But it was only in 2001, in the middle of the liberalisation period of the Brazilian ESI's recent reforms, that Furnas and Odebrecht, a construction company, decided to undertake a joint study of the River Madeira's hydropower potential. The inventory studies of the river were initiated in 2001 with the ANEEL's authorisation and were concluded in November 2002 (Leme 2005a). The environmental licensing process then started in August 2003.

EIA¹⁰⁵/RIMA¹⁰⁶ were carried out by Leme Engenharia Ltda. from 2003 to 2005, a period in which 156 on-site observation campaigns took place, guaranteeing the coverage of a complete hydrological cycle. The drafting of the studies entailed the participation of and contributions from several local and regional research institutes and organisations, such as the Federal University of Rondônia (palaeontology, hydrobiogeochemistry, vegetation, insects, medium-sized and large mammals, fish and fisheries, and social and economic aspects), the Amazonian National Research Institute (INPA) (water quality, small mammals, reptiles and amphibians, large fish, birds, aquatic mammals, studies of vectors of medical interest), the Mineral Resources Research Company (geology, geomorphology, mineral resources, hydrogeology), the *Museu Paraense Emílio Goeldi* (pre-historic and historic archaeology), the Tropical Pathologies Research Institute (evaluation of the health and condition of the riverside population) and the NGO Research Center for the Cuniã Traditional Populations (CPPT) (interaction with riverside communities, communication of all the actions to be implemented from the study to the operation phase) (Leme 2005a).

Following the scoping of the Terms of Reference, the EIA was designed to cover three characteristic areas: direct influence, indirect influence and regional coverage. The analysis of the regional level addressed cumulative effects and possible synergies between the project and other activities in the same river basin, with specific regard to its Brazilian part. Besides meeting the requirements laid down in the terms the project proponent also carried out a Strategic Environmental Evaluation, which focused on political, commercial and environmental potentials throughout the Amazon region, addressing development and integration issues which might help to develop this region in the middle of South America. The concept of the Strategic Environmental Evaluation of the Madeira was consistent with the initiatives taken by the South American Regional Infrastructure Integration Initiative (IIRSA)¹⁰⁷ and was welcomed by the licensing authority and the *Ministério Público*.

Before the Preliminary Licence was issued, the project proponent held four public hearings in the region in November 2006 in accordance with IBAMA's instructions. But this was not the first time the people were asked to participate.

¹⁰⁵ The EIA is a very detailed document, rich in information, having more than 1,500 pages plus annexes, maps, figures, etc. and an additional 321 pages describing environmental (including social) programmes.

¹⁰⁶ The RIMA is designed as a shorter, summary version of the EIA. The one carried out for this project is 82 pages long.

¹⁰⁷ T18092009.

They were involved by the project proponents before the terms of reference for the environmental studies were validated. During the EIA/RIMA phase Furnas and Odebrecht, on the other hand, held 64¹⁰⁸ meetings of local communities and affected people in order to disclose information on the project and the process and to learn about the people's expectations, anxieties and demands for participation. The information gathered in this process was passed to IBAMA and contributed to the definition of the mitigation measures associated with the Preliminary Licence,¹⁰⁹ the appropriate documents being passed to local administrations, since the project proponents saw this information as a record of social demands that might help in the design and planning of public policies.¹¹⁰ Besides arranging these participative meetings, the project proponents presented the project and the process at a further 82 events¹¹¹ (including meetings, seminars and conferences) attended by a number of institutions, such as those of the Brazilian and Bolivian public administrations (at federal, state and municipal level, and in the three different branches), banking and international institutions, NGOs and universities.

Resettlement issues to be covered by a Social Compensation Programme were addressed in the EIA/RIMA and discussed at the public hearings. As a result, the Preliminary Licence was granted on the basis of the EIA/RIMA on condition that the project developer addressed mitigation and compensatory measures in greater detail, setting out, for example, programmes and projects that reconcile the demand for and supply of public services; mitigation measures for families that do not own land in the influence area of the reservoir, but whose economic activities would be affected; the support of resettlement initiatives related to the agrarian reform and initiatives for small farmers and riparian communities in the area influenced by the reservoir designed to develop environmentally sustainable activities; an action plan for the control of malaria; the consideration of the recommendations made by FUNAI in the Programme of Support for Indigenous Communities; and support for the revision of Porto Velho's urban plan. The Preliminary Licence contained a total of 36 requirements to be met by the project developer in addition to those referred to in the EIA/RIMA (IBAMA 2007).

The discussion of the environmental impacts became so intense that the MME commissioned an independent study with support from the World Bank. The study was carried out by an international sedimentation expert,¹¹² Sultan Alam, who recommended some changes to the project to minimise the problem of environmental impacts. In this context, it should be noted that the role of multilateral

¹⁰⁸ T180909. This experience inspired the production of a documentary film called "Vozes do Madeira" (The Madeira's Voices) available at http://www.cemig.com.br/cemig2008/content/campanhaspublicitarias/empreendimento_santo_antonio.asp. Accessed 19 September 2009.

¹⁰⁹ I14092009; T18092009.

¹¹⁰ T18092009.

¹¹¹ The last of these events, which are listed in Table A.II.1 on pages II-13–15 Tomo A, Volume 1 of EIA (Leme 2005b), was held in September 2004.

¹¹² Mitigation measures for this issue also form part of the 36 additional requirements attached to the Preliminary License (IBAMA 2007).

agencies in Brazil has shifted in recent years. The former director of the World Bank for Brazil, John Briscoe published an article in a Brazilian newspaper on 16 August 2008 pointing out that the World Bank was designing a new model for engagement in the Amazonian region and indicating that its lack of enthusiasm for complex projects in sensitive biomes had often led to blockages in the process, preventing resources, knowledge and sustainable practices from reaching places where they were most needed as an alternative to predatory and uncontrolled development (Briscoe 2008). This may mean that the World Bank is focusing its know-how on improving the implementation of the development agenda and priorities set by developing countries.

Following the issue of the Preliminary Licence and the auction, *Santo Antônio Energia* faced the task of designing the Basic Environmental Plan, detailing all the programmes and mitigation measures it intended to implement. Although BNDES was to provide a large part of the financing needed for the project, the fact that Banif and Santander were participating as equity holders led the company to consider the Equator Principles¹¹³ and the International Finance Corporation's environmental guidelines while drawing up the PBA.¹¹⁴

The UHE Santo Antônio's PBA was approved by IBAMA in August 2008, when the installation licence was also issued. The PBA, another document which counted on the participation of the same local and regional institutions that collaborated in the drafting of the EIA/RIMA, presents some 24 environmental programmes (and other subprogrammes), which may be grouped in four types: monitoring programmes, preservation and conservation programmes, impact reduction programmes and compensation programmes.¹¹⁵

The UHE Santo Antônio helps to illustrate how intricate dam decision-making has become, involving several public and private agents, with their different priorities and preferences. This is a case where the process has contributed to better outcomes (compared to previous experiences), considering the years of planning and of project discussion in a number of arenas. The strategy of contacting and informing the local population at earlier stages of the process has helped the project proponent to advance the licensing process, which may form a bottleneck in the decision-making process.

The role of multilateral institutions also seems to have changed: the fact that they keep withdrawing from the financing of projects no longer constrains the process, since infrastructure projects have been successfully backed by BNDES. On the other hand, the knowledge and expertise of multilateral institutions have helped the country's development strategies, priorities and agenda to achieve better results.

¹¹³ The consideration of these principles is also mentioned in the documentary film, "The Madeira's Voices" available at http://www.cemig.com.br/cemig2008/content/campanhaspublicitarias/empreendimento_santo_antonio.asp. Accessed 19 September 2009.

¹¹⁴ T180909.

¹¹⁵ For more information, see <http://www.santoantonioenergia.com.br>. Accessed 19 September 2009.

The UHE Santo Antônio is also a good example of how environmental legislation and practices have been consolidated since the 1980s, while the economic stabilization achieved in the 1990s and the institutional reforms of the ESI since the beginning of this century have succeeded in attracting another type of foreign investor: banks and private equity funds. As the UHE Santo Antônio has shown, these agents may form a new group of international norm carriers.

2.5 Summary and Conclusions

This chapter has sought to analyse the main factors that persuade national decision-makers to internalise and apply international standards of sustainable dam development against the background of domestic political structures and political processes. Previous sections have covered the evolution of decision-making on hydropower since the advent of the present Federal Constitution in 1988, identifying political opportunities (CF/88, the liberalisation of the ESI in the 1990s and the reform of the ESI in 2003/2004), specific processes (and access points) and the agents involved (their support or criticisms and their role as norm carriers) with a view to explaining the possible internalisation of international standards.

It cannot be denied that the Brazilian government is committed to a wide variety of international agreements and involved in international forums where fundamental international norms, including those related to sustainable dam development, are discussed (good examples in this context are the International Conference for Renewable Energies that took place in Bonn in 2004 and the Convention on Biological Diversity, the United Nations Framework on Climate Change and Agenda 21). The Brazilian government is convinced that, especially because of their democratic and participative features, national legislation and practices are no less rigorous than anywhere else where hydropower plants are still being built and that new hydropower projects have led to the construction of sustainable dams. The confidence in the country's decision-making framework and dam-building procedures may justify the lack of interest in the World Commission on Dams's (WCD) recommendations (ANA 2001, 2003). Nevertheless, the role of the WCD as a catalyst for improving sustainable dam development for the sake of human beings is not ignored (ANA 2001).

The Brazilian Regulatory Water Agency (ANA) was concerned about the right of veto claimed by the WCD for stakeholders, arguing that, in Brazil, this would infringe the principles of Law 9433 of 1997, which instituted the National Policy of Water Resources, and would also be incompatible with the participatory decision-making process in force.

In 2002 the Ministry of Environment issued a joint ministerial order (MMA 2002), signed by the Ministers of Mines and Energy and of Foreign Relations, setting up a working group composed of representatives of the two ministries to draw up a statement by the Brazilian government on its position on the WCD report. The statement written by the working group was sent to the Minister of

Environment in March 2003 (ANA 2003) and acknowledged the contribution of the report in systematising values and strategic priorities to be considered in decision-making on dams and in catalysing the global debate on the role of dams in the development process, pointing out, however, that the case studies on which the report was based were not representative of existing dams, most of which were old. It also noted that the proposals made in the WCD report had been incorporated in Brazilian legislation long before the WCD had come into existence. It also addressed the issue of option assessment:

An additional error of the Report is the absence of a systematic comparison of the environmental and socio-economic costs of dams as compared to the available alternatives for energy generation: nuclear plants and thermoelectric plants based on gas or coal (...). (Brazil proposes that a comparison should be made of the) socio-economic and environmental sustainability of dams with feasible alternatives that would provide the population with the same multiple services: electricity, flood protection, navigation, domestic and industrial water supply as well as food production (ANA 2003, pp. 8–9)

Despite this political strategy of not accepting the WCD's recommendations as strict directives, it is possible to find comments on them (primarily as food for thought rather than a manual to be followed) in official publications of the energy sector (e.g. MME 2007, pp. 19, 623, 638). Although little reference is made to the WCD report in official documents and statements, some discursive effects¹¹⁶ in Brazil can be discerned: it has influenced the discourse of the anti-dam movements,¹¹⁷ although other Brazilian social movements make little mention of these recommendations¹¹⁸; and it has influenced the discourse of international NGOs active in Brazil and of governments of the developed world against large hydro-power projects as a renewable source of energy.¹¹⁹

Notwithstanding the influences of globalisation and other international trends, the government's embeddedness in international institutions does not therefore seem to be a determinant cause of the internalisation of international standards.; Brazil is rather a case in which recent changes in the environmental field (and to related procedures) are more attributable to a general process of democratisation and internal policy learning.

¹¹⁶ Some interviewees also claimed that the WCD recommendations had had a wider effect in that it had reached a normative and even a material level. Something of a normative effect was detected in the planning of the energy sector, where the WCD recommendations had been used as a reference in the adoption of premises, criteria and procedures, although there is no agreement on all the recommendations (I12022009). Some best practices have been adopted by the electricity sector, but this had already been a trend before the WCD published its recommendations and was not necessarily due to its work (I12022009; I13032009). A material effect was mentioned by one interviewee, who believed that it was due to the WCD report that investment in new hydropower plants had risen, as the growing number of hydropower projects under construction worldwide showed (see World Bank 2009).

¹¹⁷ I16012009; I30012009; I06022009; I13032009; I25032009.

¹¹⁸ I13022009a; I12032009b.

¹¹⁹ I06022009.

All governments from the 1990s onwards have appreciated the importance of private national and foreign capital and have therefore been committed to creating a credible investment environment that goes beyond a guarantee of stable macroeconomic bases. This has necessitated the reform of the ESI on two occasions: in the mid-1990s and in 2003/2004. The “reform of the reform” addressed several issues related to the business of attracting investment (such as the design of auctions and related long-term PPAs; compliance with contracts concluded within a previous framework; a guarantee of funding from BNDES on competitive terms), but where the specific issue of sustainable dams is concerned, what was most important was a guarantee of the environmental (including social) feasibility of any hydropower project before it was handed over to a private¹²⁰ or public project developer.¹²¹ This was a necessary change and recognition that Brazil’s environmental licensing process is complex, rife with opportunities for vetoes and therefore unpredictable, a process that does not necessarily attract private investment, according to the World Bank’s analysis (2008).

As this chapter and Hochstetler and Keck (2007) argue, social mobilisation and environmental awareness (which endorses the value of sustainable dams) are two closely linked phenomena in Brazil, each of which has reinforced the other’s goals since the democratisation of the 1980s. The Movement of Dam-Affected People is a clear example of a product of this process, as the analysis by Rothman and Oliver (2002) shows. This has created fertile soil for the dissemination of the sustainable dam discourse, whatever its origins.

As for the internalisation of international standards, some pathways can be distinguished which eventually had normative, discursive, regulatory and material effects. These pathways and factors are:

1. the constant relationship between national social and environmental movements and NGOs and their international counterparts since that time,
2. added to international funding for their activities and especially for some activities of the State in the environmental sphere in the 1980 and 1990s,
3. combined with the continuous transit of individuals (an explicit example of norm carriers) from the environmental sphere to different positions according to the moment (working within the administration or for the administration—as consultants or partners of the administration in NGOs—or in NGOs opposed to a certain administration), and¹²²
4. added to the growing power and legitimacy of the *Ministério Público*, because of its responsibility for protecting diffuse rights and its symbiotic relationship with organised civil society.¹²³

¹²⁰ Through special purpose companies.

¹²¹ Through the obtention of preliminary license (the most critical license) prior to the energy auctions.

¹²² As presented by Bernardo (2001).

¹²³ As addressed by Lopes (2000).

The fact that no hydropower plant is built unless the requirements of the environmental licensing process are satisfied and its procedures are completed, shows that this confluence of phenomena has irrevocably affected decision-making on the construction of new hydropower plants.

The requirements of the environmental licensing process must be satisfied and the procedures associated with it must be completed not only because they are legally mandatory, but particularly because of the access points and opportunities for vetoes which this process entails: as the process involves innumerable institutions, agents and actors at the three levels of the federation and the three branches of the political system, which do not have the same interests, priorities and values and as all decisions (at the various stages of the environmental licensing process and of the life cycle of the project itself) may be questioned by the *Ministério Público* or by social movements and NGOs in the form of associations and then taken to court, the less visible the process is, the greater the possibility of its outcome being unpredictable. In this regard, it has become easier and quicker to act in accordance with all the rules governing the process, satisfying all its requirements, although this does not prevent some institutions with a contrary view from obstructing the process, since the deadlines for decisions at each stage are not clearly defined.

As evidence of how these access points may also work as opportunities for exercising vetoes, of the 40 or so in 2003 still unbuilt hydropower projects (despite the granting of concession rights prior to 2003), 13 remain unbuilt in 2010 either because of questions raised during the environmental licensing process or because the environmental agency declared them environmentally non-viable.

As a consequence, the coordinating function of the Casa Civil has been reinforced at least at the level of the federal executive branch. On the other hand, the creation of the EPE and the delegation to it of the task of undertaking feasibility studies and EIAs/RIMAs of future hydropower plants may be seen as a first attempt to guarantee that all requirements are met.

One common argument for questioning the process is that affected people have not been informed or able to participate as required by law. Therefore, the participation of the affected communities since the early stages of the licensing process for the UHE Santo Antônio, in which they also relied on the cooperation of a local NGO to facilitate this contact, may serve as an example of what needs to be done in the future to avoid questioning the process.

Regardless of the pressures created by the development of the national environmental institutional framework, the internalisation of international standards also occurred in the energy sector (including the ESI): reliance of domestic dam developers—until recent years, state-owned companies—on foreign financial services induced domestic decision-makers to implement international standards. This also accounts for the creation of units within Eletrobras dedicated to the environmental field and of specific methodologies to address this issue in the budgets of hydropower plants (*Conta 10*). The long planning experience of the sector, together with its need to comply with requirements laid down by international financiers (multilateral agents, export credit agencies and foreign banks), has

moulded a planning policy that considers socio-environmental and participative issues, as this chapter has shown.

The case of the UHE Itaparica analysed above indicates this direct influence. The second case, the UHE Santo Antônio is, on the other hand, emblematic: the Equator Principles were taken into account because the foreign banks acting as equity investors in the project were signatories to them.

Consequently, five observations on international norm diffusion through foreign financial services and expertise are made:

1. Recent Brazilian administrations have put an enormous effort into creating an investment environment that succeeds in attracting private capital. In this respect, investors are free to apply the best practices they choose, provided that they are not inconsistent with national legislation and norms. The initiative of the International Hydropower Association may serve as an example of this trend, as long as its recommendations bind industry agents and not governments. Private investors may now play the role that international financial institutions played in the past as international norm carriers.
2. The relevance of international financing has waned in Brazil's recent history owing to the macroeconomic stability that has been achieved and to the growing role and size of BNDES (Santo Antônio received significant funding from BNDES).
3. International financial institutions, on the other hand, seem to be a better target for social movements and NGOs. A likely reason for this is that every incident involving these institutions may act as an international shop window for local problems, giving them an international dimension. This means that these institutions may also be regarded as another channel through which social mobilisation succeeds in influencing practices. This finding has implications for past and future projects.
4. However, the internalisation of international standards may also occur through the expertise of the international financial institutions that support studies on the construction of new hydropower plants. It should again be pointed out that this is not a prerogative of financial institutions, foreign research institutes having always been involved in such studies, as the UHE Itaparica demonstrates. Nevertheless, these cases also serve to illustrate that the involvement of international agents in the past did not suffice to guarantee the construction of sustainable dams.
5. The World Bank's recent endorsement of the MME in studies on the UHE Santo Antônio illustrates that the role of development cooperation agencies may be boosted and may also contribute to much better and more balanced results if they accept the strategies of the countries they intend to support, a view highlighted by Briscoe (2008). This is because what singles out these institutions is that they concentrate within themselves the most qualified portfolio of specialists in development policies. This know-how is much needed in developing countries, where the professionalization and qualification of the State is still a work in progress.

To conclude, while international influence on environmental awareness in Brazil, legislation and practices is undeniable, the social content of Brazilian environmentalism and its political implications are also a feature of the collective identity that is typical of Brazil. The country's recent democratisation and economic history have formed a State that is conscious of its considerable strength, which legitimises its actions: it is supported by a political system that extols democratic and participative values.

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