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Sustainable Dam Development in Brazil

Between global norms and local practices

Agnes M. da Costa

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Agnes Maria de Aragão da Costa is a senior economist at the Brazilian Ministry of Mines and Energy, specialising in the economics of the energy and mining sectors. She graduated in economics from the Federal University of Rio de Janeiro and completed her M.Sc. in energy economics at the University of São Paulo. In September 2008 she joined the DIE dam research teams, and is continuing to study for her PhD at the Technical University of Berlin with a BMBF scholarship.

Tulpenfeld 6, 53113 Bonn
☏ +49 (0)228 94927-0
🖷 +49 (0)228 94927-130
E-Mail: die@die-gdi.de
www.die-gdi.de

Foreword

The Dams Debate: Neither 'small' nor 'large' is the question, but well-planned and well-managed[1]

Dams as large infrastructure have a high potential for development. They can balance hydrological variability, both inter-annual and inter-seasonal, by storing water for all sectors of a national economy, and they serve as one means for controlling devastating floods. They are key means to exploit the huge untapped hydropower potential in particular in China, India, Brazil, Russia and on the African continent which lags far behind the rest of the world. Well-planned and well-managed they can support adaptation to changes in hydrology.

No other infrastructure has attracted that much criticism than dams because of their detrimental negative social and ecological effects. Estimates about dam-induced displacement of people range in the order of 40 to 80 million, of which the lion's share are in India and China. As a Canadian non-governmental organization reasoned, it is not the financial crisis setting back investments to exploit a huge technical and economic potential, but "the notion of acceptability on social and environmental levels."

The World Commission on Dams (WCD) has set a landmark with its "Dams and Development. New Framework for Decision-Making" released in December 2000. It is without doubt that the recommendations have touched key questions of how development should happen. However, the WCD has defined ideal type norms to guide dam-related decision-making. Being excluded from the WCD process, the governments of the hydro-superpowers were sceptical about the seven strategic priorities and outright rejected the 26 guidelines. But small countries too such as Nepal and Ethiopia accused the WCD on hindering their social and economic development.

Our Institute issued the research project "Sustainable Dam Development: Between Global Norms and Local Practices" on behalf of the Ministry for Economic Cooperation and Development (BMZ) targeting the dam policies of the hydro-superpowers. In these economies historically, dams have contributed to the countries' goal of achieving food and energy security, with the latter becoming at least as important if not more given the escalation in the energy/electricity demands. Thus the importance of dams, in spite of being an extremely contested domain, continues to remain unabated.

Acknowledging that dams are important infrastructural means for social and economic development, and that multilateral development banks and bilateral donors are re-engaging in the dam business due to its renewable characteristics (low carbon energy), our Institute has looked into the dynamics and conditions enhancing the internalization of international norms and standards. Country studies were conducted in India, China, Brazil and Turkey to find out if and how superior social and environmental norms like those of the WCD and the World Bank have influenced planning and implementation of large water / hydropower infrastructure projects over the years.

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[1] This appraisal was made by Director General of UNEP, Mr Klaus Toepfer, on the occasion of the Dams and Development Forum taking place in September 2003 in Geneva.

The country studies, of which those on China, India[2] and now on Brazil are available, analyse the highly complex multilevel dam-related decision-making processes being particularly interested in whether, why and how planning and decision-making has been opening up to diverse societal interests. At the national level the evolution of social and environmentally sustainable practices is being studied in detail in two specific fields, i.e. the planning procedures for mitigating negative environmental impacts, and for expropriation and resettlement. Since impacts are clearest at project level, analysis of individual dam cases focused on their specific actor constellations and the impact they had. Looking at individual projects – four in the Brazil study – we have been investigating whether international / domestic actors have fostered sustainable practices, and whether there have been repercussions on overall policies.

The Brazil study has shown that policy changes related to environment and resettlement are attributable to the general democratisation process of the country which led to rigorous democratic and participative procedures. Based on a cross temporal study for the last three decades, Agnes da Costa argues that proposals made in the WCD report in 2000 had been incorporated in Brazilian legislation long before the WCD had come into existence. This refers to, for instance, the issue of Comprehensive Option Assessment, one of the WCD's strategic priorities. However, the Brazilian Regulatory Water Agency has been concerned about the de facto rights for indigenous and tribal people because the WCD had proposed that decisions on projects affecting them "are guided by their free, prior and informed consent achieved through formal and informal representative bodies" (WCD 2000, 218). This disagreement only recently came to the fore in the disputed Belo Monte hydropower project on the Rio Xingu, a tributary of the Amazon: although the Brazilian environmental agency attached the strictest conditions to it, indigenous groups in the region, nevertheless announced that they would defend their river and, if need be, prevent its construction by violent means.

The author shows that social mobilisation and environmental awareness are two closely linked phenomena in Brazil, each of which has reinforced the other's goals since the democratisation of the 1980s. The constant relationship between national social and environmental movements and NGOs and their international counterparts; the continuous transit of individuals from the environmental sphere to different positions (e.g. working within the administration or for the administration); and the growing power and legitimacy of the *Ministério Público* (being responsible for protecting diffuse rights) made the internalisation of global norms happen. She assumes that in a radically changed investment environment private investors who have substituted the role international financial institutions had played in the past, may now act as norm carriers – which, above all, remains to be seen.

Bonn, October 2010

Waltina Scheumann
Dept. Environmental Policy and
Natural Resources Management

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[2] Oliver Hensengerth (2010): Sustainable Dam Development in China: Between Global Norms and Local Practices, Discussion Paper 4/2010, Bonn: Deutsches Institut für Entwicklungspolitik; Nirmalya Choudhury (2010): Sustainable Dam Development in India: Between Global Norms and Local Practices, Discussion Paper 10/2010, Bonn: Deutsches Institut für Entwicklungspolitik

Abstract

The paper 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 four hydropower plant projects: Balbina and Itaparica, built during the military regime; Cana Brava, one of the first private projects in Brazil; 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 paper 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 paper addresses changes in the normative framework and in practice. Case studies then consider these processes, taking Balbina as an example of a project with serious environmental consequences, and Itaparica as a case where planning and participation did not lead to satisfactory implementation in resettlement terms; Cana Brava as a project that is still trying to cope with social compensation in an innovative way; and finally Santo Antonio as a possible example for future projects as regards the involvement of affected people at earlier stages of the project cycle.

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Abbreviations

AAI	Avaliação Ambiental Integrada – Integrated Environmental Evaluation
ANA	Agência Nacional das Águas – Brazilian Regulatory Water Agency
ANEEL	Agência Nacional de Energia Elétrica – Brazilian Electricity Regulatory Agency
BASA	Banco da Amazonia S.A. – Bank of Amazonia
BNDES	Banco Nacional de Desenvolvivimento Econômico e Social – Brazilian National Bank for Economic and Social Development
BNDESPAR	BNDES Participações – BNDES Joint-ventures
CCPY	Comissão Pró-Yanomami – Pro-Yanomami Commission
CEM	Companhia Energética Meridional (name of a company)
CF/88	Constituição Federal de 1988 – Federal Constitution of 1988
CIMI	Conselho Indigenista Missionário – Indigenous Missionary Council
CNPE	Conselho Nacional de Política Energética – National Council for Energy Policy
CODEMA	Former environmental agency of the state of Amazonas
COIAB	Coordenação das Organizações Indígenas da Amazônia Brasileira – Coordination of Indigenous Organisations of the Brazilian Amazon
CONAMA	Conselho Nacional do Meio Ambiente – National Council on the Environment
CPFL	Companhia Paulista de Força e Luz (name of a company)
DUP	Declaração de Utilidade Publica - Declaration of Public Utility
EIA	Environmental Impact Assessment
Eneram	Comitê Coordenador dos Estudos Energéticos da Amazônia – Committee of Power Studies of the Amazon Region
EPE	Empresa de Pesquisa Energética – Energy Research Company
ESI	Electricity Supply Industry
ESMP	Environmental and Social Mitigation Programme
FEMAGO	Agência Ambiental de Goiás – Environmental Agency of Goiás state
FUNAI	Fundação Nacional do Índio – Brazilian National Indian Foundation
GTI	Grupo de Trabalho Interministerial – interministerial working group
GW	Gigawatt
IADB	Inter-American Development Bank
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – Brazilian Institute for the Environment and Natural Renewable Resources (the "Environment Agency" at the federal level)
IIRSA	Iniciativa para la Integración de la Infraestructura Regional Suramericana – South American Regional Infrastructure Integration Initiative
IMTM	Instituto de Medicina Tropical de Manaus – Tropical Medicine Institute of Manaus
INPA	Instituto Nacional de Pesquisas da Amazônia – Amazonian National Research Institute
IPHAN	Instituto do Patrimônio Histórico e Artístico Nacional – National Institute of Historical and Artistic Heritage
kW	Kilowatt
MAB	Movimento dos Atingidos por Barragens – Movement of Dam Affected People
MMA	Ministério do Meio Ambiente – Ministry of Environment
MME	Ministério de Minas e Energia – Ministry of Mines and Energy
MST	Movimento dos Trabalhadores Rurais Sem Terra – Landless Workers Movement
MW	Megawatt
NGO	Non-governmental organisation

PBA	Plano Básico Ambiental – Basic Environmental Plan
PDEE	Plano Decenal de Expansão de Energia – 10-Year Energy Expansion Plan
PND	Programa Nacional de Desestatização – National Privatisation Programme
PNE	Plano Nacional de Energia - National Energy Plan
PNMA	Política Nacional de Meio Ambiente – Brazilian Environmental Policy
PNRH	Política Nacional de Recursos Hídricos – National Policy for Water Resources
PPA	power purchase agreements
R$	Real (Brazilian currency)
RESEB	Reestruturação do Setor Elétrico Brasileiro – Restructuring the Brazilian Electricity Supply Industry
RIMA	Relatório de Impacto Ambiental - Environmental Impact Report
SEBRAE/GO	Serviço Brasileiro de Apoio às Micro e Pequenas Empresas / Goiás – Brazilian Service of Support for Micro and Small Enterprises of the state of Goias
SISNAMA	Sistema Nacional de Meio Ambiente – National Environmental System
TAC	Termo de Ajuste de Conduta – Protocol for Adjustment of Public Conduct
UHE	Usina Hidrelétrica – Hydropower plant
VMT	Verba de Manutenção Temporária – Temporary Maintenance Allowance
WCD	World Commission on Dams

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 per cent of Brazilian power was generated 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 as part of hydropower projects in Brazil. 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.

Parallel to these internal policy developments related to dams, the beginning of the 21st century saw the publication on 16 November 2000by the World Commission on Dams (WCD) of "Dams and Development – A New Framework for Decision-Making", setting out core values and recommendations for new policy frameworks to enable dams to be planned, constructed and operated sustainably.

A question that then arises is how far internal dam policy frameworks have been influenced not only by internal policy learning but also by the diffusion of such international norms as the WCD's recommendations. In this regard, three hypotheses on pathways of international influence will be discussed: (i) a government's embeddedness in international institutions; (ii) social mobilisation within society aimed at encouraging domestic decision-makers to internalise and implement international standards; and (iii) the reliance of domestic dam developers – public and private – on foreign financial services and expertise which demand the application of international standards.

Thus an important part of the proposed analysis consists in identifying relevant actors and institutions, the way in which they exert influence and their links to international norm carriers. The contribution of these (groups of) actors to the implementation/establishment of current legal and sectoral frameworks and dam-related policies in Brazil is then investigated. Information for these analyses was gathered in interviews.

To address the aforementioned questions and hypotheses, the study adopts a two-tier approach, the first focusing on the country level and the second on the project level. At country level it considers what caused Brazil's change of attitude towards the issues of participation, environment and resettlement in the context of dams (and the resulting institutional changes). A subsidiary question is then whether this change of attitude has been directly or indirectly influenced by such international norms as those recommended by the WCD. As to the project level, the four cases studied resulted from the selection criteria adopted: choosing dams consistent with one of the three historical breakthroughs in Brazil which did a great deal to bring about changes in decision-making on dam-building and related processes,[3] the promulgation of CF/88; the liberalisation of the electricity industry in the 1990s, pushed by the "Washington Consensus";[4] and the reform of the electricity industry in 2003/2004 in response to electricity shortages and the 2001 energy-rationing programme.

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, four dams have been chosen: the first two were planned and built before 1988; the next one was planned later, construction starting during the liberalisation period; and the last one was planned even later, construction beginning after 2004.

The next section addresses the strategic role of dams in Brazil. Section 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 4 presents the various 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 The strategic role of hydropower in Brazil

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

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 GW of installed capacity to the system. Although the National Energy Plan 2030 (MME 2008b)

3 Although dams have been built in Brazil for several reasons, this paper focuses on dams built for hydropower generation, even though most serve multiple purposes: electricity generation, flood protection, navigation, domestic and industrial water supply and water for irrigated agriculture.

4 Williamson originally coined the phrase in 1990 *"to refer to the lowest common denominator of policy advice being addressed by the Washington-based institutions to Latin American countries as of 1989"* (Williamson 2000).

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, which invested in hydropower generation in response to an ambitious economic and industrialisation plan, the Target Programme, which promised "50 years of growth in five years" in the late 1950s, to the military government's concern about the geopolitical significance of the Amazon region in view of the extraordinary mineral wealth[5] discovered there in the 1970s and to the oil crises in the same decade. Following the oil crises, the economic recession of the 1980s caused the postponement of a number of transmission projects and delayed the launch of several electricity-generating projects. The worsening of the Brazilian economic crisis in the early 1990s had a significant impact on the Brazilian Electricity Supply Industry (ESI) and was marked by systematic delays in payments for energy supplied to state-owned utilities by federal companies and Itaipu Binacional. The debts of these companies reached the equivalent of US$ 5 billion and, in these circumstances, the programme of projects to be implemented, recommended in Plan 2010,[6] was practically halted. The construction of new hydropower plants is a phenomenon of the new millennium, when investment in this type of capital-intensive asset became viable for both public and private investors in a stable economy.

Brazil's economically viable hydropower potential is estimated at 260 Gigawatt (GW), of which only 30 per cent 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.

Nevertheless, in view of the social and environmental impacts of dam construction, the central government has been seeking to increase its knowledge of hydropower potential and expecting a more conscientious approach to the selection of sites to be developed. To this end, a number of studies, such as Integrated Environmental Evaluations (of river basins), inventories and feasibility studies, are being undertaken.

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 recognised[7] event illustrating this political positioning is the role played by the former Minister of Mines and Energy, Mrs Dilma Rousseff, head of the Brazilian delegation to the International Conference for Renewable Energies, which took place in Bonn in

5 Lemos (2007) and http://www.eletrobras.com, confirmed by I21082009.

6 Systemic sector planning became a common practice in Eletrobras in the 1970s. It considered three time horizons: the short, medium and long term. Initially, the evolution of consumers' markets, the availability of primary energy sources, technological evolution and funding sources were regarded as determinants of planning activity. Later, the sector added socio-environmental variables . From the 1970s to the 1990s, six long-term planning studies were drafted: Plano 90 (drafted in 1973–74), Plano 95 (1978–79), Plano 2000 (1981–82), Plano 2010 (1986–87), Plano 2015 (1991–93) and Plano 2020 (1996–99) (Lemos 2007).

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

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.

Despite 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 (MME 2007, 621), it 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.

The increasing role to be played by thermal plants in supplying electricity has, on the other hand, been sharply criticised by society in general (Goldemberg 2009; IRN 2009; Novaes 2009). There are many explanations for this paradoxical behaviour: the trade-offs (in terms of environmental and supply costs) related to this issue may not be clear to society as a whole; groups in society with differing interests have difficulty reconciling their views and finding a way forward; and veto instances or access points at the decision-making process have been successful in blocking the government strategy of increasing the supply of hydropower.

3 Changing policies and decision-making frameworks for dams in Brazil

3.1 Triggers of change

Political developments relating to the construction of dams in the periods discussed in this paper 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. In Brazil the responses to the oil crises of the 1970s differed: the first gave rise to an ambitious development strategy highly dependent on foreign lending and on state indebtedness, whereas the second aggravated the debt crisis that marked the 1980s, known in Brazil as "the Lost Decade". However, at the end of that decade Brazil, like other developing countries, was confronted with a foreign agenda, the "Washington Consensus", that reoriented its economic policy away from development policies in which the state played a strong role to a more liberal market economy that relied on private investment. This is the political and economic context in which the decision-making framework began to evolve.

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",8 which was passed in 1985 (Law 7347). This movement culminated in the promulgation of a participation-oriented Constitution in 1988, as democratisation exerted pressure for a wider distribution of power and decision-making, both within state institutions and between them and societal organisations (Hochstetler / Keck 2007). The Brazilian Constitution of 1988 is therefore regarded as the Civilian Constitution (*Constituição Cidadã*),[9] its longest article being devoted to the protection of the rights of the individual (Article 5).

According to Hochstetler / Keck (2007, 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."*

The Constitution itself was a result of a participative process which can be attributed to the broad and intense incidence of popular amendments during the constituent process. At the end of the process, 122 popular amendments (meaning 12,277,423 signatures and at least 4 million citizens[10]) were presented to the assembly, 83 of them being adopted. The gains achieved by these popular amendments included the recognition of the rights of the Indian[11] (claimed by the Catholic Church, by the Brazilian Society for the Progress of Science and by associations of anthropologists and geologists), the entitlement of associations to submit acts of unconstitutionality (*ações de inconstitucionalidade*) to the Supreme Court (claimed by businessmen and by a popular committee in the state of Rondônia) and the creation of the popular initiative of drafting laws (*iniciativa popular de leis*) (claimed by several associations) (Lopes 2008, 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.[12]

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

9 Also mentioned by I09032009 and I25032009.

10 Each voter was allowed to sign no more than three amendments.

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

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

Brazil is a Federative Republic composed of twenty-six states and a federal district. Its decentralised nature dates from its independence, being reflected in all the eight constitutions since then, but strengthened by the most recent, adopted in 1988. 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[13] 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 / Keck (2007, 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 therefore 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 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

13 The Constitution establishes the property of the Union (which includes rivers that flow through more than one state or along or across borders with neighboring countries) (Article 20); the powers of the Union (Article 21), areas on which the Union has exclusive power to legislate (Article 22); powers shared by the Union, states and municipalities (Article 23); areas on which the Union, states and municipalities have the power to legislate concurrently (Article 24); the property of the states (Article 26); the powers of the municipalities (Article 30). The constitutional order contains further indications of shared and exclusive powers of the Union, states and municipalities, such as those concerning taxation.

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 / Keck (2007), with IBAMA sometimes asked to take over the environmental licensing process that is the responsibility of a state environmental agency.[14] This causes further delays in the issuing of environmental licenses, increasing associated risks and costs.[15]

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.[16]

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 CIMI (*Conselho Indigenista Missionário* – Indigenous Missionary Council), which is linked to the Catholic Church, the CCPY (*Comissão Pró-Yanomami* – Pro-Yanomami Commission) and the COIAB (*Coordenação das Organizações Indígenas da Amazônia Brasileira* – Coordination of Indigenous Organisations of the Brazilian Amazon). Nevertheless, some claim that indigenous groups are easily manipulated[17] 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 is consistent with the approach mentioned by Hochstetler / Keck (2007) of engaging in a socio-environmentalist discourse, which also attracts international attention in view of the sensitiveness of the indigenous rights issue in the global arena.

14 Also addressed by I30012009 and World Bank (2008, 37), which mentions the case of the UHE Itumirim, the Preliminary Licencse 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.

15 This constitutes a subtheme of the World Bank's study (2008).

16 Kelman / 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); and Article 176.

17 I25032009, I04032009 and da Costa (1997).

The concern of the legislative branch for the environment is generally welcomed by society.[18] One visible consequence is that the environment has been taken up by all the parties of the political spectrum[19] and that the Environmental Parliamentary Front (*Frente Parlamentar Ambientalista*[20]) 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),[21] 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 per cent 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.

As mentioned above, much of Brazil's undeveloped hydropower potential lies in the regions with the lowest population density, which are also, in practical terms, the poorest and least developed regions. Consequently, the legislative branches of states and municipalities and their executive branches do not usually oppose hydropower projects since they see them as a way of gaining access to investment of national interest, using their support as a bargaining chip.[22] This bargaining position is also verified during the environmental licensing process, when all sorts of demands and social activities (such as the distribution of food baskets for the poor, the provision of healthcare facilities, the construction of schools, all for people totally unaffected by the proposed scheme) that have no bearing on environmental impacts per se are regarded as compensation for those impacts (World Bank 2008, 20).

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, 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.[23] She argues that the proximity of civil society organi-

18 I05122008 and I06022009.

19 I05122008.

20 Online: http://www.frenteambientalista.com, last access on 04 July 2010.

21 Online: http://www.aneel.gov.br/area.cfm?idArea=280, last access on 20 July 2009.

22 I13032009.

23 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.

sations to the State and to the formulation of environmental policies grew in the 1990s, when the State 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.

On the subject of the relevance of foreign resources to NGOs and social movements, Hochstetler / Keck (2007) observe that the 1990s was a decade in which international attention and abundant resources were directed to environmental issues in Brazil. International environmental organisations established in Brazil became more professional and internationally present than their Brazilian counterparts,[24] having been more successful in advocating against dams and hydropower generation.

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, 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 and, as a rule, act consistently in this respect 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. This behaviour of Brazilian environmentalists has also been addressed by Hochstetler / Keck (2007). The conflict of interests due to the changing positions of these individuals cannot be ignored, however.

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 ac-

24 With a few exceptions, e.g. S.O.S. Mata Atlântica. The profile and level of professionalisation of Brazilian environmental NGOs are also addressed by Hochstetler / Keck (2007).

tors. 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 will be considered in greater detail below), 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 complaint[25] about the administration generally intervening in or coordinating discussions (not encouraging, therefore, the free membership drive – *associativismo*) may be considered pertinent.

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.[26] 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 Neoenergia[27] (both of Spanish origin), which, as da Costa (2002) and CEPAL (2005) point out, were attracted by the recently achieved macroeconomic stability (through the *Plano Real* of 1994, which succeeded in controlling inflation) and by the growth potential of the energy market in Brazil compared with its rather stable counterpart in Europe. 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) rose to 22,384 MW at a total investment of R$ 31,995.5 million, with private investors accounting for 81 per cent of this amount.

Other relevant private agents in the electricity industry whose participation in the process was strengthened by economic liberalisation 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* (BNDESPAR), the investment company of the Brazilian National Bank for Economic and Social Development (BNDES).

25 I13022009a.

26 *Empresa estatal e sociedade de economia mista*.

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

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 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 line with the liberal doctrine of exposing this industry to a greater degree of competition in order to achieve economic efficiency. 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, or RESEB.[28]

Although the government had made efforts to create a market environment, the proposed model gave rise to many problems, and the first market-oriented reform ran into trouble, which led to a supply crisis that lasted from June 2001 to February 2002. It culminated in an electricity rationing plan, with the State forcing all classes of consumers to reduce electricity consumption by 20 per cent.

This energy rationing was caused by low rainfall, which had reduced reservoir levels (at that time, hydropower plants produced 90 per cent 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.[29] The rationing highlighted the need for the revision of the institutional model of the Brazilian ESI, which, despite having undergone a process of "revitalisation" towards the close of President Fernando Henrique Cardoso's government, was reformulated by President Lula's administration (2003).

28 The most important institutional innovations in the Brazilian ESI regulatory framework established 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 (ANEEL) 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.

29 For more details on the causes and diagnosis of the electricity supply crisis in Brazil, see Melo / Neves / da Costa (2009).

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, which gave rise to social criticism and dissatisfaction, may be considered a historical circumstance (or political opportunity) that caused relevant changes to policies affecting dams in Brazil. The New Model of the Electricity Sector of 2003/2004 resulted in the resumption by the State of its planning role (as acknowledged by the World Bank 2008), 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 (*Casa Civil*, 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 2004[30] the electricity policy has changed substantially,[31] primarily to attract the investment needed to guarantee the 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)[32] – 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. This was acknowledged by all the interviewees,[33] who gave several reasons for this development, the most important being the following:

— 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.[34]

— 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, following the very unpopular energy rationing of 2001, 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

30 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 / Neves / da Costa (2009) and Araújo et al. (2008).

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

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

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

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

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)[35] for the least expensive resource on the market.

— In addition, possibly unlike international financial institutions, BNDES trusts the severity of 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.[36]

— 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 preventing the construction of the project. When President Lula's administration took office in 2003, it inherited a long list[37] of unbuilt hydropower plants and of dissatisfied investors (holding the concession rights) complaining about an environmental licensing process whose outcome was unpredictable.

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 the Brazilian Electricity Regulatory Agency (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)[38] on which to base the standards for the auction[39] and for future construction.[40] 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 therefore becoming the target function of the decision (which was not necessarily

35 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.

36 I13022009b and T23072009 (see Law 9605/1998 and Law 6938/1981)

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

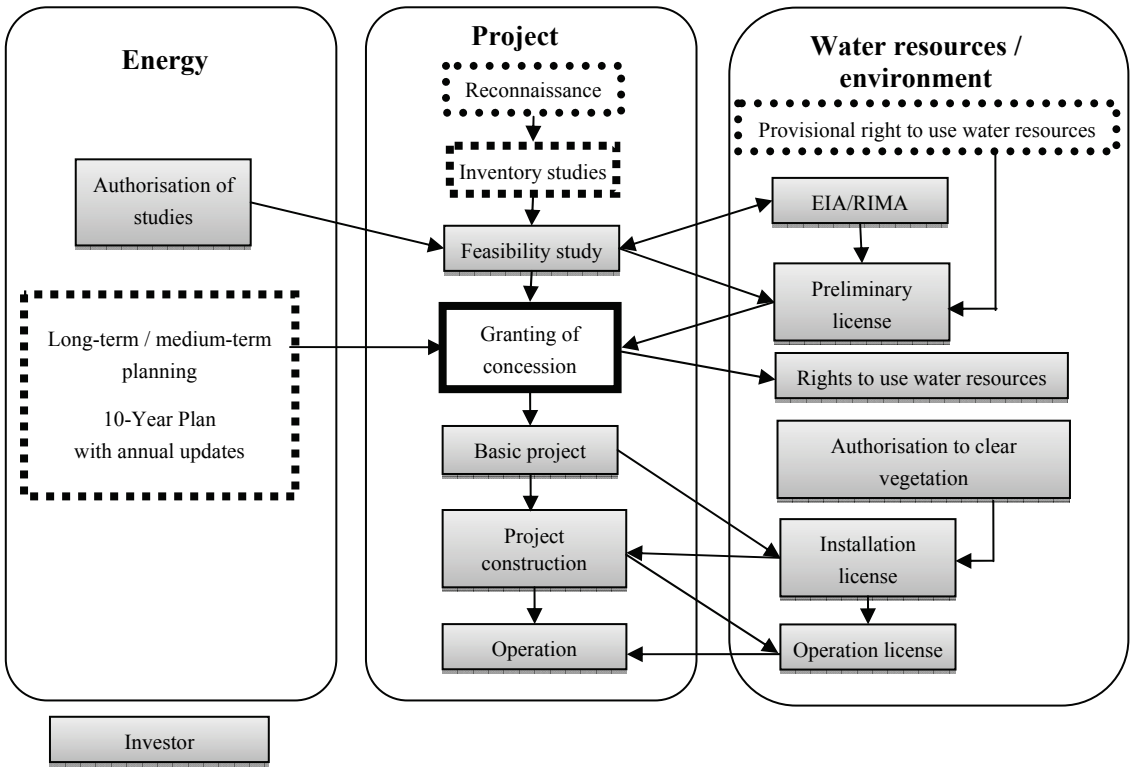
38 In accordance with Article 5 of Law 9074/1995.

39 In respect of expected costs, budget and prices.

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

the case when almost all stages of the process were conducted by agents of the industry/investors).

Figure 1: Investors' main responsibilities prior to the „New Model of the Electricity Sector" 2003 / 2004



Source: Own compilation

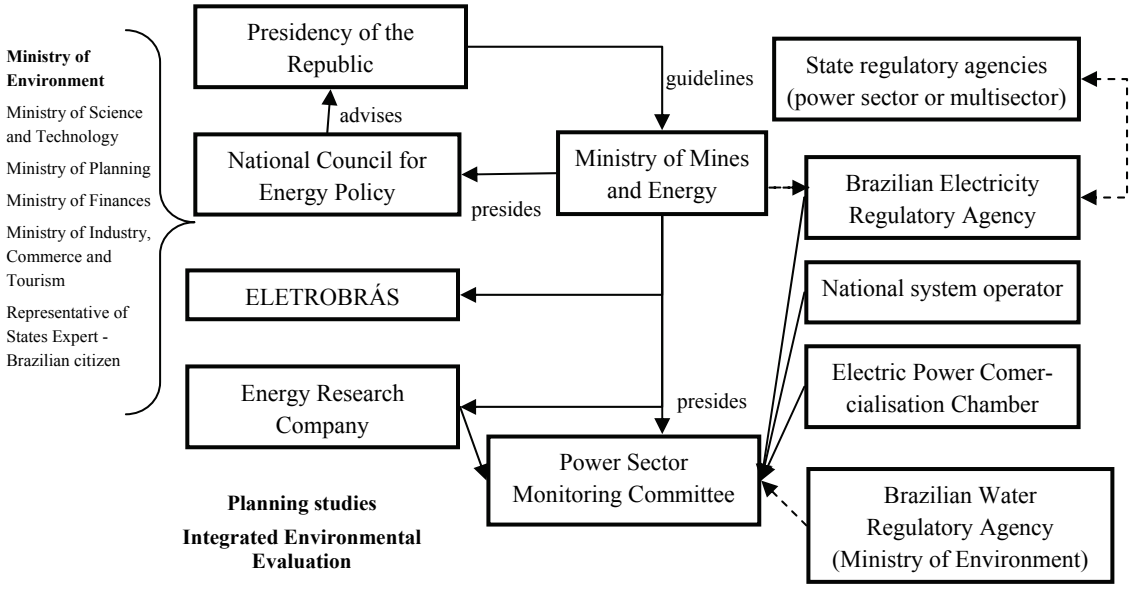
Figure 1, which summarises the main responsibilities assigned to the investor in the previous model, shows that investors played the predominant) role in the former framework, being responsible for studies and for applying for all sorts of permits and licences. The new framework, on the other hand, gives 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. 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.

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 (Figure 2).

Figure 2: Multi-level policy arena in the electricity sector (2010)



Source: Own compilation

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 expansion[41] 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.[42]

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.[43] 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,[44] and that Brazilian society as a whole is still not[45] – or is only just becoming[46] – interested in participating in this kind of debate,

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

42 Zimmermann (2007, 207–208) mentions, in the case of PNE 2030, that the EPE organised several thematic meetings for various aspects of the plan to be discussed with invited experts, while the MME organised nine public seminars to discuss the studies of demand and supply (from different energy sources).

43 I04032009.

44 I13022009b and I13032009.

45 I26122008, I04032009, I06022009 and I30012009.

although it may take an interest in the consequences of the decisions made.[47] 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), which means that participation is indeed able to influence results in Brazil.

The energy sector has more experience of planning than other industries.[48] 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 1970s and 1980s and to pressure from international bodies, and especially financial institutions, which called for environmental aspects to be taken into account from the early stages of the planning cycle at that time.[49] The EPE is also responsible for conducting the studies that lead to the Integrated Environmental Evaluation (AAI)[50] 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 seven 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 in the process of their elaboration, the first being held when potential conflicts are being identified, the second when the preliminary conclusions and directives are presented.[51] The AAI of the Uruguay river basin entailed sixteen public consultation seminars.[52]

Taking the water resource and environmental policy areas into consideration, Figure 3 shows that related decisions take place in the same arena.

46 I16012009 and I12022009.

47 I05122008.

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

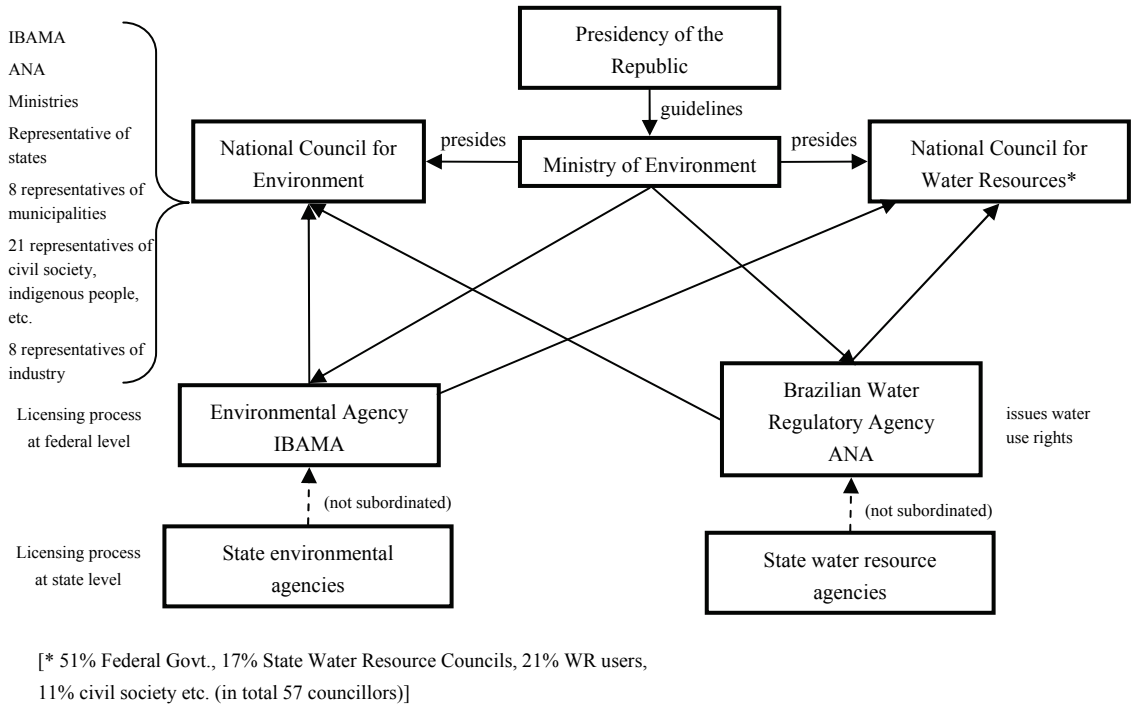
49 For more details, see EPE (2006).

50 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).

51 For more details, see EPE (2007).

52 I12022009.

Figure 3: Multi-level policy arena for the environment and water resources (2010)



Source: Own compilation

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),[53] each with its own committee and plan, a new paradigm in terms of decentralisation and participation in decision-making processes emerges. Water resource policies entail a high degree of public participation in decision-making, as ANA points out:

> *"Brazil has an extremely advanced legal and institutional framework as far as water resources management is concerned. A modern and innovative 'praxis' complements this contemporary legal framework, thus placing Brazil amongst the world leading countries with regard to democratic, participative, environmental and politically sustainable management of its water resources. The democratization of water management in Brazil is the outcome of decades of mobilization, public awareness, and negotiation amongst legitimate stakeholders from all interested sectors; it is the product of governance settlements being built throughout different spatial levels of management as from the establishment of River Basin Committees, which are in fact Water Parliaments, decision-making boards, constituted by legitimate representatives who are democratically elected within the stakeholders' segment which they represent: civil society, private sector and government"* (ANA 2003, 7).

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

As a result, the National System for the Management of Water Resources,[54] provided for in Article 21 of CF/88 and set up under Law 9433 of 8 January 1997,[55] 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, basin committees are not yet functioning and plans have not yet been generally developed.

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 adopted[56] and the National Environmental System (SISNAMA) and CONAMA were established. As the Federal Prosecution Office (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 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. Many of its articles address the importance of the environment and of its protection, calling both for the preservation of the country's cultural heritage (including those of indigenous origin) and for studies of harm done to the environment, which are then to be published. Following the promulgation of the Constitution, the Brazilian Institute of the Environment and Natural Renewable Resources (IBAMA), the environmental agency at the federal level, was created in 1989.[57] In the same year the National Environmental Policy was updated.[58] It now requires the prior licensing of projects that may have environmental impacts and procedures for assessing these impacts.

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

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

56 Law 6938/1981.

57 Law 7735/1989.

58 Law 7804/1989.

With respect to the construction of hydropower dams, Law 7804/1989 introduced the obligation of prior environmental licensing together with environmental impact assessments of projects that may have environmental impacts. 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 separate procedures for granting licenses at all three stages"* (Summary Report 2008, 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 according to CONAMA,[59] the granting of the Preliminary Licence depends on the approval of both the Environmental Impact Assessment (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.[60] 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.[61]

In this context, Fearnside (1989, 2001, 2002 and 2005) refers to the conflict of interests that was common when studies were undertaken in the Amazon region in the 1970s and the project proponent (Eletronorte) and its associated consulting firms, which financed the research and studies, selected the information that would not discredit their projects. As already stated, the EIA/RIMA of potential new projects are now also contracted out by the EPE, which, as a representative of the State, is required to be impartial.

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

59 Resolutions CONAMA 01/86 and 11/86.

60 Resolution CONAMA 237/97.

61 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.

National Institute of Historical and Artistic Heritage and FUNAI for its appraisal.[62] 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 legislation[63] 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 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. According to IBAMA,[64] announcements of public hearings must 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:

1. 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) 9).

2. 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), 24–25).

62 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.

63 Article 2 of Resolution CONAMA 09/87.

64 Online: http://www.ibama.gov.br/licenciamento/index.php, last accessed 15 August 2010.

3. *"Public prosecutors* (Ministério Público, the author) *enjoy virtually unlimited autonomy in Brazil. This power has no parallel in any of the other countries examined in this study*[65] *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) 10, author's footnotes).

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

Hochstetler and Keck also address the role played by the licensing process as a participative arena in which opinions can be aired:

> *"These proceedings are all the more weighty (…) since the licensing process remains open to public scrutiny (having being established at the height of democratizing efforts during the transition), and therefore has become virtually the only setting that requires public debate about economic decisions, even state projects. As a result, individual licensing decisions often become crucibles for the airing of giant social conflicts that really should be settled in other ways, but are not (…) That environmental activists have had an institutionalized seat at the table for twenty years to discuss such conflicts, and citizens have been able to join these processes as well, mean that environmental decision-making is in fact considerably more open to public scrutiny in Brazil than in many countries, whatever the limitations and final decisions"* (Hochstetler / Keck 2007, 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).[66] One possible reason for this may be that licensing processes attract more attention from society as a whole than the planning phase (since the consequences of a project may be perceived as more tangible than those of planning studies)[67] and that this process, acting as a shop-window, suits those interested in a broad ideological discourse in a sphere where the focus should be on technical data and information.[68]

To conclude, while the environmental licensing process in Brazil has the strength of being highly participative and based on strong institutionalised norms and laws, among them several internationally recognised and recommended standards, its weakness lies 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

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

66 I30012009.

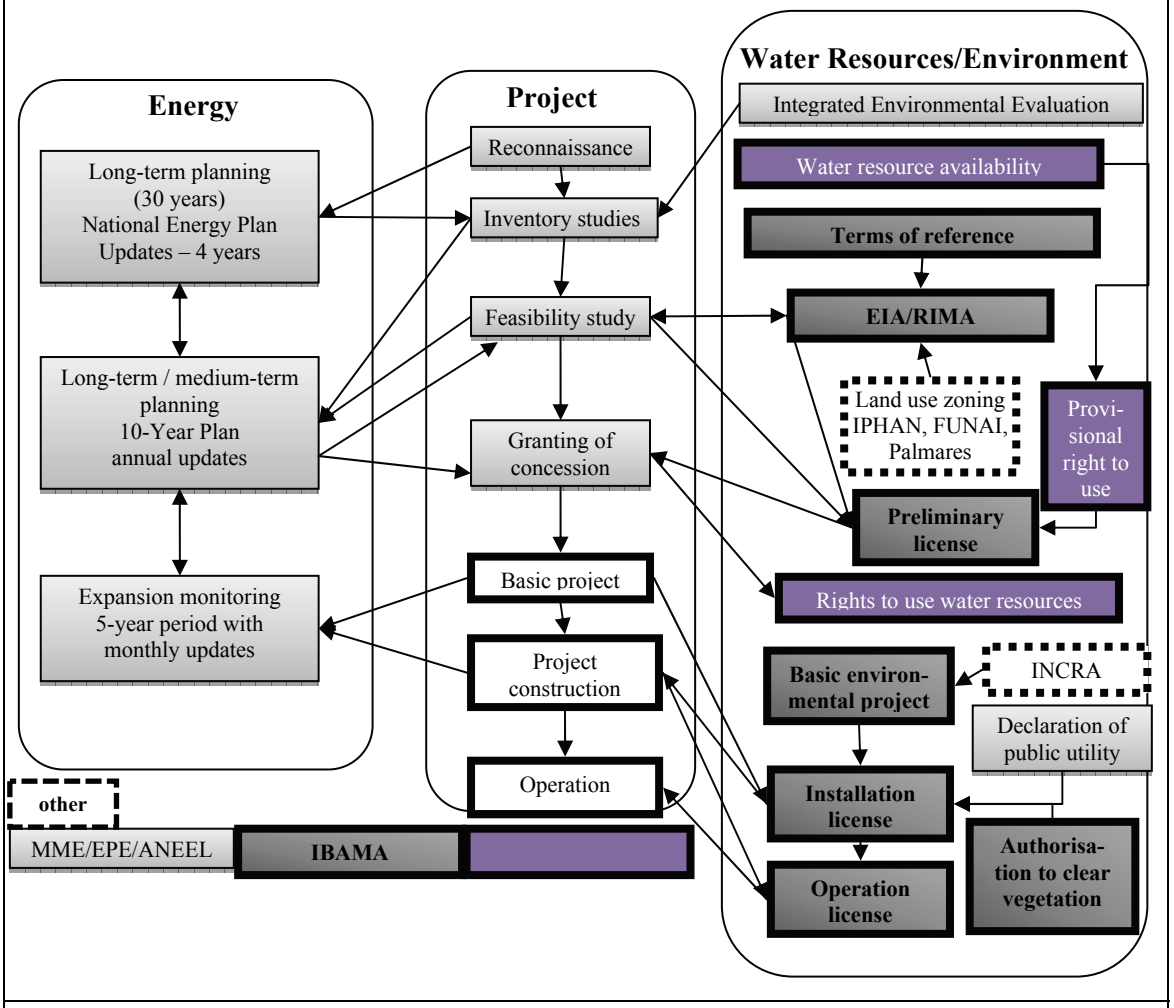
67 I25032009.

68 I06022009.

(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 Figure 4.

Figure 4: Stages in water-/energy-related decision-making



Source: Own compilation

3.2.2 Resettlement

Resettlement policies and practices are discussed during the environmental licensing process and form part of it. 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)[69], indicating the number of people who will be displaced and possible solutions.[70] Once the Preliminary Licence has

69 I30012009.

70 I16012009 and I30012009.

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.[71] IBAMA encourages concessionaires to resolve conflicts and to begin implementing its resettlement and compensation programmes while Installation Licences are still valid and six months before the reservoir is filled.[72]

The second observation concerns the reasoning behind this procedure: it is a characteristic of the Brazilian environmental culture that it addresses social and environmental problems together, since they exacerbate each other, a further aim of addressing environmental impacts being to guarantee the various rights of communities whose livelihoods depend on the environment (as pointed out by Hochstetler / Keck, 2007, 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,[73] to be the head of the MMA.[74]

Nevertheless, it must also be pointed out that Brazil does not have a specific set of laws and norms that address the subject of people having to be resettled because of infrastructure projects, including hydropower plants. Two possible arguments for this could be that the number of affected people may not be large enough to justify a specific set of norms[75] and that there are other laws and norms concerning similar problems that may also be appropriate to resettlement (the Constitution, for example, guarantees property rights and expropriation rights).[76]

The MME has the following to say about information on the number of affected people:

> *"With respect to the affected population, there is a major difficulty in obtaining data; to plot the evolution of this figure, it was necessary to gather information about the contingent of people affected by hydropower plants with an installed capacity of 100 MW or above between 1992 and 2002. During this period 17 hydropower plants with a total installed capacity of 15,647 MW, mainly concentrated in the southeastern, northeastern, mid-western and southern regions of Brazil, began operating, flooding an area of 6,990 km^2 and affecting a population of 20,912 families (83,650 people). As to the decade 2005—2016 the forecast of the number of people affected by the hydropower plants covered by the PDEE (10-Year Expansion Plan) is 73,300"* (MME 2007, 639).[77]

However, as the new hydropower plants are being built in increasingly remote locations and as future hydropower plants will hardly flood areas on the same scale as hydropower projects in the past,[78] because of the obvious environmental impacts, the number of people affected by an individual project may fall.

71 I30012009 and I13022009b.

72 I30012009.

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

74 I29042009.

75 I12032009c.

76 I09032009.

77 Translated by the author.

78 Current projects have been giving precedence to river flow turbines.

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 property in the public interest. Article 5(XXIV) called for future legislation[79] 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, expropriation occurs mainly when the use of the private asset concerned is considered to be advantageous, useful and of public utility. In the case of hydropower projects, 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*) to permit the construction of a hydropower plant in the public interest.

Notwithstanding the constitutional right to compensation for land expropriated to enable a hydropower plant to be constructed (and related laws and norms), social movements frequently question these processes, since they address only those who can prove ownership of the land concerned rather than all those who live on and from that land.

Some of these social movements, whose anti-capitalist[80] approach is closely linked to demands for agrarian reform, frequently oppose the construction of new dams, examples being the MST (*Movimento dos Trabalhadores Rurais Sem Terra* – Landless Workers Movement), Via Campesina and MAB *(Movimento dos Atingidos por Barragens* – Movement of Dam-Affected People). 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, as they consider themselves to be specialists in the negotiation field.[81]

Like the above mentioned movements and organisations, the MAB's focus of operations has also responded to a changing context, as Rothman and Oliver point out:

> *"In the early stages, the progressive church was the predominant influence and was largely responsible for framing the key issue as peasants' right to land, while left intellectuals contributed a class analytical frame. After 1988, the weakening of the Federal government regional power company ELETROSUL,[82] the crisis of the Left after the fall of the Berlin Wall, the defeat of the agrarian reform movement, the rise of the international and national ecology movements, and the anti-dam movement's need for a broader political and financial base all contributed to the adoption of a*

79 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 and Laws 6306 and 6602/1978.

80 It is worth mentioning Hochstetler / Keck (2007) again, since they also address the environmental movement as the new left stronghold, with the left fighting for participation in the democratising transition and in environmental policies. But the leftist approach is not exclusive to environmental organisations, as is evident from Conselho Indigenista Missionário – Indigenous Missionary Council (CIMI) and from FASE, one of the oldest Brazilian NGOs focusing on social and educational assistance and on local, associative and cooperative development aimed at *"defeating neo-liberal policies"* (online: http://www.fase.org.br/v2/pagina.php?id=10, accessed on 16 August 2010).

81 I06022009, I12032009a.

82 As a consequence of the privatisation of its generation assets in the 1990s and of new private hydropower projects in the region.

> *broadened and more pro-active land/energy/ecology frame and an alliance with international environmentalism"* (Rothman / Oliver 2002, 1, author's footnote).

What these movements have in common is the rural land struggle. However, their inclusion of the environmental debate may be helping to sustain their land struggle, and their presence and genuine entitlement to land are advantageous to environmental and even preservationist organisations, which have incorporated the social facet of the issue in their discourse, thus legitimising their actions.

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 councils[83] 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.[84]

Possibly because of the legacy of the previous 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 MAB[85] 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 absence of official criteria, on the other hand, makes it difficult to establish 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.

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

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

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

While there is 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 more recently by President Lula's administration. In this context, it is important to make it clear that the information on trends in this area of policy (and on associated instruments) was gleaned from the statements of the interviewees who collaborated in this study. They attributed the evolution of resettlement practices to several factors, such as a reaction to (and lessons learnt from) past experience,[86] the process of democratisation,[87] the role played since then by NGOs and social movements,[88] by the media[89] and by the *Ministério Público,*[90] and the reinforcement of environmental legislation and EIA/RIMA since CF/88,[91] 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 administrations and by the *Ministério Público.*[92] 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.[93] 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.[94]

Living conditions in the resettlement areas are better than in the previous living areas,[95] since they have better infrastructure (access, public transport, sanitation, connection to the electricity grid, education and health care systems).[96] If they are in rural regions (as they usually are), there must be access to technical assistance,[97] since resettlement programmes must ensure not only the maintenance of livelihoods[98] but also economic inclusion.[99] Consequently, concessionaires are also expected to offer income programmes and replacement

86 I12032009b.
87 I30012009 and I25032009.
88 I05122008, I30012009, I16012009, I13022009b and I25032009.
89 I16012009 and I30012009.
90 I05122008 and I30012009.
91 I16012009.
92 I06022009 and I04032009.
93 I30012009 and I13022009b.
94 I30012009, I06022009 and I12032009a.
95 I12022009.
96 I05122008, I16012009 and I26122008.
97 I16012009.
98 I06022009 and I12022009.
99 I12032009b.

jobs.[100] In the latter case, they are required to provide a temporary income until the new land starts producing[101] and compensation for lost profits.[102] The continuation of neighbourly relations should be ensured.[103]

However, people who do not have property rights are also eligible to participate in resettlement and compensation programmes.[104] They include people with links to the affected area, such as employees, sharecroppers and tenants,[105] who are known as "children of the land" (*filhos da terra*);[106] and even those earning a temporary income from the work at the construction site (such as people selling snacks in the area) are eligible.[107] The environmental agency is, however, expected to set a minimum time for people to be considered bound to the land and so entitled to the benefits.[108]

Even people whose income previously came from informal or illegal[109] activities are eligible for resettlement and compensation. Two possible reasons were cited by the interviewees:[110] these programmes are not intended to be discriminatory,[111] but are designed to provide for social compensation rather than the mere disbursement of financial resources.[112] 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.[113] The land is to be close to the original location,[114] have similar qualities,[115] be productive, be reasonably flat,[116] have good infrastructure and ensure easy access.[117] How much compensation is paid depends on the value of the assets (comprising not only the land but also machinery and equipment)[118] and revenue lost.[119]

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100 I05122008.
101 I16012009 and I13022009b.
102 I30012009 and I06022009.
103 I12022009 and I13022009b.
104 I05122008, I26122008, I12022009, I13022009b and I12032009b.
105 I30012009.
106 I06022009.
107 I30012009.
108 I16012009.
109 Like illegal mining or sand removal.
110 I05122008, I12022009, I16012009, I30012009 and I06022009.
111 I12022009.
112 I05122008.
113 I13022009b and I12032009b.
114 I05122008, I16012009 and I26122008.
115 I16012009 and I12032009b.
116 I30012009.
117 I16012009 and I30012009.
118 I16012009, I12022009 and I13022009b.
119 I16012009, I06022009 and I12022009.

As may have been noted, a wide range of instruments are available for negotiations between concessionaires and affected people, for the Basic Environmental Plan and for inclusion in environmental licenses as conditions or mitigation measures. In this regard, 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.[120] The withdrawal of an environmental licence or its non-renewal is the penalty imposed on concessionaries if they fail to take the agreed measures.[121]

Recent efforts to cope with the social aspects of dam construction are also recognised by the World Bank:

> *"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 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,[122] 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"* (World Bank 2008, (I) 27, author's footnote).

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 percent. 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 percent), whereas the costs associated with the physical environment represent only 2 percent of the total cost"* (World Bank 2008, 26).

3.3 The role of the judiciary and the *Ministério Público*

The role of the judiciary in dam construction has grown with the democratisation of the country, since the incorporation and development of a procedural mechanism for group litigation in 1985[123] and with the creation of the public civil action (*ação civil pública*), which enables environmental, consumer and other "diffuse and collective"[124] interests to be legally defended. The following institutions are entitled to bring public civil actions:[125]

120 I05122008 and I26122008.

121 I12022009 and I13022009b.

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

123 Law 7347.

124 The inclusion of collective and diffuse interests as subjects of public civil actions is an achievement of the CF/88, which therefore increased the use of this instrument. See Lopes 2000.

125 According to Law 7347, updated by Law 11448 of 2007.

the Public Prosecution Service (*Ministério Público*); the Public Defender's Office (*Defensoria Pública*); the Union, states, Federal District and Municipalities; *autarquia*,[126] state-owned companies, foundations and semi-public companies (*sociedades de economia mista*); and any association which has been in existence for at least one year and has as one of its specific aims the protection of the environment, consumers, the economic order, free competition or national treasures of artistic, aesthetic, historic, touristic or landscape value.

The *Ministério Público* is the State institution responsible for ensuring the enforcement of legislation. Where legislation is infringed, the *Ministério Público* is required to insist (usually through the judiciary) on the State organs and institutions concerned complying 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 subordinated 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 legal actions. The structure of the *Ministério Público* conforms to the distinction made by Brazilian federalism between the Union and the states.

With respect to the shared right to bring public civil actions mentioned above, even though associations of organised civil society 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 concerning their claims (Lopes 2000 and 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; and 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.[127] 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 an external monitor[128] of public decisions and policies, the *Ministério Público* is frequently criticised for the action it takes, especially in the case of the environmental licensing of hydropower projects. Considering the delays they cause in the licensing process, the World Bank (2008) claims that licensing agency employees fear penalties which may be imposed on them by the *Ministério Público* under the Environ-

126 ANEEL and ANA, for example.

127 I04032009.

128 Also recognised by I05122008, I16012009, I30012009 and I13022009b.

mental Crimes Act[129] and the Administrative Improbity Act,[130] 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[131] or intimidated[132] by the *Ministério Público*.

Hochstetler / Keck (2007, 45) also refer to the judiciary and to the *Ministério Público* specifically in the context of the environmental licensing process:

> *"In any case, licensing conflicts have increasingly moved to a new battle field, the courts – again, at all levels of government. While business has always exercised this option, the Ministério Público is now a frequent 'judicializer' of the licensing process, using the courts to insist on environmental impact assessments that have been omitted, or questioning the quality of completed ones."*

As regards the reasons for so many actions concerning dams being brought, it was claimed that the quality of studies or the mitigation of a certain impact is questioned because Brazil's laws and its Constitution contain many "imprecise legal concepts,"[133] which usually call for the drafting of further normative legislation. As a result, the judiciary is asked to "legislate" by interpreting vague norms.[134]

In conclusion, it should be mentioned that the *Ministério Público* not only acts through litigation (mainly public civil or penal actions),[135] but also organises public hearings (like the one held to discuss the PDEE 2009), makes recommendations to public organs or institutions (which are subject to penalties in the case of non-compliance) and intervenes in such negotiated agreements as the Protocol for Adjustment of Public Conduct (TAC), governed by Law 7347/1985.[136] In the TAC the public sector commits itself to implementing procedures necessary to bring about appropriate and regular activities designed to prevent or repair environmental damage as a means of respecting collective, diffuse or individual homogeneous rights. The TAC may be signed with an agent under civil investigation or involved in a public civil action (in which case, the investigation or action is terminated), thus necessitating the agreement of the *Ministério Público* and/or environmental agencies of the National Environmental System, the payment of damages, the total clarification of the facts and the imposition of penalties in the event of non-compliance with the negotiated terms of the TAC. According to the World Bank (2008), the TAC is frequently used as an instrument of conflict management, helping to reduce delays in the process (since the judicial alternative usually takes longer). Despite the benefits of this agreed solution, the World Bank also points out that the TAC may be used with a "deviation of pur-

129 Law 9605/98.

130 Law 8429/92

131 Canal Energia (2009).

132 Sales (2009).

133 I13032009, the expression "equilibrated ecosystems" being an example.

134 I30012009.

135 Article 8 of Complementary Law 75 of 20 May 1993 establishes specific procedures that the *Ministério Público* may follow to fulfill its responsibilities and competencies.

136 I04032009.

pose" (*desvio de finalidade*), when agreed compensatory measures do not correlate with the identified environmental damage.

In conclusion, it can be accepted that Brazil has institutionalised norms on global environment, human rights and indigenous peoples' rights. As Khagram (2004, 159) points out, these norms have contributed to organisation and mobilisation at both international and domestic level and were critical of the transformation of large dam projects and development in Brazil during the 1980s and 1990s. According to Khagram, while *"(...)100 big dams were built during the 1950s and 103 during the 1960s, this rate dramatically dropped to 91 in the 1970s, 60 in the 1980s, and to less than 30 in the 1990s"* (Khagram 2004, 142).

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 (see table 1).

4.1 Dam building during the military dictatorial regime and the newly implemented democracy (1974–1988)

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. Two of the many projects are presented: a hydropower plant built in the northern state of Amazonas, the UHE Balbina, known for its environmental impacts, and a plant built in the northeastern state of Pernambuco, the UHE Itaparica, known for its controversial and expensive resettlement experience.

Balbina hydropower plant

The UHE Balbina (250 MW) is known as the worst project built in Brazil in terms of environmental damage, because it resulted in the flooding of 2,360 km^2 of dense tropical forest in the Brazilian Amazon region.

In 1977, Presidential Decree 79321 granted state-owned Eletronorte (the subsidiary of Eletrobras in the region) a concession to exploit the hydraulic energy potential of the River Uatumã at a location known as *Cachoeira Balbina*. Balbina was built to supply electricity to Manaus, a city whose electricity demand grew sharply while the dam was under construction, outstripping its supply capacity, because of delays in the construction schedule: contracts were signed in 1981, the filling of the reservoir began in 1987, and the first generating unit went into operation in 1989 (the fifth and last one followed in 1990).

The delays were due to a lack of resources delaying the design of the basic project (1977 and 1978); Eletronorte's suspension of its activities (for eighteen months) to study the alternative of supplying the Manaus market with a thermal plant fuelled with mineral coal from the state of Santa Catarina (an alternative that proved to be uneconomical); and

Table 1: The dam projects investigated at a glance				
Historical moment	Military dictatorial regime		Liberalising period of the ESI	Newly regulated environment
Hydropower Plant	Itaparica	Balbina	Cana Brava	Santo Antônio
Region	Nordeste	Norte	Centro-Oeste	Norte
State	Pernambuco	Amazonas	Goiás	Rondônia
River	São Francisco	Uatumã	Tocantis	Madeira
Year of the concession contract	1945	N.A.	1998	2008
Equity holders	Chesf	Eletronorte	Tractebel Energia	Furnas, Odebrecht, Andrade Gutierrez, Cemig e Investment Fund
Origin	public	public	private	public and private
Planning studies	Enenorde, Plano 90	Eneram, Plano 2010	10-Year Energy Plan	Eneram
Year of the study	1973	1972	early 1990s	1973
Beginning of construction	1979	1981	1998	2008
Operation (1st turbine)	1988	1989	2002	2012
Installed capacity (MW)	1480	250	450	3150
Reservoir area (km^2)	828	2360	139	271
Reservoir volume (hm^3)	10782	17533	2300	2
Maximum maximorum level (m)*	305	51.17	333**	70
Total investment	US$ 1622 million	US$ 1033 million***	R$ 576 million	R$ 13500 million
Major equipment suppliers	Gie, Siemens, Voith	Neyrpic, Vigesa, J. Schneider, Brown Boveri, Bardella, BSI	Siemens	Alstom Hydro, Bardella, Areva, Siemens, VA Tech, Voith Siemens Hydro
Financial institutions	International Bank for Reconstruction and Development, Eletrobras	Eletrobras, Banque Française du Commerce Extérieur, French Treasury, Midland Bank, Banco da Amazonia/Finame	BNDES, Interamerican Development Bank, other financial institutions	BNDES, Santander, Banco do Brasil, Banco do Espírito Santo, Banco do Nordeste, Banco da Amazônia, Itaú BBA e Caixa Econômica Federal

Table 1 continued				
Displaced population	41,200 (incl. 1,200 indigenous persons)	357 (incl. 107 indigenous persons)	258 non-Indian families	578 non-Indian families****
Environmental studies	EIA/RIMA not required, several studies undertaken	EIA/RIMA not required, several studies undertaken	EIA/RIMA, one public hearing before the renewal of the LP	ToR, EIA/RIMA, Strategic Environmental Evaluation, four public hearings, 64 participative meetings
Licensing bodies: licences	IBAMA: LO	CODEMA (Amazonas state): LI and LO	FEMAGO (Goias state): LP, LI, LO	IBAMA: LP, LI
* above sea level ** normal maximum level *** excluding interest **** resettled population (negotiations with affected population is still in progress)				
ToR: Term of Reference LI: Installation Licence LO: Operation Licence LP : Preliminary Licence				
Source: Author's own compilation				

budgetary constraints in 1983, 1984 and 1989, which caused a delay of a further two and a half years. These constraints added to inflation and exchange rate problems from 1975 to 1988 and to the addition of further service costs (Eletrobras 1997, 30–34), resulted in a final cost of US$ 1,032 billion.[137] The project relied on several sources of funding: foreign resources lent by Eletrobras, suppliers' credit (from *Banque Française du Commerce Extérieur* and from the French Treasury) and the Bank of Amazonia (BASA, with resources from BNDES/Finame).

According to Fearnside, *"[t]he World Bank was approached for funding Balbina, but refused on environmental grounds. Subsequently Brazil obtained a sector loan to supply imported equipment for increasing electric power generation capacity throughout the country, thereby circumventing the bank's environmental review of individual projects"* (Fearnside 1989, 417).

Although impacts of the project on the environment[138] due to the rush to fill the reservoir without prior logging of the timber (Fearnside 1989; Eletrobras 1997) are undeniable, they do not invalidate the fact that the decision had been carefully planned by the Committee of

137 Values updated as of July 1988, excluding interest (Eletrobras 1997, 451).

138 The impacts most frequently addressed are the loss of invaluable ecosystems, emissions of greenhouse gases at controversial levels and the deterioration of the quality of the water downstream from the dam because of the flooding of more than 2,000 km^2 of dense tropical forests, which affected downstream riverside communities and killed fish.

Power Studies of the Amazon Region (Eneram),[139] which considered the impacts before construction began.

Environmental studies on Balbina were not needed because construction began before the regulation requiring such studies entered into force. However, an Operation Licence did need to be obtained for the dam from the environmental agency of the state of Amazonas (CODEMA), which called for a diagnostic report describing the features of the area before the reservoir was filled and detailing the environmental activities undertaken. Various federal, state and foreign institutions were involved, including universities and research bodies, examples being IBAMA, FUNAI, the Amazonian National Research Institute (INPA), the Tropical Medicine Institute of Manaus (IMTM), the Amazonian Institute of Historical and Artistic Heritage and the Smithsonian Institution. Fearnside (1989) is critical of these studies on the grounds that they were contracted by Eletronorte, which had to approve the publication of research findings under the terms of the funding contract for these studies. He argues that they were mainly used for public relations purposes.

Resettlement, on the other hand, was not such an important issue, since the remote area was almost unpopulated. Eletronorte offered land in government settlement projects to the 250 non-indigenous residents of the Balbina submergence area and compensation (such as wells and solar dryers) to those living downstream from the dam (Fearnside 1989; Eletrobras 1997). The Balbina reservoir flooded two villages inhabited by 107 Waimiri-Atroari, who were resettled in two new villages. Eletronorte paid compensation to all the Waimiri-Atroari at the value of their farmland. They were also reimbursed for the costs associated with the development of new farmland and the building of new villages. Eletronorte also provided financial assistance for the displacement and the building of two new support stations, replacing those previously sited in the reservoir area. The company signed an Agreement Protocol with FUNAI, taking over the responsibility to finance the delimitation of Waimiri-Atroari land under Decree 97837 of June 1989, which allotted them an area of 2,585,911 ha within a 982.33 km perimeter comprising fourteen villages. In June 1988, an additional compromise was added to the Agreement Protocol signed with FUNAI: financing would continue for the next 25 years and the Waimiri-Atroari Programme would be implemented (Eletrobras 1997, 484–485). The background of these activities is that between 1974 and 1987, the number of Waimiri-Atroari had come down from 1,500 to 374 due to sickness and interference of Eletronorte and a mining company in their land.[140]

The historical context may be considered fundamental in any explanation of the inferior decision-making process: environmental awareness was not developed and participation was not encouraged (and was even condemned) by an authoritarian military regime. The project was, moreover, located in a remote area with the goal of supplying electricity to a small and geographically isolated state capital. It was not a project of "national" interest and visibility as those of recent years, which supply electricity to the whole country; but a project in a remote area built to supply a local community.

139 The Committee was set up in May 1969. It reviewed available data and information on possible hydropower potential in the Amazon region, followed by systematic field investigation to identify, at an inventory study level, sites for hydropower plants to supply the major development nuclei in the region, which were mainly the state capitals.

140 See: http://www.waimiriatroari.org.br (20.10.2010).

Itaparica hydropower plant

The construction of the UHE Itaparica,[141] on the River São Francisco in the northeastern state of Pernambuco was a different 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 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, with much the same delay as that experienced at the UHE Balbina, it went into operation only in June 1988.

The Itaparica dam has a reservoir area of 828 km^2,[142] 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

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

142 See http://www.chesf.gov.br/portal/page/portal/chesf_portal/paginas/sistema_chesf/sistema_chesf_geracao/conteiner_geracao?p_name=_Luiz_Gonzaga, accessed on 18 August 2010.

and incapable and having to relearn cultivation methods. Besides this, the use of agro-chemicals 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 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, 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 suc-

ceeded 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 two 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.

4.2 Dam-building in a newly liberalised industry (1995–2001)[143]

Cana Brava hydropower plant

Before the case of the UHE Cana Brava built on the River Tocantins during the liberalisation of the Brazilian ESI is presented, it is worth mentioning that its planning and part of its environmental licensing were undertaken prior to 1995.

The UHE Cana Brava is a 450 MW project located some 50 km downstream from the UHE Serra da Mesa reservoir,[144] on the border between the municipalities of Minaçu and Cavalcante, in the state of Goias, and flooded an area of 138.7 km^2. The project was originally to be undertaken by Furnas, a subsidiary of Eletrobras, which carried out the preliminary studies, including the EIA study submitted to the Goias environmental agency (FEMAGO at that time) in 1987. In 1990 FEMAGO issued the Preliminary Licence to Furnas once the EIA study and the RIMA had been approved. The Preliminary Licence

143 This section is based on da Costa / Correia (2008).

144 A hydropower plant with a nominal capacity of 1,275 MW, its dam designed to be Brazil's major artificial freshwater dam, having a 54 billion cubic meters storage capacity and an area of 1,780 km^2. The UHE Serra da Mesa became operational in 1998, 12 years after its construction began.

was subsequently renewed in 1995 and again in October 1997 after a public hearing had been held in Minaçu on 23 April 1997 (IADB 2000a).[145]

Following an international tendering procedure that closed on 19 March 1998, a 35-year concession contract was awarded by ANEEL to the Companhia Energética Meridional (CEM) in accordance with the previous regulatory model for the ESI. The CEM was a special-purpose company created to undertake the project and owned by Tractebel Energia S.A., a subsidiary of Tractebel S.A. of Belgium, one of the largest independent power producers in the world. As the IADB pointed out in 2000 (IADB 2000 b), Cana Brava was one of the first private projects to be developed within Brazil's new institutional and regulatory framework for the power sector, which was introduced in 1995. Cana Brava was the first project-financed independent power producer. In addition to loans from BNDES, the CEM received US$ 160 million in IADB financing, including a US$ 75 million loan from ordinary capital and a US$ 85.2 million syndicated loan from funds provided by financial institutions that underwrote participation agreements with the IADB (IADB 2004).

The CEM's application to FEMAGO for an Installation Licence included updated environmental and social information and data on the basic project. The Installation Licence was then granted by FEMAGO in September 1998. The CEM's construction work was concluded in December 2001, the filling of the reservoir began in January 2002, and the plant went into operation shortly afterwards.

In accordance with its own environmental and social policies, the IADB issued its "Environmental and Social Impact Report" (IADB 2000a), the key points of which are as follows:

The total cost of the project was estimated at US$ 426 million. The cost of environmental and social mitigation during construction and operation was estimated at approximately US$ 25.5 million. This amount included the total cost of the Environmental and Social Mitigation Programme (ESMP) for both the construction and the operation phases, including the specific environmental management measures for the campsite, the rehabilitation of degraded areas and the expropriation and resettlement costs (item 2.16 of the report). The ESMP for the Cana Brava plant consisted of 19 mitigation and monitoring programmes that accounted for a total of approximately US$ 20 million (item 6.31 of the report).

A formal census of families/persons directly affected by the flooding of the area was taken from March to September 1999. On 29 November 1999 the census was formally validated at a public meeting, at which some 300 people from the affected area were present, including the mayors of Minaçu and Cavalcante and representatives of the *Ministério Público* (item 3.23 of the report).

145 It is worth mentioning that the public hearing took place after the granting of the Preliminary License, but as a requirement for its renewal, i.e. before any environmental harm could have been done (which would have occurred after the granting of the Installation License). There is no information why no public hearing was held before the Preliminary License was granted, although it may be assumed that the prospect of the project really being built by a state-owned company with no investment capacity at that time was questionable. The renewal application shortly before the closing date for private investors to submit tenders may indicate that the construction of the dam was considered a definite possibility.

According to item 5.8 of the report, a total of 258 families were then to be moved from the reservoir area and receive compensation and/or be resettled under a Compensation and Resettlement Plan (at the time the IADB issued its report, it mentioned only the draft version of this resettlement plan). Item 4.25 of the report stated that there were no indigenous people in the Direct Area of Influence of Cana Brava. The draft Resettlement Plan contained an estimated total cost, which included around US$ 4.1 million for land acquisition and about US$ 1.75 million for the resettlement programme (item 6.31 of the report).

Although mitigation and resettlement measures were taken, persons affected by the construction of Cana Brava power plant who were represented by the Movement of Dam-Affected People (MAB) claimed that the demands of the local population had not been fully met by the project resettlement programmes already implemented. The IADB conducted an audit to identify these demands and also to address social and economic development problems in the project area not directly related to the Cana Brava hydroelectric project. The social audit initiated by the IADB in April 2003 consisted of an intensive five-month field investigation, a detailed review of compensation and resettlement claims and the identification of appropriate solutions. The audit was conducted with the participation of the MAB and several Brazilian government agencies and was undertaken to guarantee the inclusion of all the people affected by the project. The social audit recommended the resettlement of an additional 31 persons, potential adjustments to the compensation already paid to 62 persons and the payment of compensation to an additional 30 persons (IADB 2004)[146].

The IADB also undertook an Independent Investigation Mechanism review of Cana Brava in 2003, again at the MAB's request.[147] In its final report in July 2005 the Independent Panel found that the Bank had complied with many of its operational policies, but it also that it had failed to comply fully with its Operational Policy OP-710 on involuntary resettlement. The management did not agree with the Panel's conclusions and contended that the Bank had complied with all its policies. At a board meeting executive directors were unable to agree whether the specific policy concerned had been violated. But they did note that the area of the project had suffered from economic and social disadvantages before the initiation of the project (IADB 2006b)

It is, however, important to mention that the Panel put forward recommendations addressing *inter alia* additional social and environmental unit staffing, resettlement planning and sufficiently early resettlement component screening. In this context *"[t]he Board welcomed the commitment of IADB management (...) to establish an economic and social development fund to address broader economic and social issues in the Cana Brava project area"* (IADB 2006a).

As a consequence, the Regional Development Fund for the Hydroelectric Power Plants of Cana Brava and Serra da Mesa[148] was created in June 2007[149] with the signing of a techni-

146 Another result of this audit was the creation of a development fund to address development problems in the region. This is considered in the following paragraphs.

147 According to the IADB (2006c), the request it received for an investigation of the Cana Brava project was presented in two letters dated 10 May 2002 and 9 July 2002 by a group of individuals claiming to have been affected by Cana Brava and represented by the MAB.

148 As the two projects impacted the same population and region.

cal and financial cooperation agreement by the Ministry of Mines and Energy (MME), the partner companies CPFL Geração de Energia S.A. (co-owner of the Serra da Mesa plant), Furnas (co-owner of the Serra da Mesa plant) and Tractebel Energia S.A. (owner of the Cana Brava plant), and the Brazilian Service of Support for Micro and Small Enterprises of the state of Goias (SEBRAE/GO).[150] SEBRAE was appointed the executive body of the fund after signing an agreement with the IADB. It is important to mention that the technical and financial cooperation agreement signed by all these entities was also signed by representatives of the MAB as a witness. In other words, the conception of the fund relied on the participation of the main stakeholders involved in the construction of the dams and its consequences: the local population, government, private and public investors and financiers.

The aim of the fund is to promote economic opportunities for micro and small local rural enterprises and other forms of cooperative associations, involving not only formal social nuclei.[151]. Its resources are therefore to be allocated under a programme known as "Promotion of Social Entrepreneurial Responsibility through the Support of Local Productive Initiatives in the State of Goias," which is to be promoted by SEBRAE in nine municipalities near the two reservoirs in the state of Goias. The fund may therefore be seen as an attempt to address the *"social liabilities*" of the region and not only people directly affected by the projects.

The UHE Cana Brava and the consequent regional development fund illustrate the constant efforts made in Brazil to deal with social liabilities related to dams. In this case, however, the social debt has not been treated in a rather paternalistic approach (common in the past, as demonstrated by the UHE Itaparica, where the resettled people still depend on allowances paid by Chesf), but in a way that leads these affected people to develop ownership of the solutions to their problems. This may also be considered to be an evolution in the way resettlement issues are addressed, moving from a *land for land* form of compensation towards a solution based on the restoration or creation of livelihoods. And this innovative approach to this type of social liability may be partially attributed to the influence and expertise of a multilateral institution such as the IADB and to the growing attention paid by public authorities to social demands, be it through social mobilisation or through the *Ministério Público*.

In this specific case, the *Ministério Público* (MPF 2007) petitioned the courts in Goias for a public civil action against Tractebel, CEM, IBAMA, the state environmental agency[152] and ANEEL. It claimed that environmental damage had been done because vegetation had not been suppressed in the reservoir area, and therefore called on the project developer to undertake mitigation measures to guarantee the quality of the water resources. The *Min-*

149 Ministerial Order: Portaria MME nº 133 of 21 June 2007.

150 SEBRAE was set up in 1972 as a private entity of public interest and has as its main source of revenue contributions collected from enterprises and as its main goal the encouragement of entrepreneurship in Brazil. It has offices throughout the country: the system is decentralised and composed of units distributed in the 27 states and in the Federal District. National SEBRAE has an office in Brasilia (www.sebrae.com.br).

151 This is supported by the conclusions drawn by the IADB's Panel from the social audit of the Cana Brava project, concerning the inadequate coverage of eligible individuals, with particular emphasis on informal goldminers.

152 Its name changed from FEMAGO to AGEMA.

istério Público also sought to transfer the environmental licensing process[153] from the state agency to IBAMA because of the regional impacts of the project and the impacts on the land of the Avá-Canoeiro, who should also be further compensated by the project developer.

4.3 Dam-building in a newly regulated environment (from 2003)

Santo Antônio hydropower plant

The last case to be analysed is the 3,150 MW UHE Santo Antônio hydropower plant, the decision to construct 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[154] which was to be regarded as a priority 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 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.

EIA[155]/RIMA[156] 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 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)

153 It also considers the renewal of licences.

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

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

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

and the NGO CPPT Cuniã (Centro de Pesquisas de Populações Tradicionais Cuniã – Research Center for the Cuniã Traditional Populations) (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)[157] 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. 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 64[158] 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,[159] 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.[160] Besides arranging these participative meetings, the project proponents presented the project and the process at a further 82 events[161] (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 his mitigation and compensatory measures in greater detail, setting out, for ex-

157 T18092009.

158 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 (last accessed on 19 September 2009).

159 I14092009 and T18092009.

160 T18092009.

161 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.

ample, 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 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,[162] 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 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 Principles[163] and the International Finance Corporation's environmental guidelines while drawing up the PBA.[164]

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.[165]

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

163 The consideration of these principles is also mentioned in the documentary film, "The Madeira's Voices".

164 T180909.

165 For more information, see http://www.santoantonioenergia.com.br.

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.

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.

5 Summary and conclusions

This paper 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. On the basis of the analyses undertaken in this paper, the three hypotheses initially adopted concerning possible internalisation paths will now be explicitly discussed in the light of the reflections that have been highlighted.

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 being not only the International Conference for Renewable Energies that took place in Bonn in 2004, but also 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. Hence the Brazilian government's reticence to show any particular interest in the recommendations of the World Commission on Dams. The confidence in the country's decision-making framework and dam-building procedures may justify this lack of interest (ANA 2001; 2003). Nevertheless, the role of the WCD as a cata-

lyst for improving sustainable dam development for the sake of human beings is not ignored (ANA 2001).

The Agência Nacional das Águas – 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, 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, 19, 623, 638). Although little reference is made to the WCD report in official documents and statements, some discursive effects[166] in Brazil can be discerned (Dingwerth 2007): it has influenced the discourse of the anti-dam movements,[167] although other Brazilian social movements make little mention of these recommendations;[168] and it has influenced the discourse of international NGOs active in Brazil and of governments of the developed

166 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).

167 I16012009, I30012009, I06022009, I13032009, I25032009.

168 I13022009a, I12032009b.

world against large hydropower projects as a renewable source of energy has been limited.[169]

If the WCD is taken as an example, the government's embeddedness in international institutions does not therefore seem to be a determinant cause of the internalisation of international standards, notwithstanding the influences of globalisation and other international trends: 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.

On the other hand, it must not be forgotten that, although the hydropower strategy may constitute a policy of the Brazilian State, 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 not been an easy task and 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 private and[170]/or public project developer.[171] 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).

This leads us to the next hypothesis on the role of social mobilisation in society. As this paper and Hochstetler / 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 / 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,

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 1980s 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 part-

169 I06022009.

170 Through special purpose companies.

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

ners of the administration in NGOs – or in NGOs opposed to a certain administration), and[172]

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,[173]

formed a pathway for the internalisation of international best practices and values in Brazilian environmental legislation and practices and thus had normative, discursive, regulatory and material effects. And as no hydropower plant is built unless the requirements of the environmental licensing process are satisfied and its procedures are completed, 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.

In view of the fact

— that one common argument for questioning the process is that affected people have not been informed or able to participate as required by law and norms and

172 As presented by Bernardo (2001).

173 As addressed by Lopes (2000).

— that their lack of information added to their usual mistrust of the administration[174] turn them into a "mass of political manoeuvre,"[175] since they are more susceptible to ideologies and arguments,

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 of 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 field (including the ESI) because of the reliance of domestic dam developers – until recent years, state-owned companies – on foreign financial services requiring the application of international standards, inducing domestic decision-makers to implement international standards, which confirms the third hypothesis of this paper. This also accounts for the creation of areas within Eletrobras dedicated to the environmental field and of specific methodologies to address this issue in the budgets of hydropower plants (*Conta 10*), as this paper argues. 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 paper has shown.

Two of the four cases analysed above indicate this direct influence: the UHE Itaparica and the UHE Cana Brava. Although the UHE Balbina relied on foreign suppliers' credit, no reference was found to specific requirements regarding socio-environmental aspects. The last 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 possible:

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 (the last two power plants analysed in the case studies received significant funding from BNDES).

174 Addressed by Scott (2006).

175 Not all NGOs or social movements that contact affected people and propose that they act as their representatives are legitimately interested in their concerns and expectations.

3. International financial institutions, on the other hand, seem to be a better target for social movements and NGOs, as the UHE Cana Brava has shown. 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 Balbina and UHE Itaparica demonstrate. 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 professionalisation and qualification of the State is still a work in progress.

To conclude, while the contribution made by international influence to the framing of Brazilian environmental awareness, 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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