

Dams in Brazil and Norm Diffusion

6th Dialogue on Water
German Development Institute

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Brazil in Numbers



Source: CIA Factbook, 2008

- Area: 8,547,403 km² - 5th country in the world (IBGE, 2007)
- Population: 183,987,291 (IBGE, 2007)
- GDP: US\$ 1.3 trillion (2007 est. - CIA Factbook, 2008)
- Population below poverty line: 31% (2005 - CIA Factbook, 2008)
- Minimum wage: R\$ 465,00 (€ 180,00)

Strategic role of hydropower

Existing Power Generation Facilities (Dec, 2007)*			
Source	no. plants	MW	%
Hydroelectric	669	76,400	71.23
Gas	108	11,344	10.58
Oil	596	4,475	4.17
Biomass	289	4,113	3.83
Nuclear	2	2,007	1.87
Mineral Coal	7	1,415	1.32
Wind	16	247	0.23
Installed Capacity	1,687	100,001	93.24
Contracted Imports**		7,250	6.76
Available Capacity		107,251	100.0

* includes all isolated systems

**Paraguay Itaipu: 7,000 MW, Paraguay ANDE: 50 MW, Venezuela: 200 MW

Source: Ten-year Energy Expansion Plan 2008/2017 (Oct. 2008)

Available at www.mme.gov.br

Strategic role of hydropower

Planned Hydropower Plants

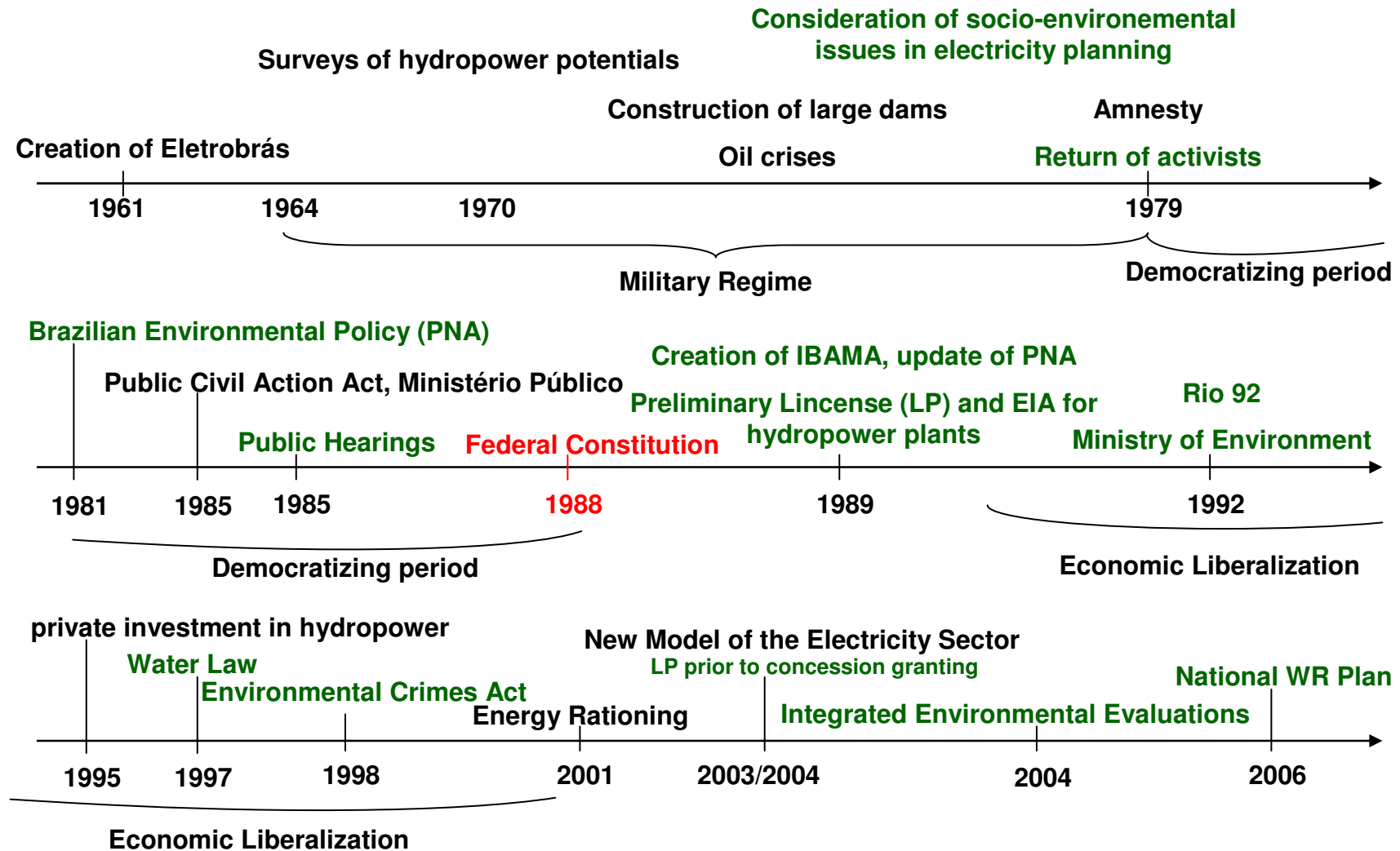
Tabela 8 – Distribuição dos empreendimentos hidrelétricos planejados pelas regiões hidrográficas (nº de usinas / MW)

Região Hidrográfica	Construção	Concessão	LEN 9 e 10	Indicativa	Total Planejadas
Amazonas	3 [3.484,9]	2 [3.466,5]	4 [5.987]	6 [5.587,1]	15 [18.525,5]
Atlântico Sudeste	3 [484,7]	2 [238,7]	1 [80]	1[50]	7 [853,4]
Atlântico Sul	3 [412,3]	-	-	-	3 [412,3]
Paraná	9 [1.132,8]	2 [398]	-	7 [624,3]	18 [2.155,1]
Parnaíba	-	-	3 [183]	2 [247]	5 [430]
São Francisco	1 [82]	-	1 [240]	-	2 [322]
Tocantins - Araguaia	2 [1.058,2]	1 [150]	1 [76]	9 [3.069,1]	13 [4.353,3]
Uruguai	4 [1.050]	1 [291,9]	-	3 [545]	8 [1.886,9]
Total	25 [7.704,9]	08 [4.545,1]	10 [6.566]	28 [10.122,5]	71 [28.938,5]

Source: Ten-year Energy Expansion Plan 2008/2017 (Oct. 2008)

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Hydropower and Environment – changes over time



Constitution of 1988

- Protection of the environment and cultural heritage
- EIA and information disclosure
- Indigenous people
- Participation and individual rights
- "Federative Pact"
- National System for the Management of Water Resources (SNGRH)
- functional independency of Ministério Público
- Property rights and expropriation in case of social interest, public need or public utility by means of previous cash compensation

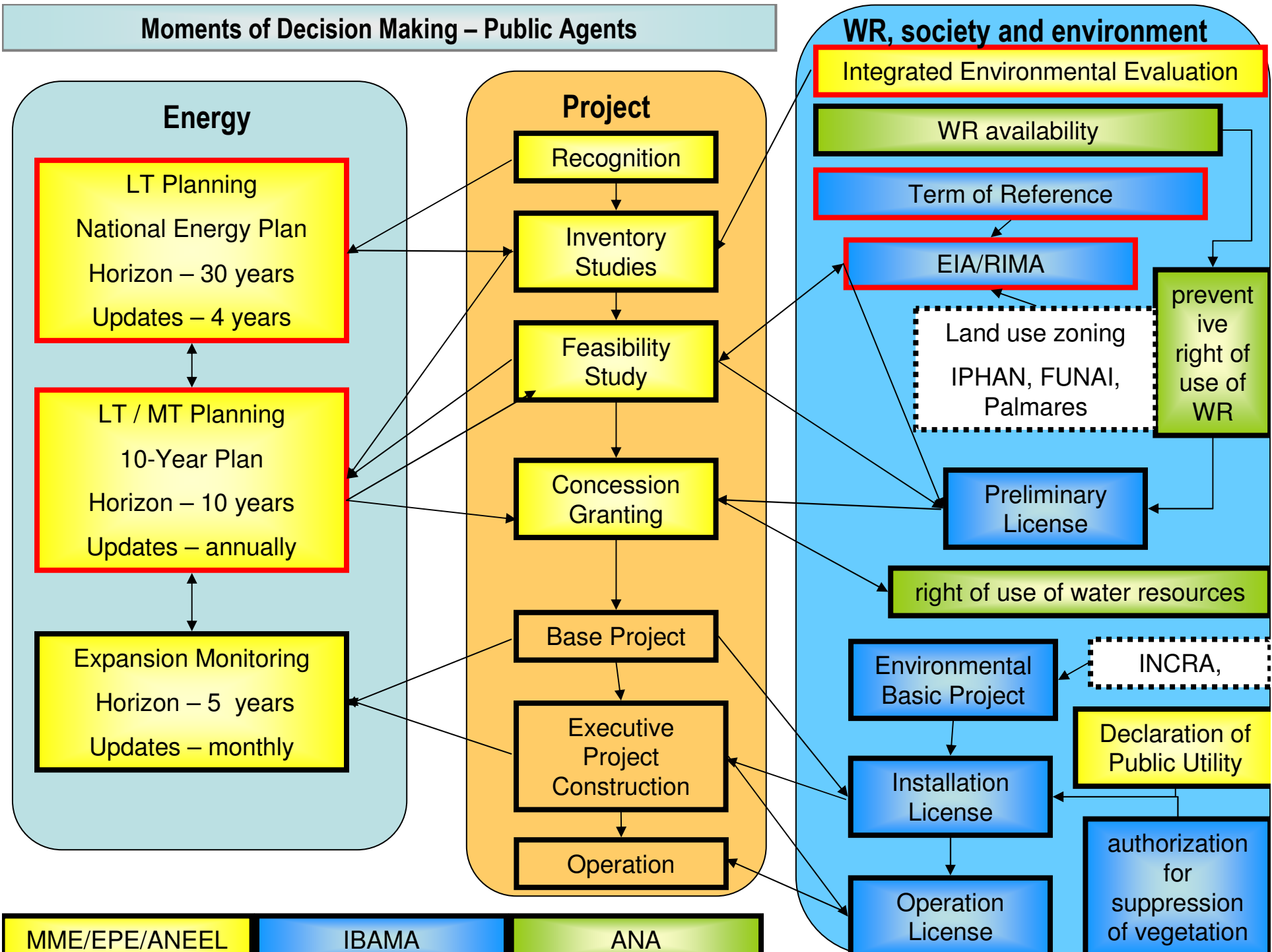
Hydropower and Environment – changes over time

	1961	60's and beginning of the 70's	70's	
Change	Creation of Eletrobrás	regional surveys of hydropower potentials	beginning of systemic sectorial planning by Eletrobrás	oil crises
Influence	concept of the nationalist president Getúlio Vargas (1954), industrialization period	Special Fund of the United Nations and the World Bank, Canadian and American consultants	government's growth priorities	
Implications	growth of an hydropower-based electricity system controlled by a state-owned company	development of a knowledge base about hydropower potentials and beginning of project planing	construction of large hydropower plants	priority to hydropower, growth of the state's indebtedness, paralization of construction works
	late 70's	1979	1981	1985
Change	consideration of socio-environmental issues in energy planning by Eletrobrás	Amnesty	Brazilian Environmental Policy (PNA)	Public Civil Action
Influence	social and environmental movements and NGOs, international lenders	social mobilization (opposition to the regime)	WB, IADB, social mobilization (opposition to the regime)	social mobilization (opposition to the regime)
Implications	socio-environmental issues considered by the energy sector	return of activists	Created National Environmental System and National Council on the Environment	legal defense of environmental, consumer and other diffuse collective rights, attributions of Ministério Público, use of Protocol for Adjustmet of Public Conduct (TAC)
	1987	1988	1989	1990
Change	Resolution CONAMA 9	Federal Constitution	Creation of IBAMA, update of PNA	National Privatization Program
Influence	environmental activists in the state	social mobilization, catholic and protestant churches	environmental activists in the state	liberalizing economic policies, Washington Consensus
Implications	public hearings in the environmental licensing process: environmental agencies, association of civil society, Ministério Público, 50 or more citizens	protection of the environment and cultural heritage, EIA and info. disclosure, indigenous people, participation, "Federative Pact", National System for the Management of Water Resources (SNGRH), functional independency of Ministério Público, implementatio	Preliminary Environmental License (LP) and EIA for hydropower plants	reducing the state's indebtedness opening the market to competition

Hydropower and Environment – changes over time

		1992		1994
Change	Rio 92	Creation of the Ministry of Environment (following several former environmental organs)	Administrative Improbability Act	Plano Real
Influence	United Nations, environmental activists in the state, social and environmental movements and NGOs	environmental activists in the state, social and environmental movements and NGOs, government's strategy	liberalizing economic period	liberalizing economic policies
Implications	strengthening of environmental advocacy networks, environment as a diplomatic issue area	recognition of the political importance of the environmental issue	render officials and civil servants personally and criminally liable	macroeconomic stabilization
		1995	1997	1998
Change	Concessions Act	Water Law	environmental Crimes Act	2000
Influence	liberalizing economic policies	environmental activists in the state, social and environmental movements and NGOs	environmental activists in the state, social and environmental movements and NGOs	Creation of the National Water Agency environmental activists in the state, social and environmental movements and NGOs, government's strategy
Implications	granting through public tender the right to explore public services and hydropower potentials (enabling privatizations in the energy sector as well)	created the SNGRH (basin committees, water agencies in state and federal levels, water plans in basin, state and federal levels) and the National Policy for Water Resources (PNRH)	render any person (including officials and civil servants) personally and criminally liable for environmental damages even when they acted in good faith in complex circumstances	implementation of SNGRH and of PNRH
		2001	2003/2004	2004
Change	Energy Rationing	"New Model of the Electricity Sector"	TAC for Barra Grande hydroplant	2006
Influence	economic nature: exhaustion of the state's investment capacity + attemptive quick transition to a private model	energy rationing, unfunctioning of the market, 40 unconstructed hydropower plants	Ministério Público, social mobilization	National Water Resources Plan environmental activists in the state, social mobilization through basin committees
Implications	reduction of economic growth, social criticism and dissatisfaction	state recovered its planning functions, auctioning of hydropower plants with LP	Integrated Environmental Evaluations of hydrographic basins (7)	first integrated WR plan

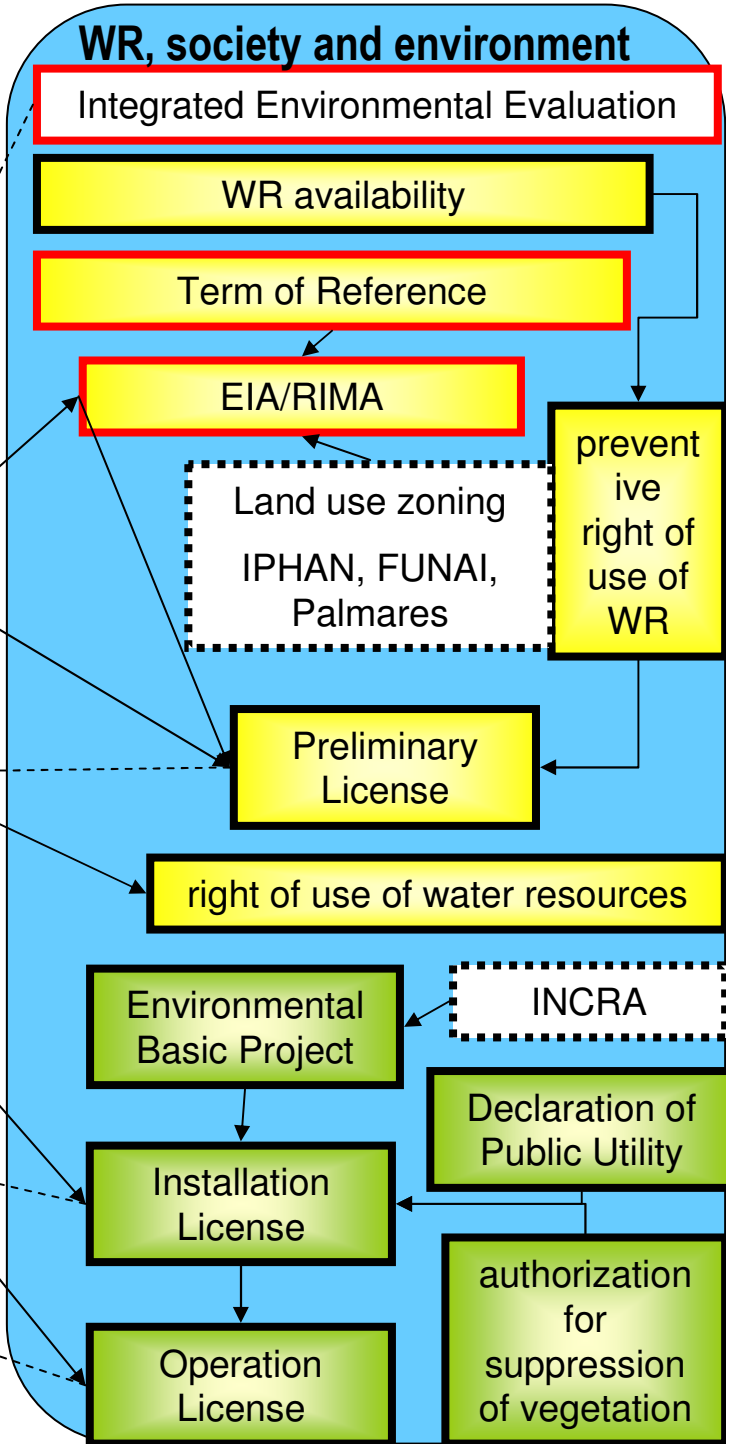
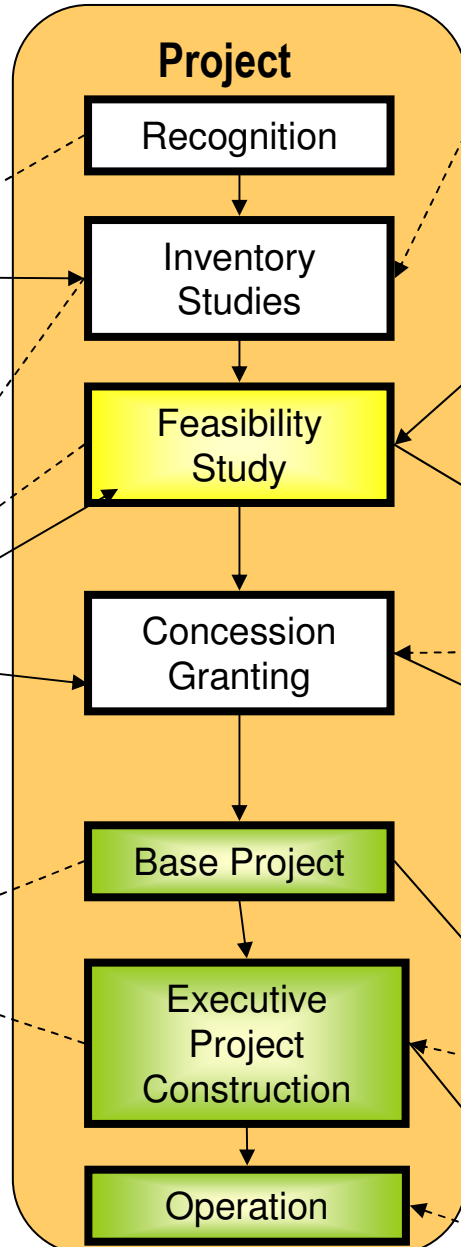
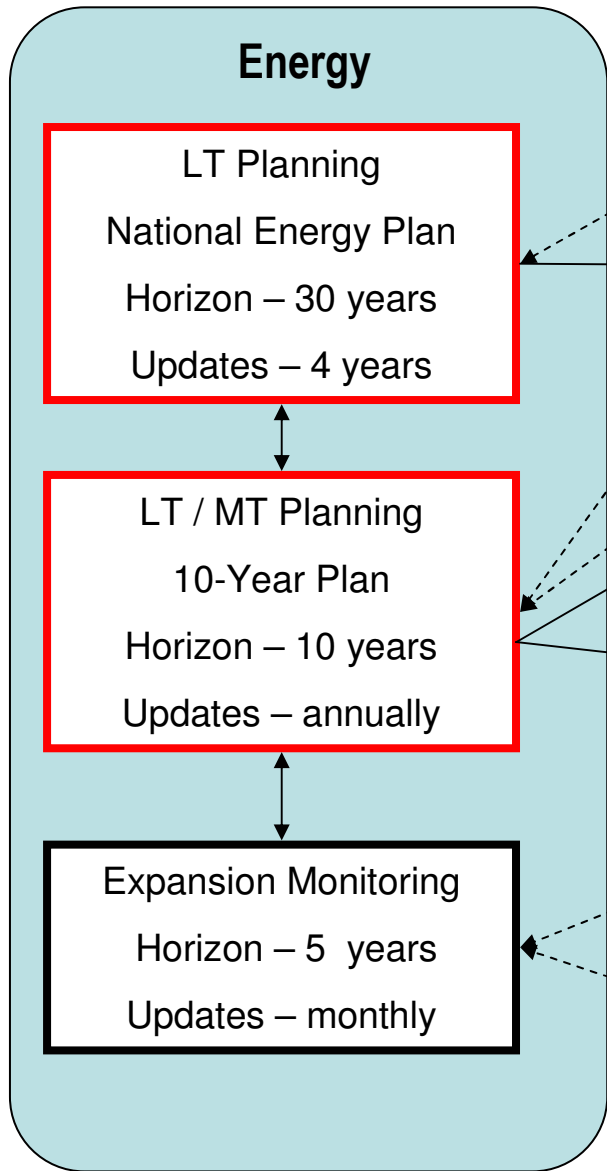
Moments of Decision Making – Public Agents



Case Studies

- Cases:
 - Balbina (1981 – 1989)
 - Itaparica (1979 – 1988)
 - Serra da Mesa (1986 – 1998) and Cana Brava (1998 – 2002)
 - Santo Antonio (concession granted in 2007)
- Need to adapt environmental studies and improve programs with new legislation: Balbina, Itaparica and Serra da Mesa
- Resettlement programs: Balbina (Indians); Itaparica; Serra da Mesa and Cana Brava (recent development fund to deal with bad social auditing); Santo Antonio
- Social Mobilization: Itaparica, Serra da Mesa and Cana Brava (ex-post)
- Social Involvement: Santo Antonio
- Reliance of domestic project developers on foreign financial services and expertise: Balbina (expertise and funding), Itaparica (funding), Cana Brava (funding)
- Santo Antonio
 - Banks as equity holders - private investors - new international norm carriers
 - Expertise of development cooperation agencies is valued

Moments of Decision Making – State’s and Investor’s responsibilities



Environmental planning and practices

- Law 7804/89: Preliminary License and EIA for hydropower projects
- Phases:
 - Term of Reference for environmental studies
 - Environmental Impact Assessment and Report (EIA/RIMA): environment **and resettlement**
 - Public Hearings
 - Preliminary License with conditions
 - Environmental Base Plan: detailing programs and mitigation measures
 - Authorization for suppression of vegetation and for expropriation (if necessary)
 - Installation License with conditions
 - Operation License with conditions (validity: 4 – 10 years)

Planning and practices in expropriation / resettlement

- Part of the environmental licensing process
- There is no specific set of laws addressing resettlement
- 1992 – 2002: 17 hydropower plants; 15,647 MW; 83,650 persons (MME, 2007)
- Federal Constitution of 1988
 - Guarantee of property rights
 - Expropriation in case of public utility
- Declaration of Public Utility issued by the Brazilian Electricity Regulatory Agency
 - After having exhausted negotiation alternatives
 - Query is shifted to the judicial system to decide only upon the value of the assets (land and related betterments)

Planning and practices in expropriation / resettlement

- Affected people: “children of the land”: land owners, employees living in the area, sharecroppers, tenants
- Instruments: wide range of offered alternatives and of pursued goals
 - Cash compensations and letter of credits (preferred in the past): land, betterments, lost profits
 - Collective resettlement
 - Individual land in rural areas or close to urban areas
- Other goals:
 - Better infrastructure
 - Technical assistance
 - Maintenance of livelihoods, of neighborhood relations
 - Economic inclusion, income and employment restoration (temporary allowance)
- Selection criteria of new land:
 - Close to original location
 - Similar qualities (productive, few slopes)
 - Good infrastructure and access

Planning and practices in expropriation / resettlement

- Phases
 - EIA/RIMA: establishes the direct influence area of the reservoir, indicates the number of people to be displaced and possible solutions
 - After LP, Base Environmental Plan gives more details about specific procedures
 - Resettlement and compensation programs should start during the validity of LI and six months prior to the filling of the reservoir
- Evolution of practices related to resettlement is attributed then to:
 - Reaction and learning from past experiences
 - Process of democratization
 - Role played by NGO, social movements, Ministério Público, media
 - Strengthening of environmental legislation and EIA/RIMA since CF/88
- Recent political movements
 - President's Lula origin: engagement in regular discussions with the Movement of Dam Affected People (MAB)
 - Oct, 2003: instauration of interministerial group
 - Aug, 2006: creation of special commission

Discussion / Findings

First hypothesis: International Orientation

- There is no strong evidence that changes were caused by the internalization of norms because of governments' commitments to international treaties.

Third hypothesis: Reliance on Foreign Services

- Until the nineties: reliance of domestic project developers on foreign financial services and expertise
- With growth of BNDES, present reliance on expertise

Discussion / Findings

Second hypothesis: Social Mobilization

- **Social Mobilization was determinant for internalization of international standards and best practices**
 - Social mobilization, political participation and environmental consciousness are highly linked phenomena in Brazil since the democratizing period
- Pathways
 - Constant transit of individuals in different positions
 - Constant relation of national and international movements and NGO since CF/88 and Rio 92
 - International funding for NGOs' and government's activities in the environmental field
 - Growing power of Ministério Público and its relation to civil society