

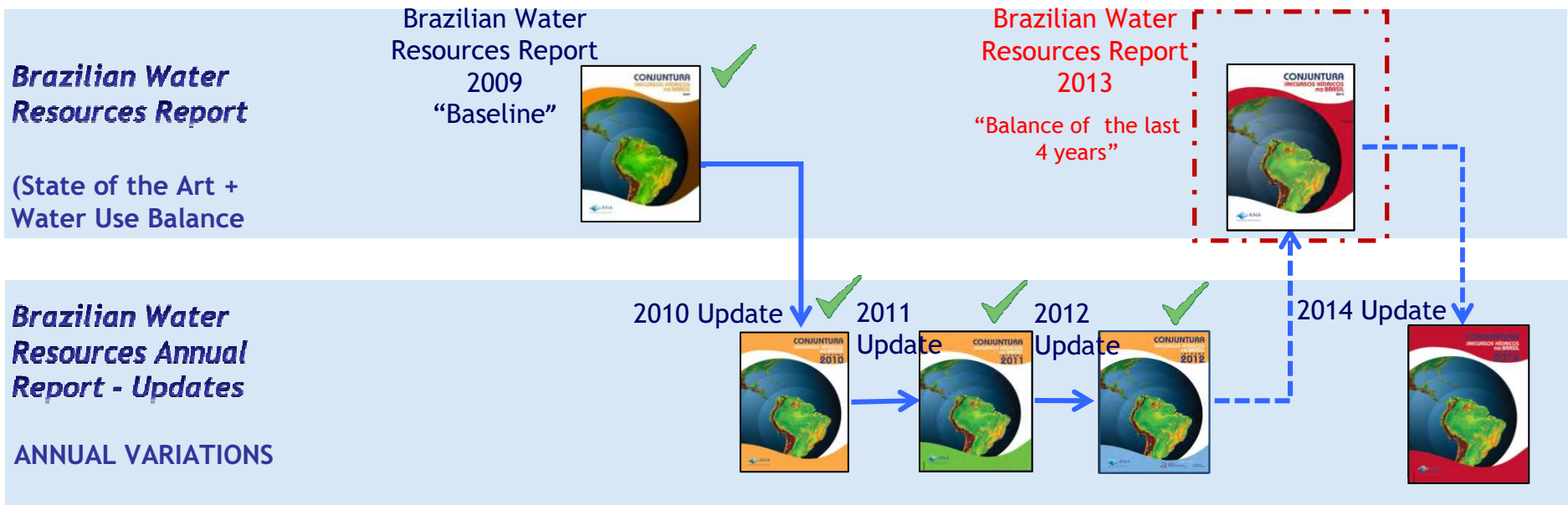
Brazilian Water Resources Report and Implementation of SEEA-Water in Brazil

Regional Seminar on SEEA Implementation

Rio de Janeiro, September 2013

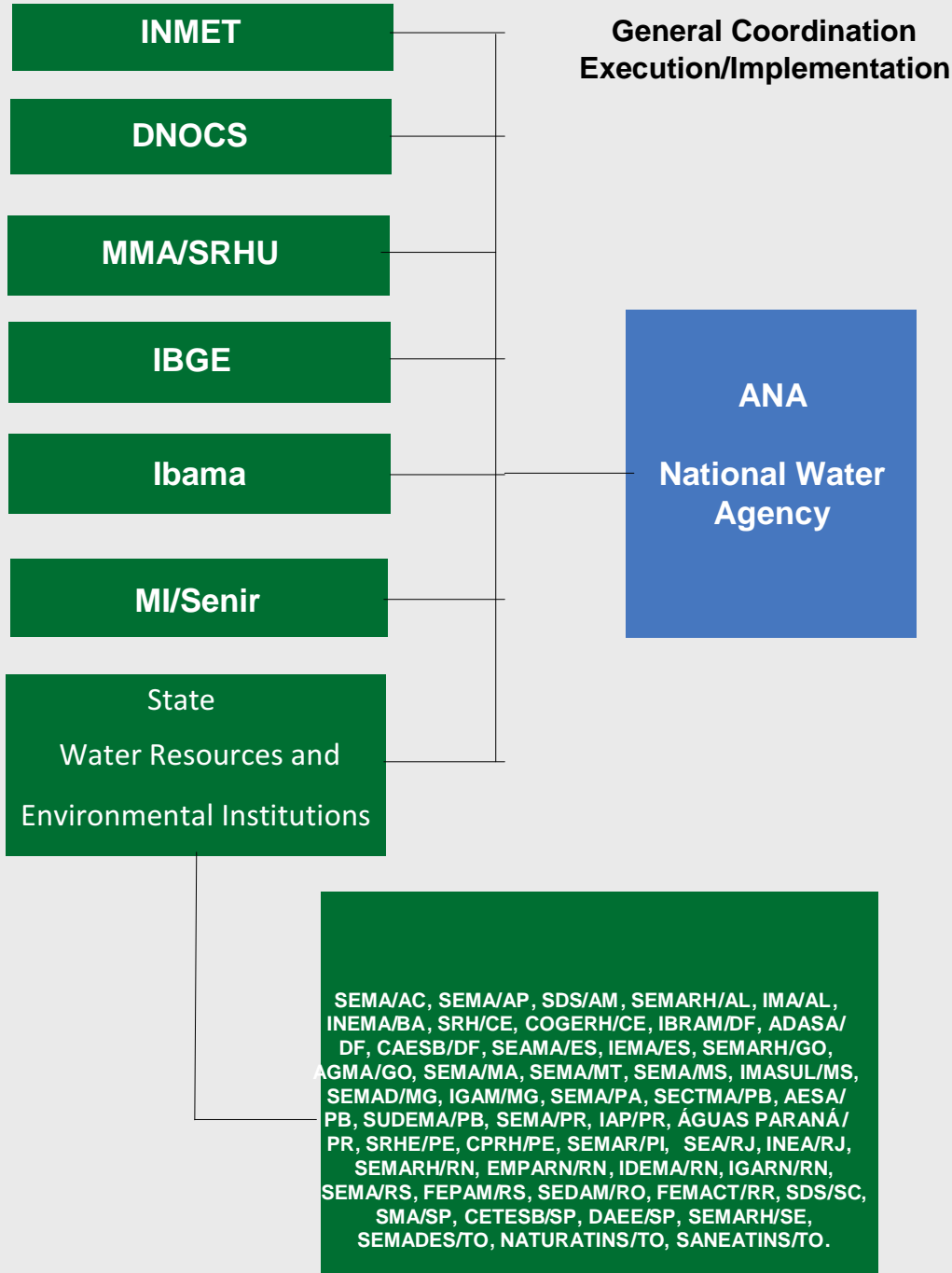


Brazilian Water Resources Report Annual Editions



Reference for systematic and periodic follow up regarding water resources situation and management in Brazil, as well as NWRP implementation status.

INSTITUTIONAL PARTNERS

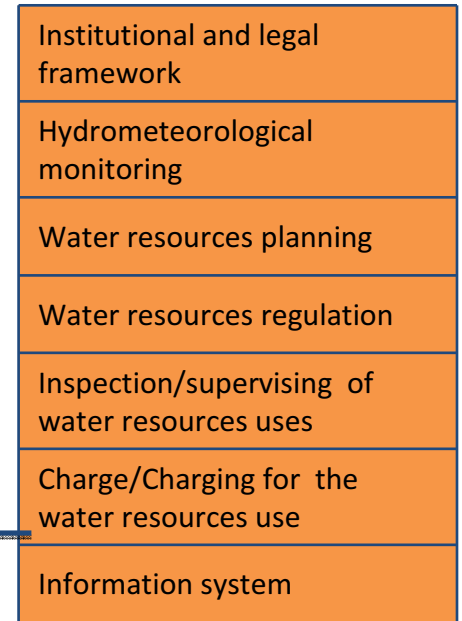
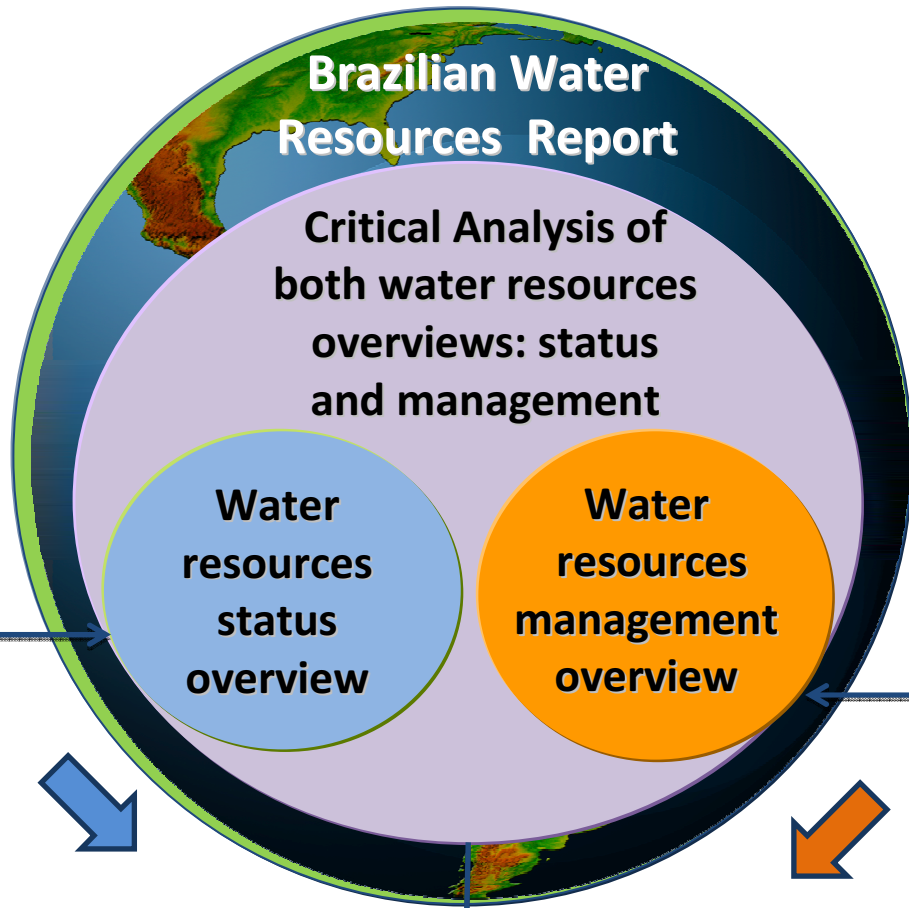
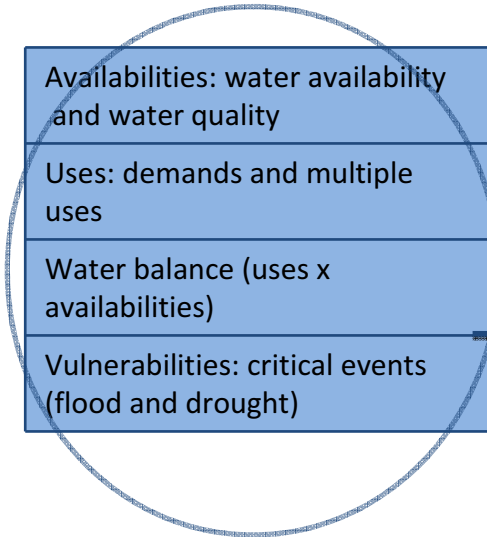


Context of the 2013 Report

- Result of the integration of multiple institutional partners in a complex process of information appropriation
 - Federal - SRHU/MMA, Inmet, DNOCS, SBF/MMA, Ibama/MMA, ICMBio/MMA, IBGE
 - Over 50 state water resources and environment institutions
- Use of the results of the 2008 National Survey on Water Supply and Sanitation - PNSB, 2010 Demographic Census (IBGE) 2006 Agricultural and Live Stock Census (IBGE)
- Use of the results of recent river basin plans (MDA, Verde Grande, Doce, Tocantins-Araguaia e Paranaíba) and Atlas Brazil: Urban Water Supply.

State Report Thematic Division

Informations that can support
the National Environmental
Accounts



Water Availability and Water Quality	Precipitation Anomalies
	Precipitation Effect at Fluviometric Stations
	Superficial Water Availability
	Water Quality
Water Demands and Multiple Uses	Consumptive Uses
	Non-consumptive Uses
Water Balance	Quantitative Water Balance
	Qualitative Water Balance
	Quali-Quantitative Water Balance
Vulnerabilities	Extreme Events
	Reduction of Native Vegetation
	Climatic Change

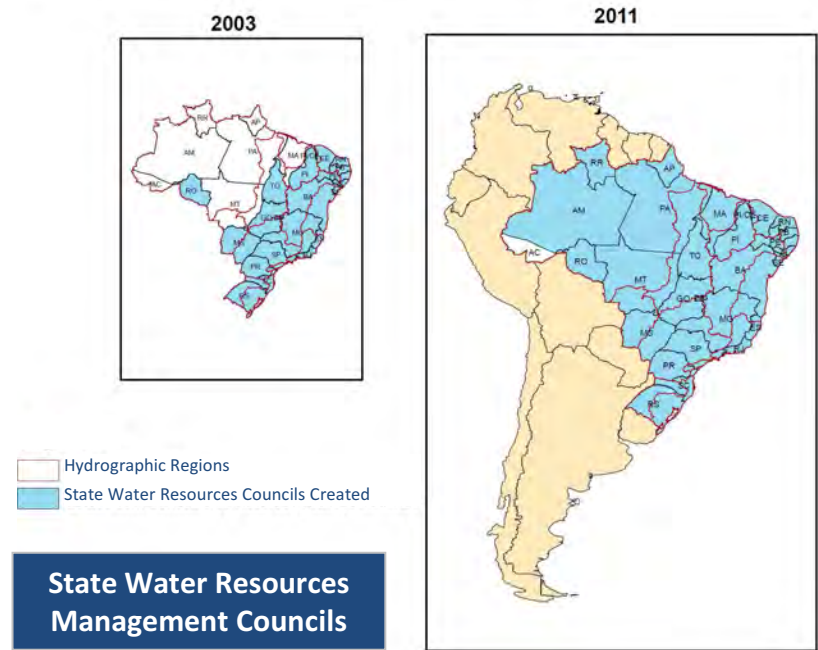
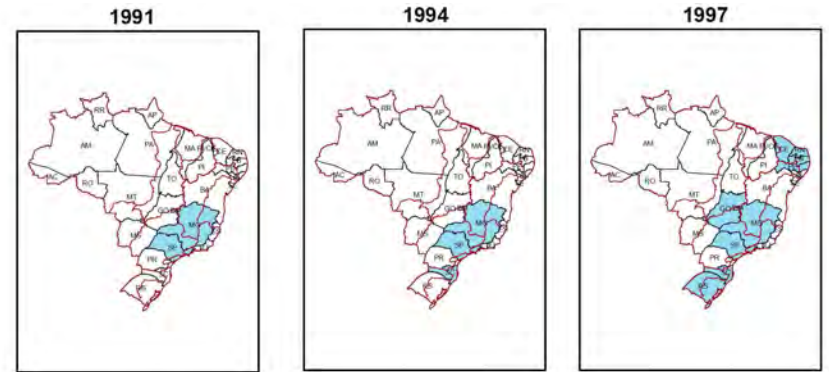
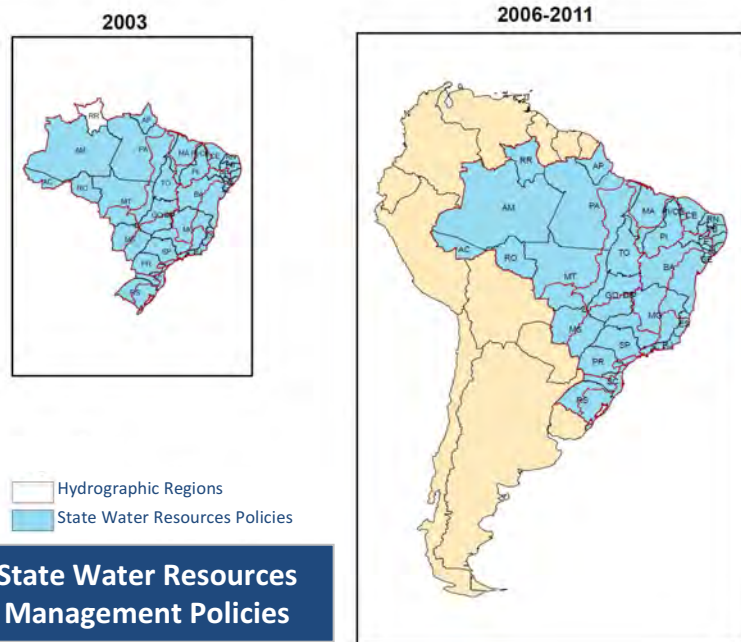
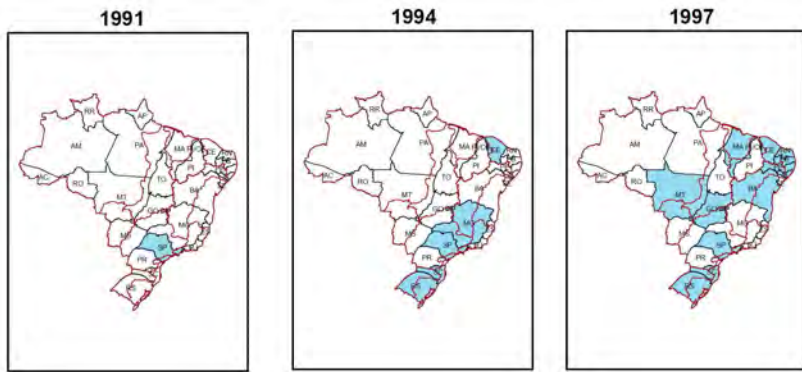
National approach

Systematization by
Hydrographic Region and by
State

Institutional and Legal Framework	History of Water Resources Management
	Institutional and Legal Modifications
	Performance of River Basin Organisms
Water Resources Planning	Water Resources Planning
	Water Quality Classification
Regulation of Water Use	Water Use Permitting
	Water Allocation Negotiation
	Certificate of Water Works Sustainability Assessment (Certoh)
Inspection of Water Use	National Registration of Water Use (CNARH)
	Water Users Inspection
Charging for the use of water resources	Dam Safety Inspection
	Results of Water Charging at Rivers under Federal Jurisdiction
Hydrometeorological Monitoring	Summary of the amount charged for the use of water resources
	Use of Financial Resources
Water Resources Information System	Water Quantity Monitoring
	Water Quality Monitoring

Water Resources Management History

Overview of Water Resources Management



Water Resources Management History

Overview of Water Resources Management

River Basin Committees

Total Number

174 State River Basin Committees
10 Interstate River Basin Committees



ADVANCES IN WATER RESOURCES MANAGEMENT
AFTER THE CREATION OF THE WATER LAW AND THE
ESTABLISHMENT OF THE NATIONAL WATER AGENCY.

Implementation of SEEA-Water in Brazil

Implementation of SEEA-Water in Brazil

Background

- ✓ Inter-Ministry ordinance nº 236/2012 – created the Committee for Environment-Economic Accounting for Water (IBGE, ANA and SRHU/MMA)
 - ✓ Goal – assess the National Environment-Economic Accounting for Water
- ✓ Meetings between IBGE, ANA and SRHU/MMA (2012-2013)
 - ✓ Analysis of the International Recommendations for Water Statistics (IRWS)
 - ✓ Identification of the institutional framework necessary to the assessment of the National Environment-Economic Accounting for Water
 - ✓ Work Plan approved in August, 2013

INDICADOR OU DADO INTERMEDIÁRIO DERIVADO	UNIDADES	MÉDIA DE LONGO PRAZO	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Informação de contexto															
Densidade Populacional	hab/km ²	22	20	21	21	21	21	22	22	22	22	23	23	23	23
Hidroelectricidade como proporção da energia elétrica gerada	%	82%	#VALOR!	#VALOR!	83%	84%	83%	84%	83%	84%	80%	84%	78%	81%	82%
Electricidade gerada por habitante	kWh/hab	2.379	#VALOR!	#VALOR!	1.939	2.017	2.118	2.177	2.239	2.350	2.418	2.409	2.638	2.694	2.760
Informação hidrológica															
Precipitação (lâmina)	mm/ano	1.775	1.761	1.761	1.761	1.761	1.761	1.761	1.761	1.761	1.761	1.928	1.619	1.894	1.789
Evapotranspiração como proporção da precipitação	%	52%	48%	52%	51%	54%	53%	53%	52%	52%	55%	58%	50%	52%	52%
Recursos Hídricos Internos Renováveis	hm ³ /ano	7.182.601	7.817.433	7.237.415	7.277.730	6.852.912	7.045.963	7.069.912	7.204.707	7.197.178	6.811.507	6.826.690	6.947.179	7.771.484	7.313.700
Recursos Hídricos Renováveis Totais (RHRT)	hm ³ /ano	9.676.480	10.224.492	9.748.271	9.969.945	9.441.319	9.492.107	9.286.015	9.616.727	9.728.567	9.337.982	9.515.427	9.302.155	10.142.710	9.988.522
Grau de dependência (Entrada de água de territórios vizinhos/RHRT)	%	26%	24%	26%	27%	27%	26%	24%	25%	26%	27%	28%	25%	23%	27%
Recursos Hídricos Renováveis Totais por habitante	m ³ /hab/ano	51.761	58.948	55.424	55.924	52.272	51.895	50.154	51.334	51.348	48.754	49.164	47.582	51.382	50.132
Capacidade das barragens/açudes em relação ao escoamento superficial + entrada de água de territórios vizinhos	%	6%	5%	6%	6%	6%	6%	6%	6%	6%	7%	6%	7%	6%	6%
Capacidade de armazenamento por habitante	m ³ /hab	2.813	2.818	2.842	2.844	2.810	2.798	2.796	2.831	2.812	2.810	2.809	2.800	2.803	2.800

DATA ITEM	UNITS	2012
Contextual Information		
Mid-year population of the country (1st January)	inhabitant	199.242.462
Continental surface area	km ²	8.515.767
26. Land area irrigated	ha	5.800.00
Irrigated area converted to square	Km ²	58.000
Electric energy generated	GWh/year	550.000
Hydroelectricity generated	GWh/year	450.000
Hydrologic Information (with IRWS code)		
B.1. Precipitation. In volume	hm ³ /year	15.232.021
C.1. Evapotranspiration from inland water resources	hm ³ /year	7.918.321
B.1.a. Surface runoff	hm ³ /year	6.228.452
D.6. Aquifer recharge	hm ³ /year	1.085.248
B.1 Inflow from neighbouring territories	hm ³ /year	2.674.822
C.2.1 Outflow to neighbouring territories	hm ³ /year	632.041
C.2.2. Outflow to the sea	hm ³ /year	8.271.233
1.1 Number of large artificial reservoirs	unidades	128
2. Artificial reservoir capacity	hm ³	557.809

DATA ITEM	UNITS	2012
Water in the economy (with IRWS code)		
E.1. Water abstracted by ISIC 36 (no agriculture) (drinking water)	hm ³ /year	16.456
E.1. Water abstracted by ISIC 5-33, 38,39, 41-99 (3510 to be separated)(self supplied industries)	hm ³ /year	12.453
E.1. Water abstracted for ISIC 1-3 (agriculture)	hm ³ /year	44.830
E.1. Water abstracted by ISIC 3510 (only cooling)	hm ³ /year	ND
E.1. Water abstracted by ISIC 3510 (only hydropower)(turbinated water)	hm ³ /year	ND
I.1. Losses of water by utilities (ISIC 36 no agriculture) (water utilities)	hm ³ /year	ND
I.1. Losses of water in distribution (in agriculture)	hm ³ /year	ND
G.1 Water received by households connected to the water supply network	hm ³ /year	ND
G.1. Water received by industries connected to the water supply network	hm ³ /year	ND
Pollution related data items (with IRWS code)		
G.3. Wastewater collected by sewerage (ISIC 37)	hm ³ /year	4.491,01
H.a. Returns from sewerage after treatment	hm ³ /year	3.086,96
15. Number of wastewater treatment plants	unidades	6.040
H.a. Returns from ISIC 5-33, 38,39, 41-99 (3510 to be separated) after treatment	hm ³ /year	ND
K+J.1 Gross emissions by industries connected to ISIC 37	ton DBO ₅	ND
K+J.1 Gross emissions by industries NOT connected to ISIC 37	ton DBO ₅	ND
10. Wastewater treated by ISIC 37 (emissions collected)	hm ³ /year	ND

INDICATOR OR INTERMEDIATE DERIVED DATA	UNITS	LONG TERM AVERAGE
Contextual Information		
Population density	Inhab/km ²	22
Hydroelectricity as proportion of energy generated	%	82%
Electricity generated per capita	KWh/inhab	2.379
Hydrologic Information		
Precipitation in height	mm/year	1.775
Evapotranspiration as a proportion of precipitation	%	52%
Internal Renewable Water Resources (IRWR)	hm ³ /year	7.182.601
Total Renewable Water Resources (TRWR)	hm ³ /year	9.676.480
Dependency ratio	%	26%
Total Renewable Water Resources per capita	m ³ /inhab/year	51.761
Artificial reservoir capacity as proportion of surface runoff and inflows from neighbouring countries	%	6%
Artificial reservoir capacity per capita	m ³ /inhab	2.813

PHYSICAL ACCOUNTS (BRAZIL, 2000), *learning how to build...*

YEAR 2000. PHYSICAL ACCOUNTS, WATER BRAZIL

TABELAS DE RECURSO E USO (milhoes de m3 por ano)

RECURSO/"SAIDAS DE AGUA"	Agropecuaria	Industria (extrativa, transformacao, construcao)	Producao e distribucao de eletricidade		Agua	Esgoto	Servicios	Comercio	Familias
			Hydroelectricity	Other electricity					
			E.1.1 Agua superficial						
E.1.2. Agua subterranea									
...									
...									
F.1 Agua					16 060				
esgoto		800					800	800	
Electricidad									
productos quimicos									
construcción civil									
...									
...									
I.1 Pérdidas	8000				14000				
H.1 Retornos	10000	16000	3000 000	490					
consumo de agua	12000	4000	0	10				2 574	
TOTAL	30 000	20 800	3000 000	500	30 060		800	800	12 848

USO/"ENTRADAS DE AGUA"	Agropecuaria	Industria (extrativa, transformacao, construcao)	Producao e distribucao de eletricidade		Agua	Esgoto	Servicios	Comercio	Familias
			Hydroelectricity	Other electricity					
			E.1.1 Agua superficial	20 000					
E.1.2 Agua subterranea	10 000	10 000	0		15000				
...									
...									
G.1 Agua		1 212	0	0			1000	1000	
esgoto						12 678			
Electricidad					0				
productos quimicos					0				
construcción civil									
...									
...									
pérdidas									
retornos			3000 000						
consumo de agua									
TOTAL	30 000	21 212	6000 000	500	30 060		1 000	1 000	12 848

Final Comments

- Brazil has been implementing the IWRM approach for more than 20 years
 - The National Water Resources Management System was created in 1997 (institutional network approach)
 - The National Water Resources Plan was approved in 2006 and revised in 2010 by National Water Council
 - The first ***Brazilian Water Resources Report*** was edited in 2009 and has been improving year by year. It will be an important support for the SEEA-Water implementation process.

- The agreement signed by IBGE-SRHU/MMA-ANA in 2012 was an important step to the ***Brazil SEEA-Water*** Project and an approved Work Plan is under implementation.

- The UN DESA support (*International Recommendations for Water Statistics, System of Environmental-Economic Accounting for Water, courses, etc.*) is fundamental for the ***Brazil SEEA-Water Project*** success

Thank you!

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