

**Evolution of Drought Mitigation and Water Security through 100 Years
of Reservoir Expansion in Semi-Arid Brazil.**

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Table S1. List of Reservoirs in the Upper Jaguaribe Basin and their year of construction.

<i>Reservoir</i>	<i>Sub-basin</i>	<i>Municipality</i>	<i>Capacity (m³)</i>	<i>Capacity (hm³)</i>	<i>Executing agency</i>	<i>Source of resources</i>	<i>Program</i>	<i>Construction year</i>
Do Coronel	AJ/IG	Saboeiro	1,770,000	1.77		STATE OF CEARÁ	Açudes Regionais	1946
Várzea do Boi	AJ/IG	Tauá	51,910,000	51.91	DNOCS	UNION		1954
Poço da Pedra	AJ/IG	Campos Sales	52,000,000	52.00	DNOCS	UNION		1958
Pau Preto	AJ/IG	Potengi	1,808,767	1.81	DNOCS		Açudes Regionais	1960
Orós	AJ	Orós	1,940,000,000	1,940.00	DNOCS	UNION		1961
Rivaldo Carvalho	AJ/IG	Catarina	19,520,000	19.52		STATE OF CEARÁ		1966
Trici	AJ/IG	Tauá	16,500,000	16.50	DNOCS	UNION		1987
Caiçaras	AJ/IG	Banabuiú	1,070,000	1.07	DNOCS	STATE OF CEARÁ	Açudes Regionais	1988
Espirito Santo	AJ/IG	Tauá	3,300,000	3.30	SRH	STATE OF CEARÁ	Açudes Regionais	1988
Favelas	AJ/IG	Tauá	30,100,000	30.10	DNOCS	UNION		1988
Forquilha II	AJ/IG	Tauá	3,400,000	3.40	DNOCS	UNION		1988
Monte Sion	AJ/IG	Parambu	3,100,000	3.10	SRH / SOHIDRA	STATE OF CEARÁ	Açudes Regionais	1990
Quinquê	AJ	Acopiara	7,130,000	7.13	DNOCS	UNION		1990
Caldeirão	AJ/IG	Saboeiro	5,000,000	5.00	SRH / SOHIDRA	STATE OF CEARÁ	Açudes Regionais	1991
Parambu	AJ/IG	Parambu	8,530,000	8.53	SRH	STATE OF CEARÁ	Açudes Regionais	1992
Marcio Fernandes	AJ/IG	Iguatu	1,500,000	1.50	SRH / SOHIDRA	STATE OF CEARÁ	Açudes Regionais	1993
Valério	AJ/IG	Altaneira	2,020,000	2.02	SRH / SOHIDRA	STATE OF CEARÁ	Açudes Regionais	1995
Trussu	AJ	Iguatu	301,000,000	301.00	SRH / DNOCS	STATE/UNION	Açudes Regionais	1996
Canoas	AJ/IG	Assaré	69,250,000	69.25	SRH / SOHIDRA	STATE/UNION	Açudes Regionais	1999
Benguê	AJ/IG	Aiuaba	19,560,000	19.56	SRH / SOHIDRA	STATE / BIRD / BNDES	PROURB	2000
Muquém	AJ/IG	Cariús	47,643,406	47.64	SRH / SOHIDRA	STATE / BIRD / BNDES	PROURB	2000
Faé	AJ	Quixelô	24,408,688	24.41	SRH / SOHIDRA	STATE / BIRD / BNDES	PROGERIRH	2004
Arneiroz II	AJ/IG	Arneiroz	197,060,000	197.06	SRH / SOHIDRA	STATE / UNION / BIRD	PROAGUA	2005
Mamoeiro	AJ/IG	Antonina do Norte	20,490,000	20.49	SRH / SOHIDRA	STATE / BIRD	PROGERIRH ADICIONAL	2012

Table S2. List of water demands per decade.

Year	Urban Population	Urban Demand (hm³/y)	Rural Population	Rural Demand* (hm³/y)	Industrial Demand (hm³/y)
1920	10,554	0.46	94,984	18.01	-
1930	13,614	0.60	122,530	23.23	-
1940	23,751	1.04	193,920	36.77	-
1950	33,980	1.49	241,902	45.87	-
1960	67,801	2.97	247,310	46.89	-
1970	110,663	4.85	335,727	63.66	-
1980	146,298	6.41	308,453	58.49	-
1991	201,896	8.84	274,276	52.01	0.77
2000	261,077	11.44	248,148	47.05	3.42
2010	310,44	13.60	230,020	43.62	3.42

Table S3. List of large-scale irrigation projects and their associated water demands. (*) Symbols denote a demand being applied to reservoirs of class 5. () Symbol denote a demand being applied to the Orós reservoir (class 6).**

Project name	Demand (hm³/y)	Starting year
Várzea do Boi*	5.868	1975
Várzea do Iguatu**	39.73	1990

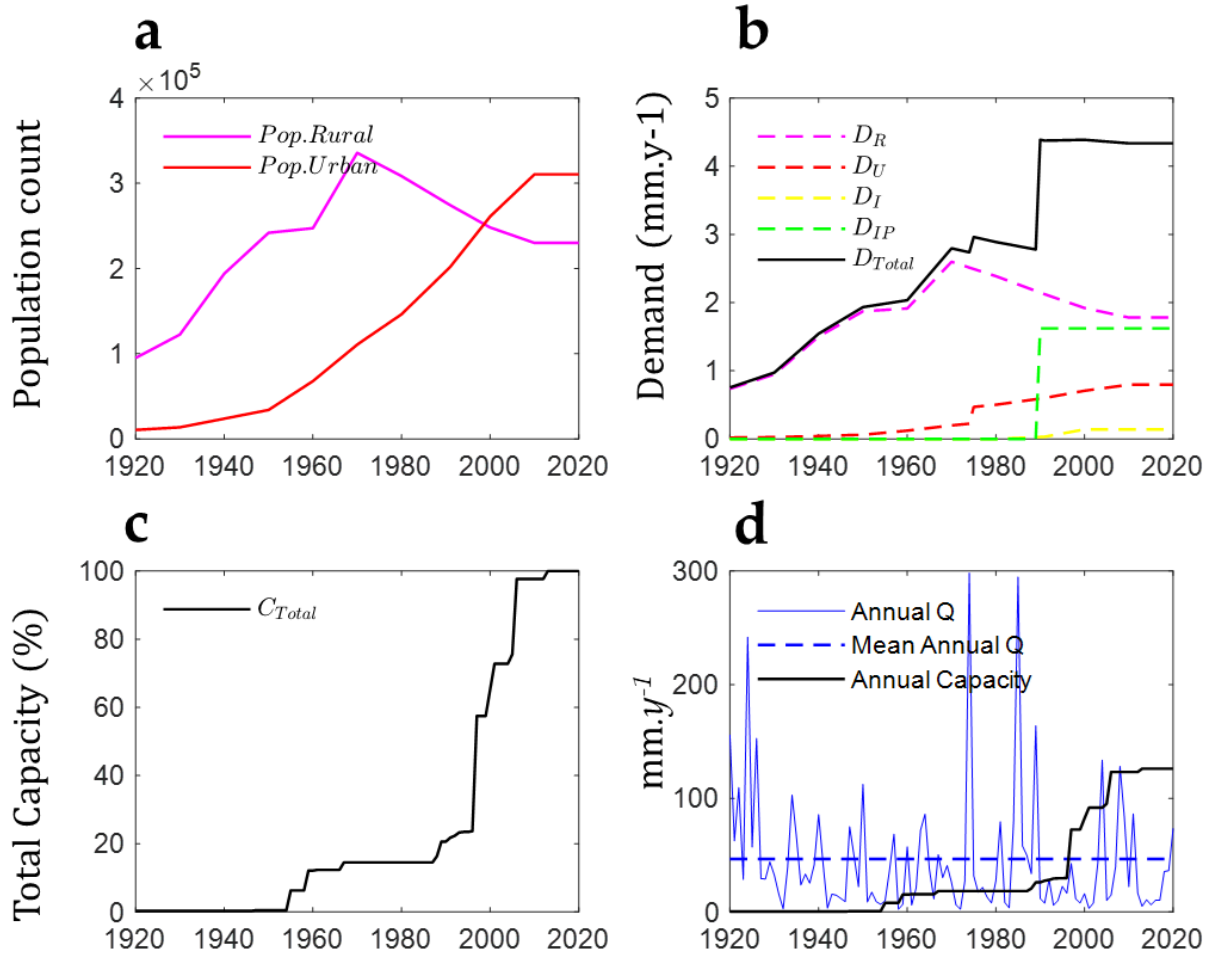


Figure S1. Temporal dynamics of society and the reservoir system in the Upper Jaguaribe Basin sub-basin. a - Distribution of urban and rural populations. b - Distribution of water demands (in $mm/year$). c - Evolution of the system's total storage capacity (in % of the total capacity). d - Comparison between annual streamflow values (solid blue line), mean annual streamflow (dashed blue line) (both in $mm/year$), and the total storage capacity (in mm).

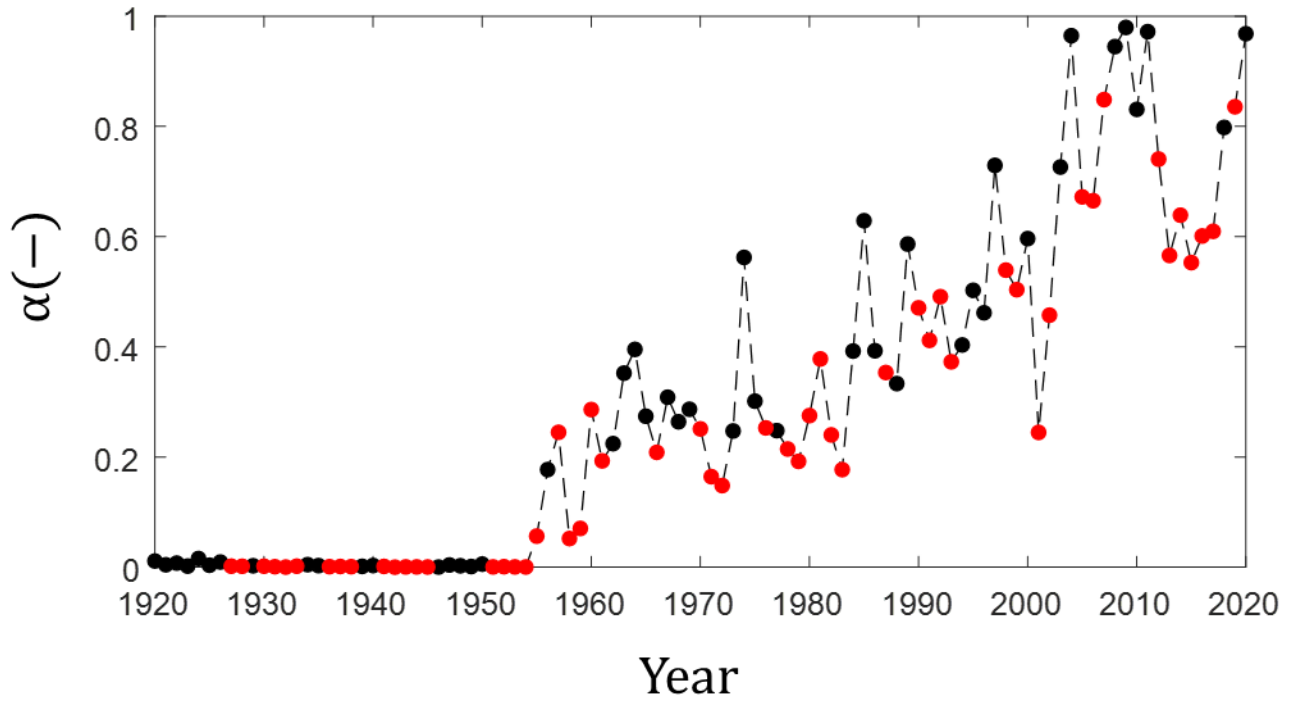


Figure S2. Evolution of annual values of water security (α). Highlighted as red dots are the years with below average precipitation, whereas in black, years with above average precipitation.