Water and Sanitation in the Sao Paulo Metropolitan Region (RMSP)

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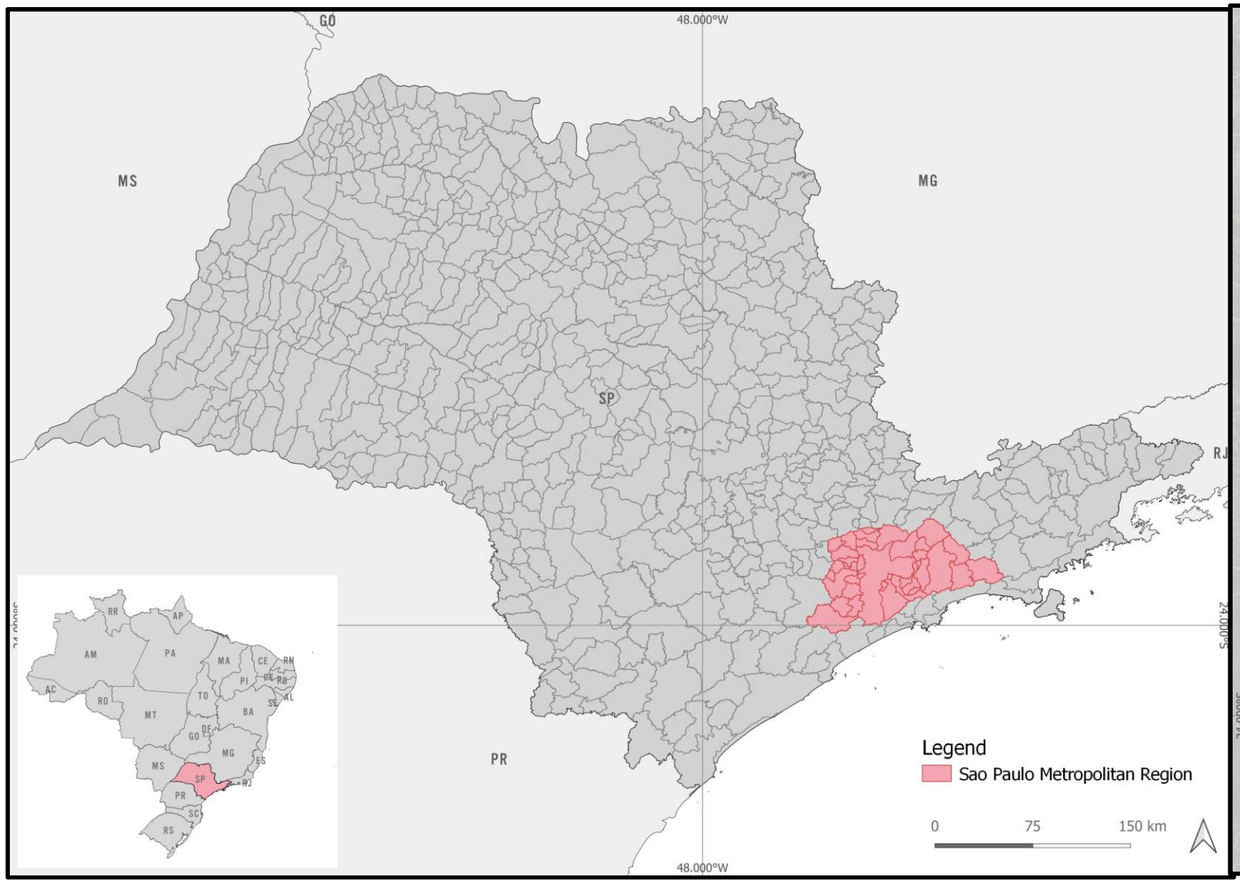
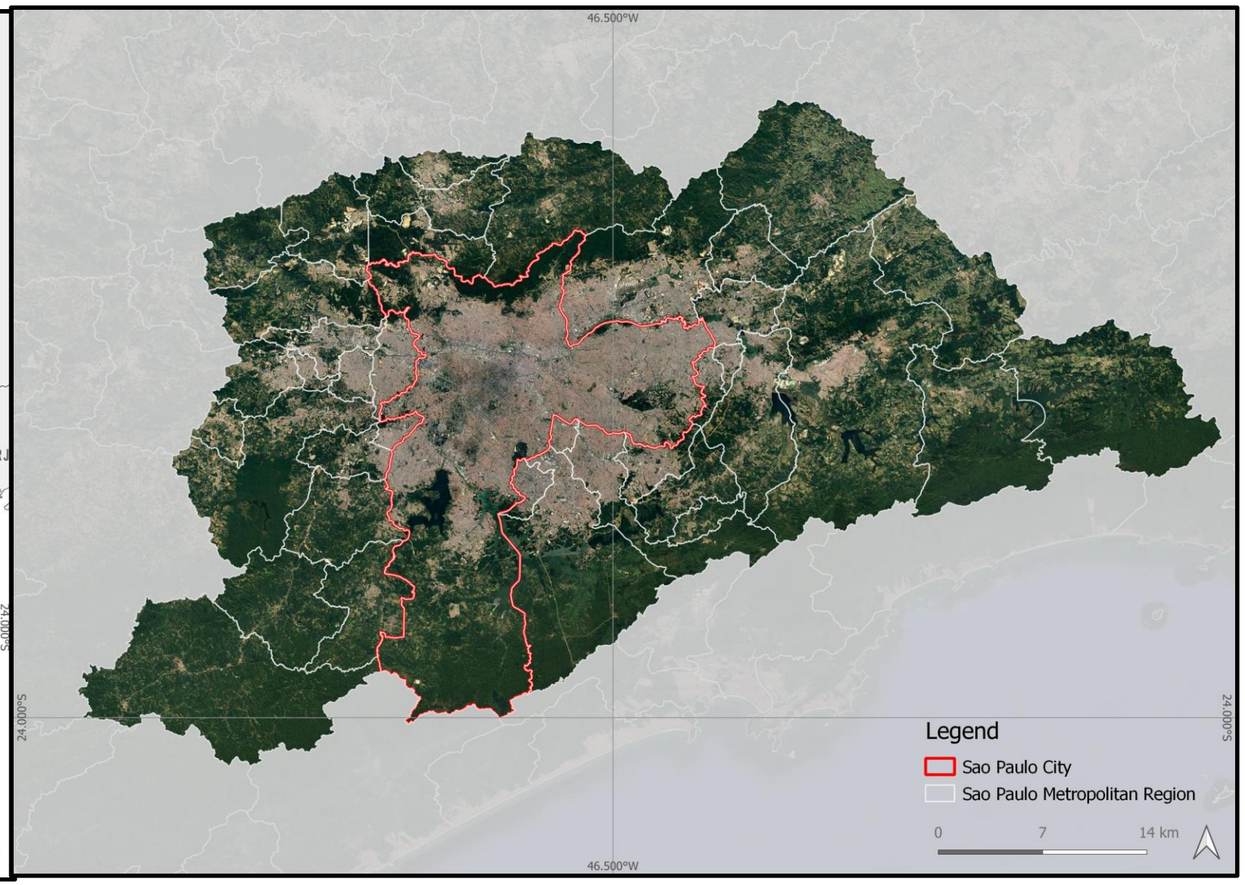
Sao Paulo Metropolitan Region (RMSP)





- 39 cities;
- 22 million inhabitants (12.3 million in Sao Paulo City);
- Largest industrial complex in Brazil;
- High demand for water and large amounts of sewage produced;
- Sao Paulo State Basic Sanitation Company (SABESP).

Water Production Systems

Water Production System	Total Volume (hm3)
Cantareira	982,04
Alto Tietê	560,35
Guarapiranga	171,20
Cotia	16,50
Rio Claro	13,66
São Lourenço	88,82
Rio Grande (Billings)	112,19
	1944,77

Source: SABESP (2021)

Cantareira Water Production System Schema. Source: G1

Cantareira is the largest one and supplies 9 million inhabitans in the RMSP

http://mananciais.sabesp.com.br/HidroMapas for current status on reservoir level in the RMSP

Water crisis between 2014-2016

Cantareira Water Production System. Source: G1

Cantareira Water Production System. Source: Reuters

Cantareira System collapsed;

Use of technical reserve from may 2014 to december 2015 – emergency construction work.

Water crisis on the media

Tabela 1 – Classificação temática de matérias jornalísticas sobre a crise hídrica de abastecimento da RMSP (dez. 2014/abr. 2015)

tema das matérias	no – %	subtemas	no – %
z	277 81,2%	nível dos reservatórios: choveu/não choveu	49 – 14,4%
		medidas governamentais; restrições	62 – 18,2%
		obras emergenciais	33 – 9,7%
		iniciativas individuais/locais/efeitos	87 – 25,5%
		outras (pontuais)	46 – 13,5%
causas da crise	64 18,8%	clima/devastação/natureza	30 – 8,8%
		governo estadual/Sabesp	29 – 8,5%
		matérias amplas/especialistas/históricas	2 – 0,6%
		outras	3 – 0,9%
total	341		

Source: Rodrigues & Villela (2015).

Question: Does the main responsibility relies on citizens?

81,2% was about how the crisis was being managed:

- 25,5% local initiatives and effects, such as water waste;
- 18,2% emergency government measures, such as reduction on water pressure;
- 14,4% reservoir level (if it rained or not)

18,8% was about the causes of the crisis

- 8,8% natural causes
- 8,5% management (Sao Paulo State government and SABESP)

Possible causes

Overuse of Cantareira System for at least 15 years until 2014 (maximum operation);

Changes on land use led to less water infiltration:

- In 2003, 70% of the basin was considered of antropic use,
  - 51% were grazing land

Population growth X water treatment production capacity:

ano	população (mi. habitantes)	capacidade máxima de produção (m^3/s)	produção *per capita* (m^3/s/mi. hab.)
1958	3,5	8,3	2,37
1980	12,5	59,7	4,77
2000	17,9	64,0	3,57
2014/15	**20,9**	**69,7**	**3,33**

Source: Rodrigues & Villela (2015).

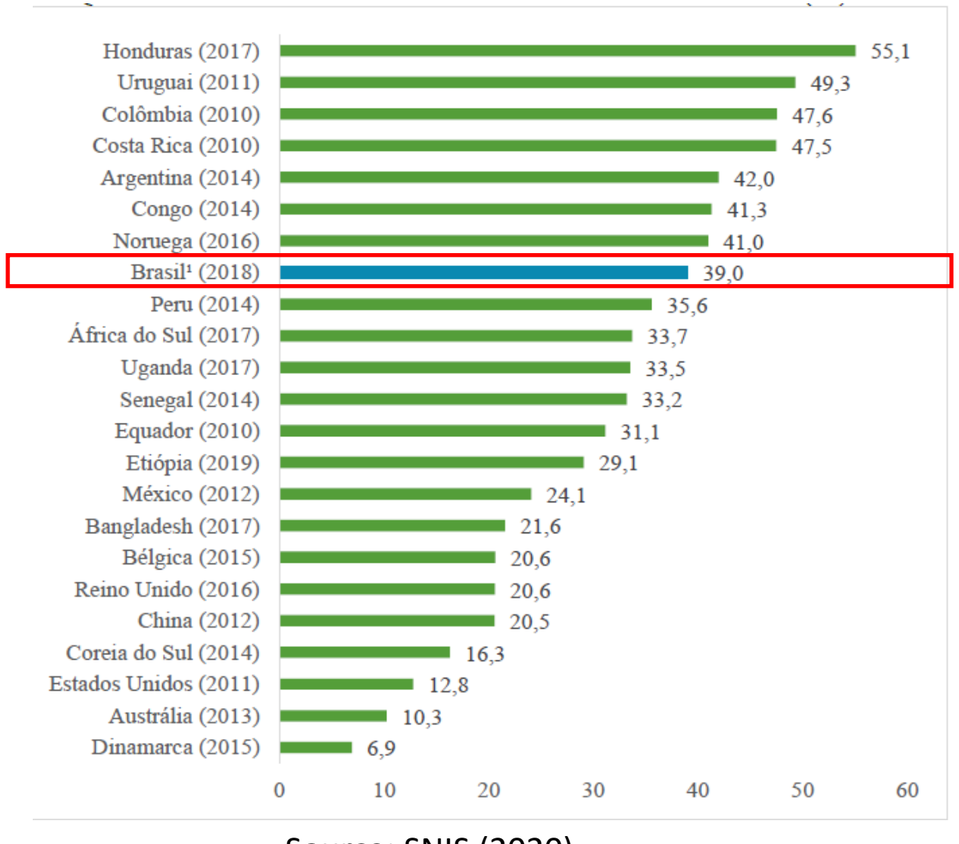
SABESP change from public to a publicly traded company (1995) = water was not anymore a common good but profitable resource

What is the situation now?

- Cantareira System is still the main production system

- Billings Reservoir is larger than Cantareira (1.200hm3 X 982,04hm3) but only 9.2% is used (Rio Grande)

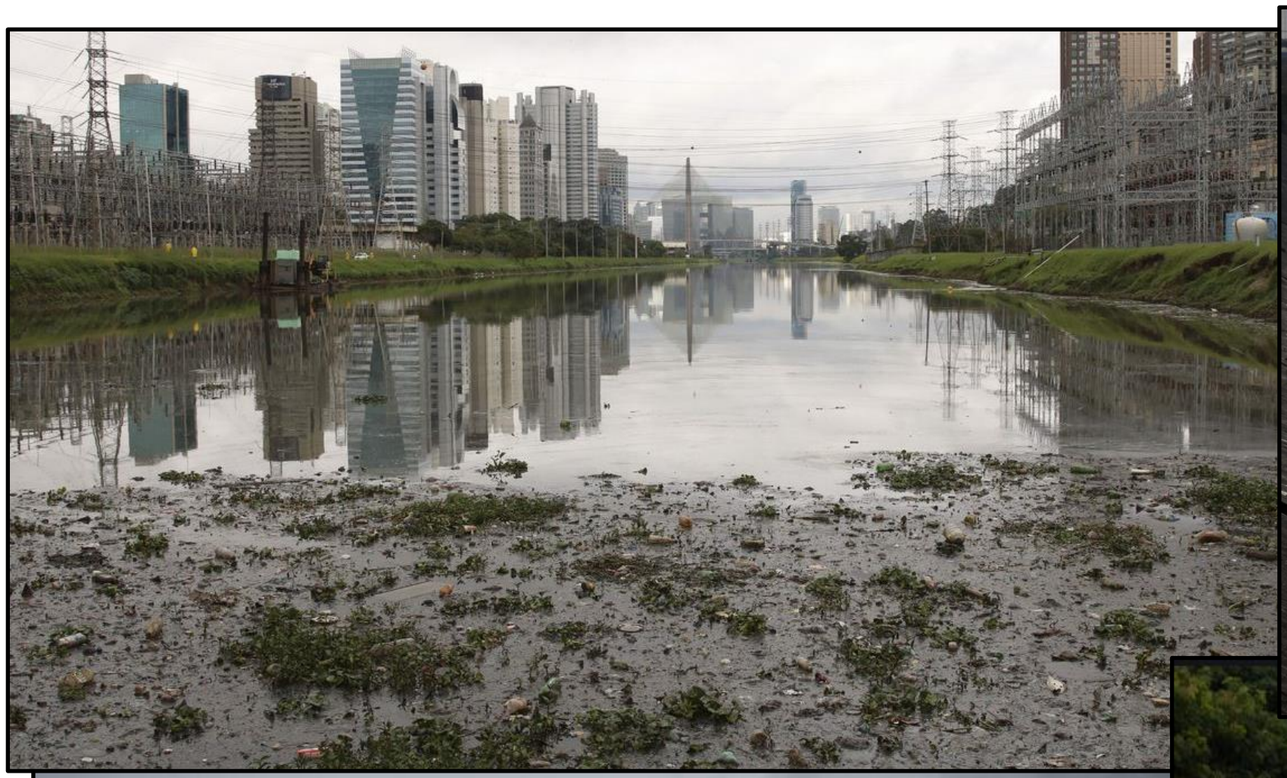
- Water losses is now 30% (SABESP):
  - 19.5% due to leakages
  - 10.5% due to fraud and/or theft



Source: SNIS (2020).

- Pollution is still a challenge: Tiete and Pinheiros rivers and Billings Reservoir

Tiete and Pinheiros Rivers



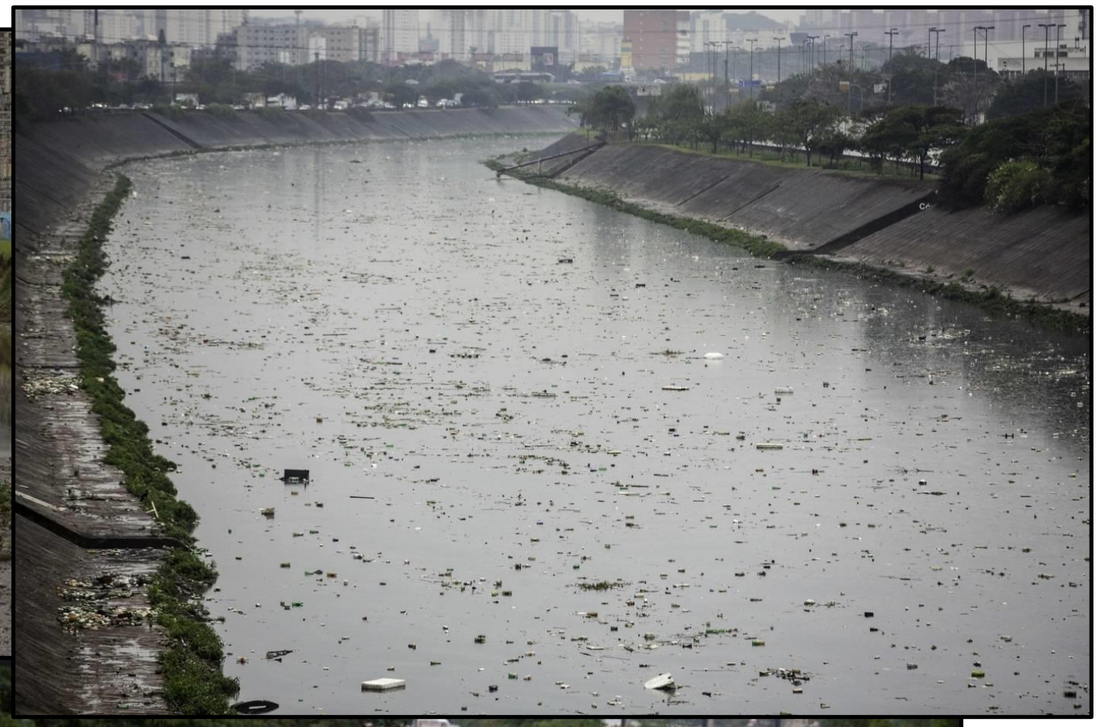


Image Sources: Agência Brasil, R7, Folha (2020)

Billings Reservoir

Source: Folhapress (2015)

Reversal of Pinheiros river to Billings Reservoir

Precarious and illegal settlements alongside Billings Reservoir

Source: Folhapress (2015)

Source: Folhapress (2015)

Illegal garbage dumping on Billings Reservoir

Source: SABESP (2021)

Conclusions?

- Pollution = management crisis
- Water supply X demand = management crisis
- Emergency constructions works = management crisis
- Integrated Water Resources Management
- Adaptive Water Resources Management

Thank you!

For any questions and/or suggestions:

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