



Water-Energy-Food (WEF) Nexus and SDGs Implementation

The San Francisco River Basin Case Study

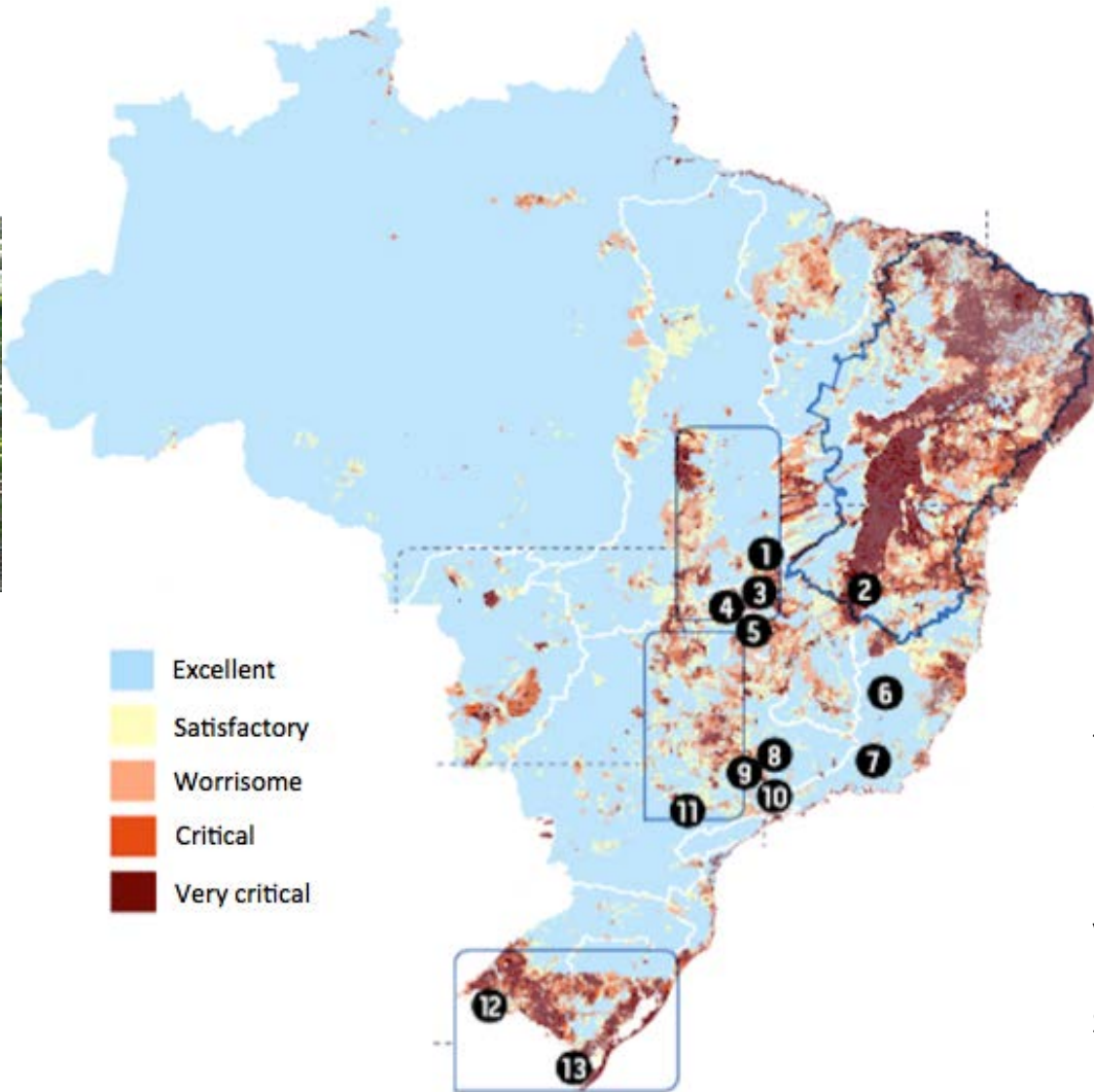
March 22, 2018

D22-T900-Room Águas Claras

Jerson Kelman

CEO of Sabesp





Brazilian quantitative water balance based on the ratio of water withdrawal for consumptive uses and the water availability

Excellent: less than 10%

Very critical: more than 40%

Source: ANA





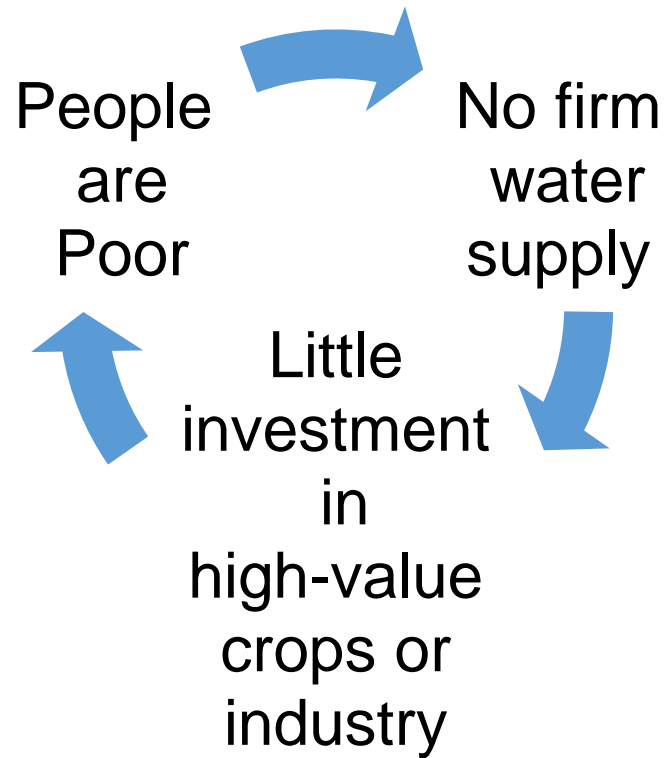
The San Francisco River Basin
640,000 Km²

Mean Flow 2850 m³/s

The “Brazilian Nile”



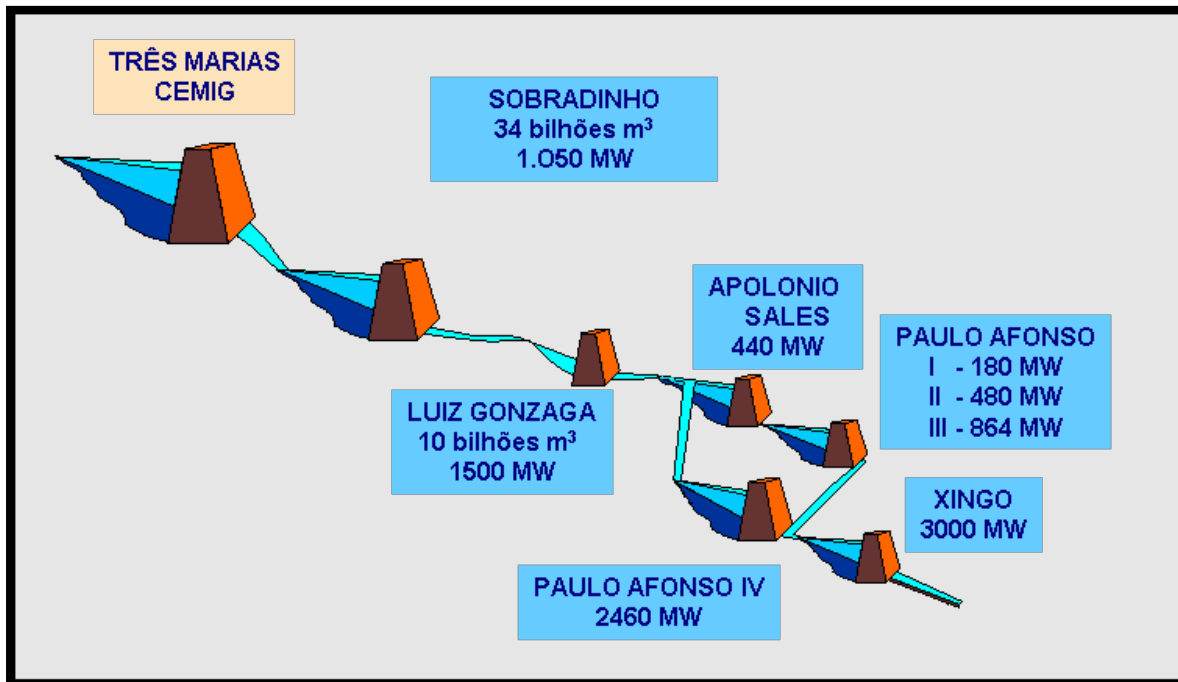
HYDROLOGICAL VICIOUS CYCLE



It is necessary an initial stock of investments on water infrastructure before reaching the “inflexion point... and then real progress starts

(David Grey and Claudia Sadoff, “Sink or Swim? Water security for growth and development”)

Additionally, one has to take into consideration the WEF nexus...



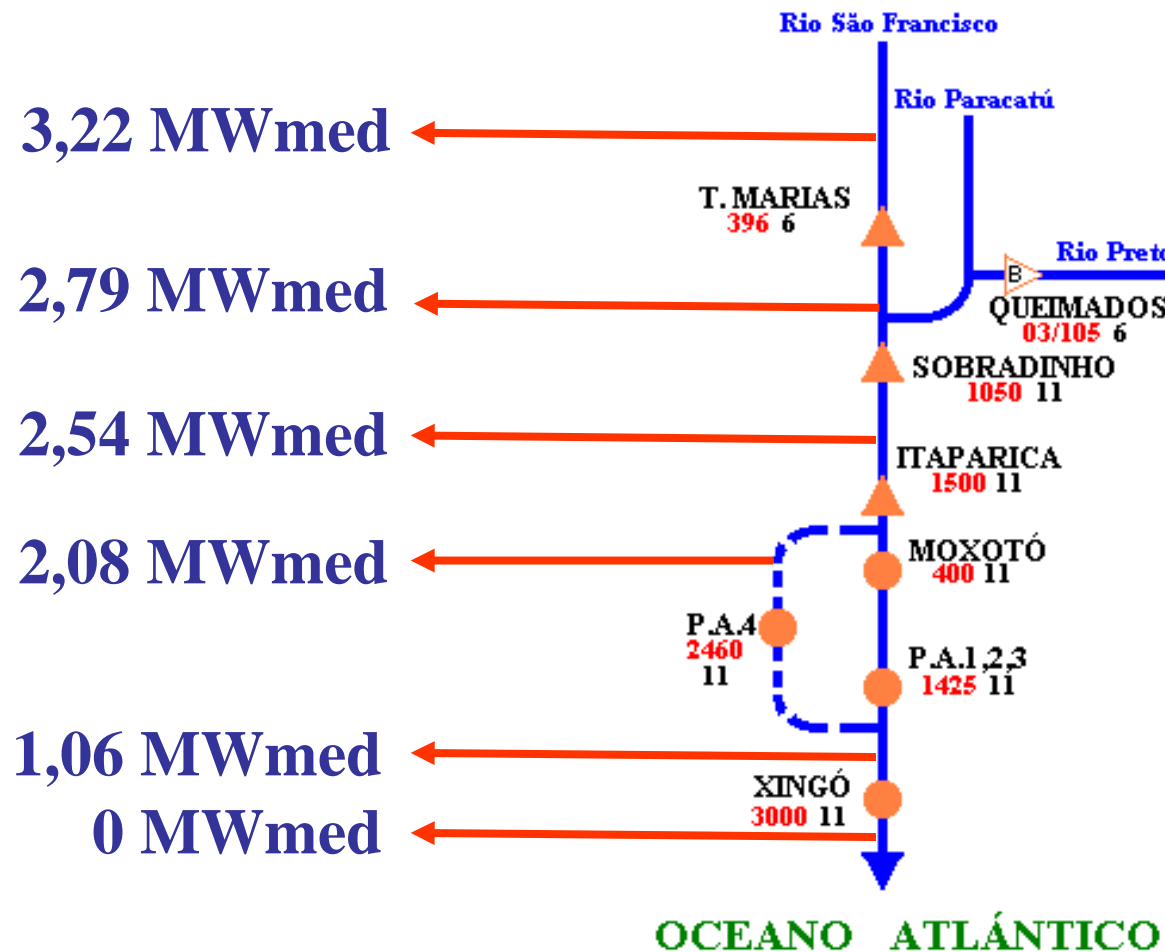
Hydropower

10,356 MW
50 million MWh/year
45 billion m³ storage,
US\$ 20 billion



Irrigation
800 thousand hectares (2013)
200 m³/s (?)



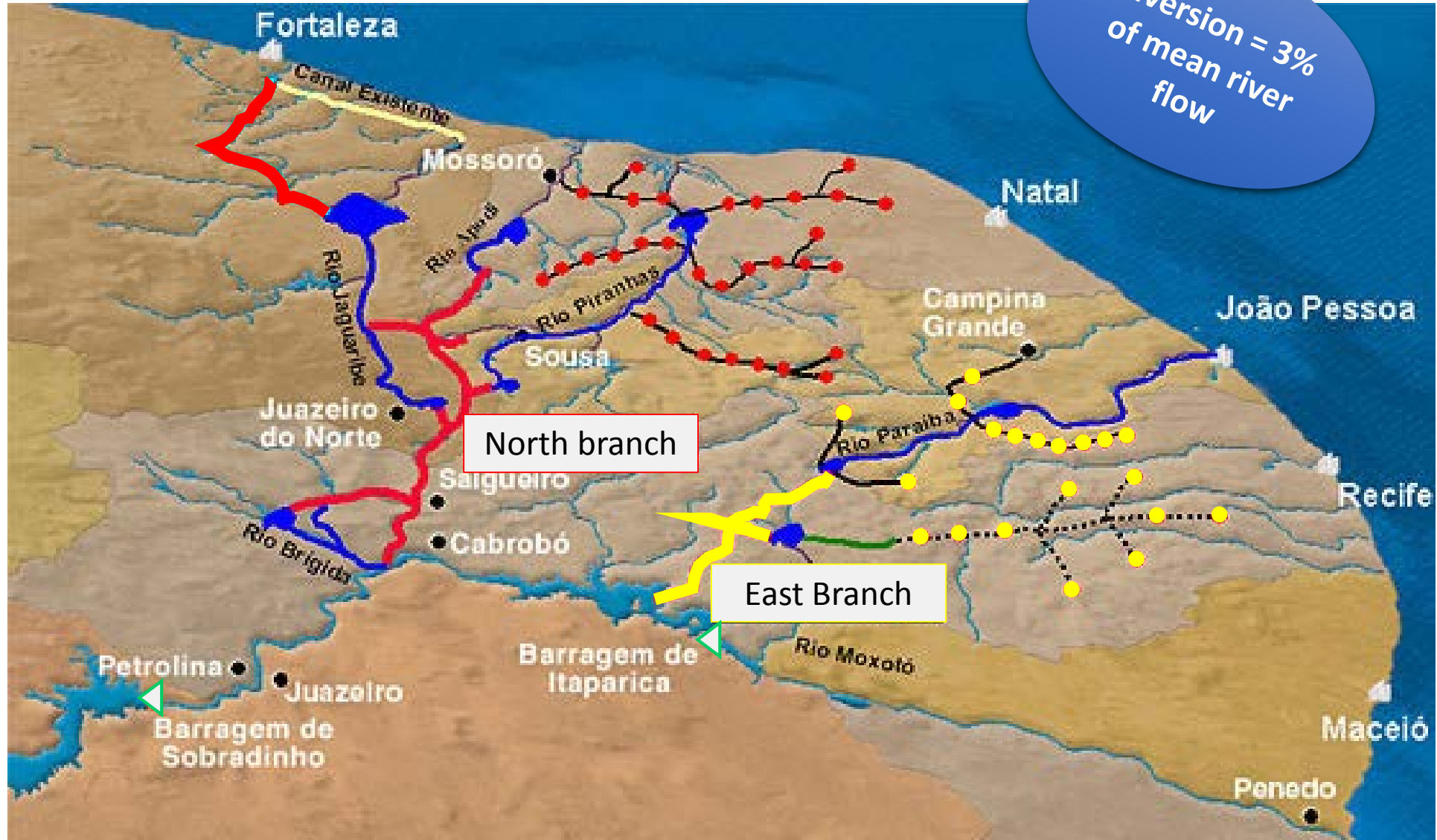


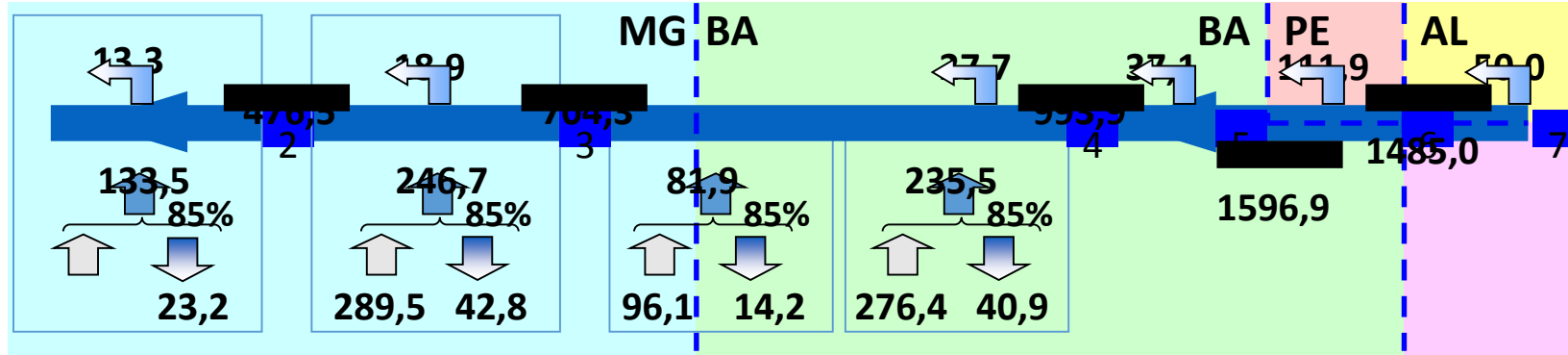
Decrease of the firm yield of electric energy as a function of each 1 m³/s consumed in irrigation

For example, the opportunity cost for the water allocated to a new irrigation plot in this river reach is at least 5 cents of dollar per cubic meter

The unit cost of water outside the basin is at least three times the cost within the basin

San Francisco Water Diversion (US\$ 3 billion)





Water allocation in the San Francisco river basin

Upper river irrigation

X

Mid river hydropower

X

Interbasin transfer

X

Low river minimum flow



San Francisco River Basin Plan

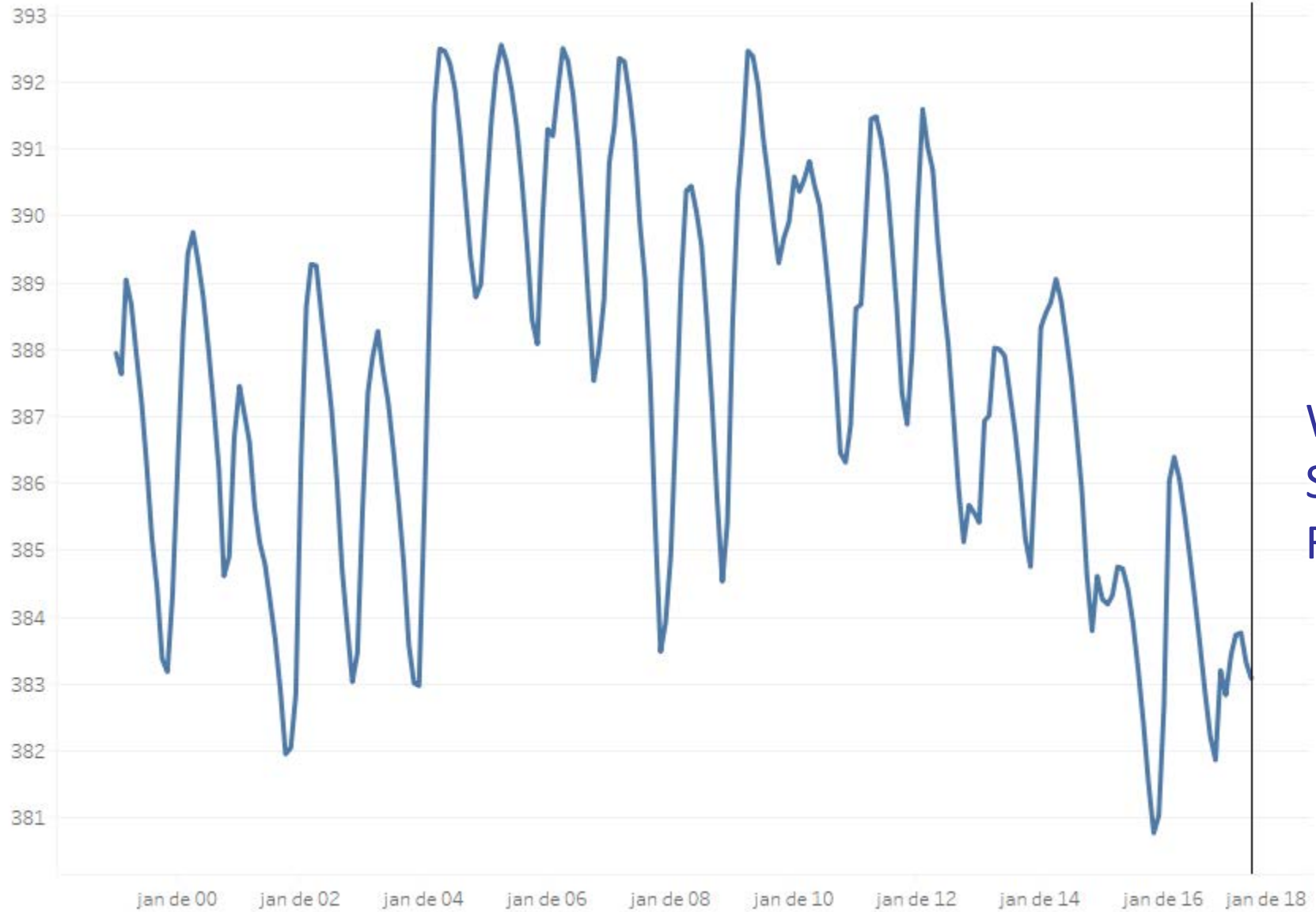
Prepared by the
River Basin
Committee

**PLANO DE RECURSOS HÍDRICOS
DA BACIA HIDROGRÁFICA
DO RIO SÃO FRANCISCO
2016-2025**

**PLANO DE
RECURSOS HÍDRICOS DA
BACIA HIDROGRÁFICA DO RIO
SÃO FRANCISCO**
ATUALIZAÇÃO
2016 - 2025

**RP3 - CENÁRIOS DE DESENVOLVIMENTO E
PROGNÓSTICOS DA BACIA HIDROGRÁFICA
DO RIO SÃO FRANCISCO**
Volume 1 - Relatório
fev 2016

CBHSF
COMITÊ DA BACIA HIDROGRÁFICA
DO RIO SÃO FRANCISCO



Water Level of
Sobradinho
Reservoir

Water for the people + production

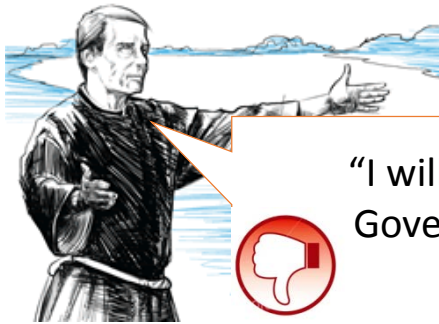
Small reservoir in the recipient region

Continuous flow river

Water flow from the São Francisco River Basin

Pipeline

Intermittent river



“I will sustain a hunger strike until Government cancels the Project”
(Bishop Dom Cappio)



Water for the people



Some stakeholders may not be rational

They are moved by ideology or faith → loose-loose outcomes



Water permit for the diversion

Dry mode: 26 m³/s

Wet mode: 127 m³/s



Lessons

- New infrastructure should only be built when and where there is an institutional and commercial arrangement to take care of O&M
- Government contracts in developing countries should focus on the delivery of results, rather than on the construction of new infrastructure
- The WEF nexus is better understood when the opportunity costs are explicitly stated



8th
World Water
FORUM

Brasilia-Brazil
2018

Sharing Water

Organization



MINISTRY OF THE
ENVIRONMENT



Support

