Planning for Water Reuse in São Paulo Metropolitan Region - SPMR

August 2011

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GOVERNO DO ESTADO SÃO PAULO

Sabesp:

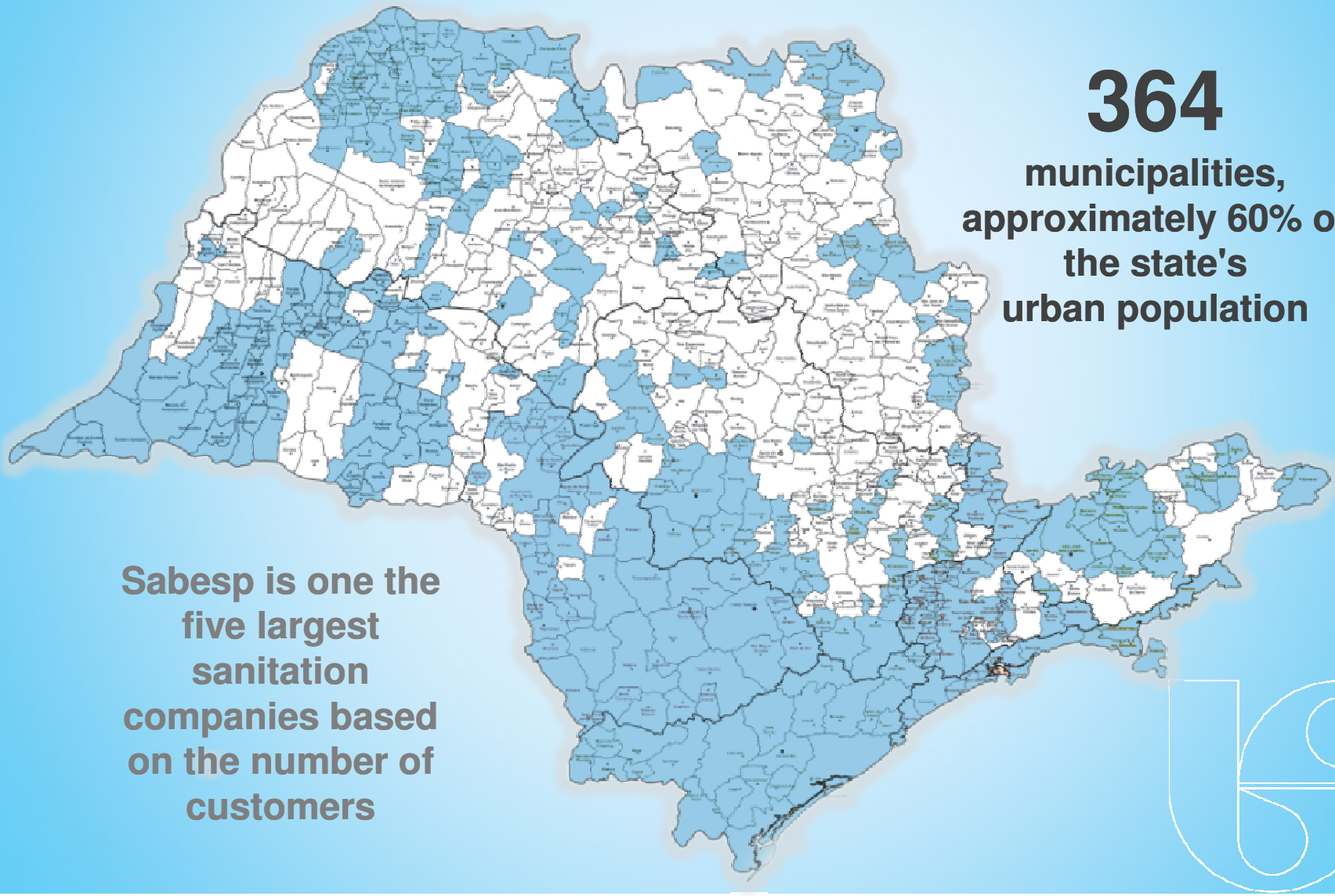
STATUS: Founded in 1973 as a private and public joint-stock company *(Government of the state of São Paulo, private shareholders and municipalities)*

NET WORTH: R$ 9.6 billion*

Financial Statements

* Exact Value: R$ 9,681,800.00

Municipalities Served by Sabesp



364

municipalities, approximately 60% of the state's urban population

Sabesp is one the five largest sanitation companies based on the number of customers

Registered Connections – Water and Wastewater

Length of the network

- Water Supply: 64,438 km
- Wastewater Collection: 43,518 km

Number of connections

units

- Water: 7,295,000
- Wastewater: 5,718,000

Water supply systems include water mains | Sewer systems include trunk sewers, interceptors and outfall sewers

Main Sewer System SPMR

Current treatment capacity = **18.000 L/s (8,5 millions inhabitants)**

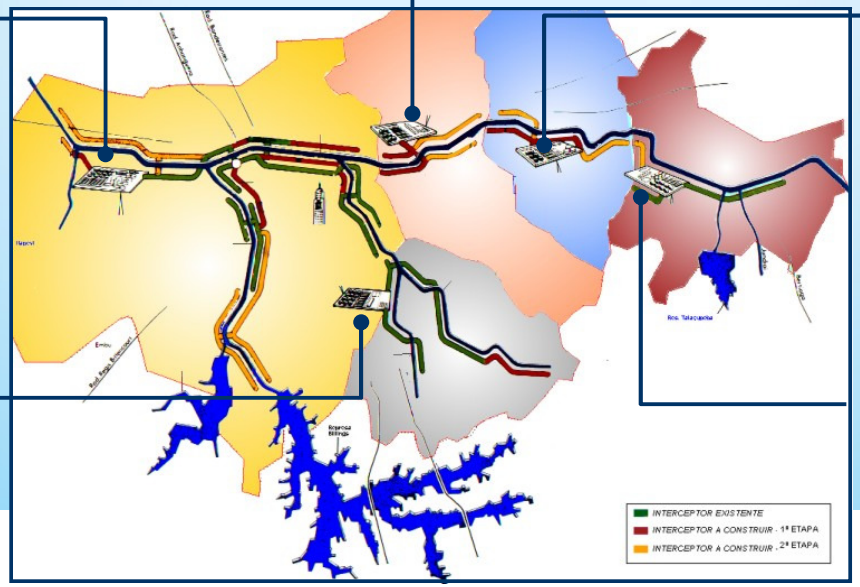
Influent average Flow (2010) = **15.609 L/s**

Total SPMR population: 20 millions inhabitants

Barueri Plant – 9.500 L/s
(4,5 millions inhab.)

Parque Novo Mundo Plant – 2.500L/s
(1,2 millions inhab.)

São Miguel Plant – 1.500 L/s
(0,7 millions inhab.)



ABC Plant – 3.000 L/s
(1,4 millions inhab.)

Suzano Plant- 1.500 L/s
(0,7 millions inhab.)

Availability of Water Resources

The scarcity of water resources requires planning and investment... in some regions

BRAZIL	35,000 m^3/inhab.year
State of São Paulo	2,468 m^3/inhab.year
SPMR	200 m^3/inhab.year

UN CLASSIFICATION	SELF-SUSTAINABLE	> 2,500 m^3/inhab.year
	POOR	< 2,500 m^3/inhab.year
	CRITICAL	< 1,500 m^3/inhab.year

Water Loss Program

Target: **Reduction of water losses from 29.5% in 2007 to 13.0% in 2019**

Target population : 26.4 million

Target region: All municipalities directly or indirectly operated

Duration: 2009 – 2019

Sabesp's Water Losses

26%

Environmental Solutions

Effective solutions for customers concerned with environmental conservation and lower costs

Program for the Rational Use of Water - Pura

Water Reuse

pura

PROGRAMA DE USO RACIONAL DA ÁGUA

Actions on water demand

Program for the Rational Use of Water- PURA

Technological

Educational

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Regulatory

Planned recycled water meaning

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Recycled Water

Capacities:		
Sewage Treatment Capacity (m^3/month)	**Recycled Water Production Capacity (m^3/month)**	**Current Recycled Water Supply (m^3/month)**
46.656.000	320.000	135.000

Planned uses:

- **Non potable water to restricted urban uses**
  - Water for irrigation of green areas and washing of streets
- **High grade recycled water for more stringent non potable uses**
  - Irrestricted urban and industrial uses
- **Excluded: indoor uses in family houses**
  - Possible in public buildings

What has been done

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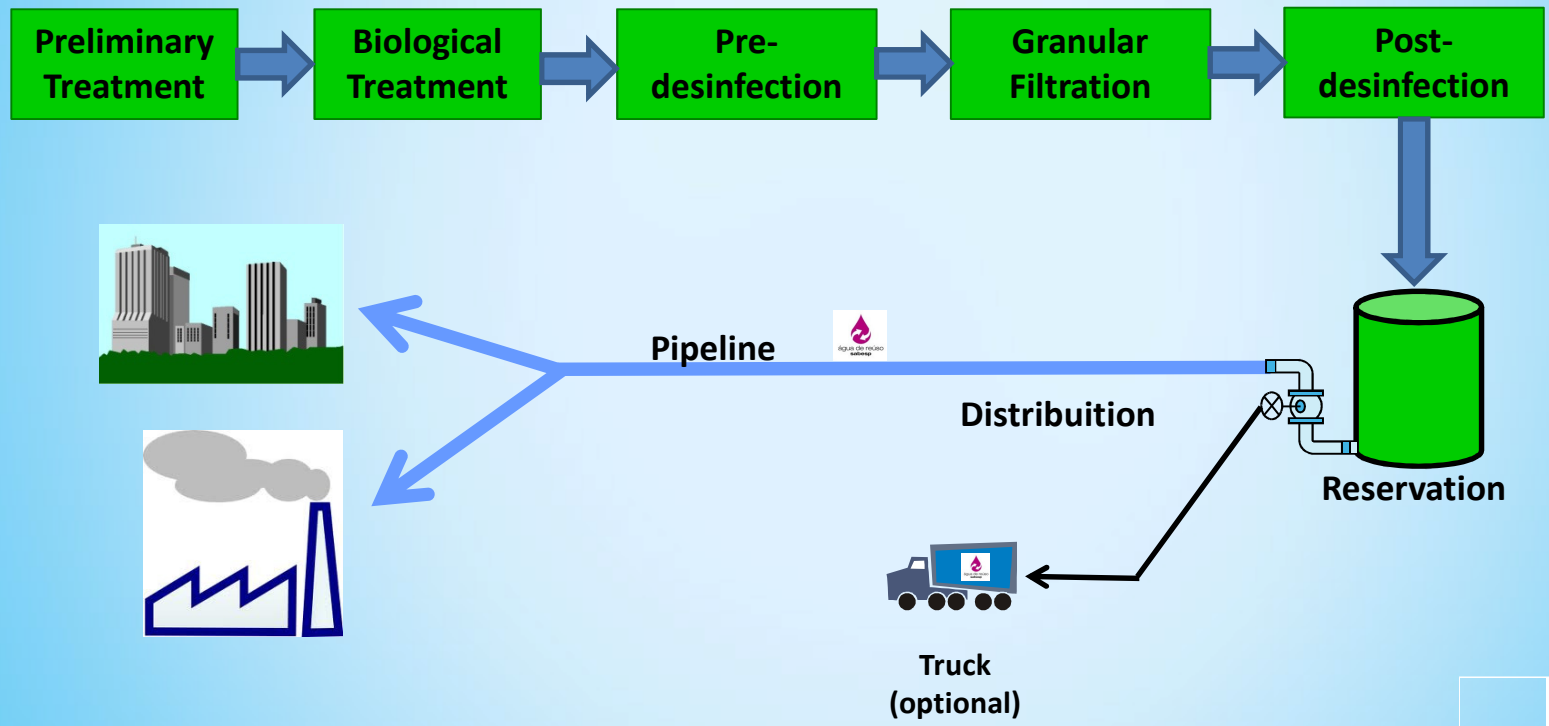
First Step: Jesus Neto WRP

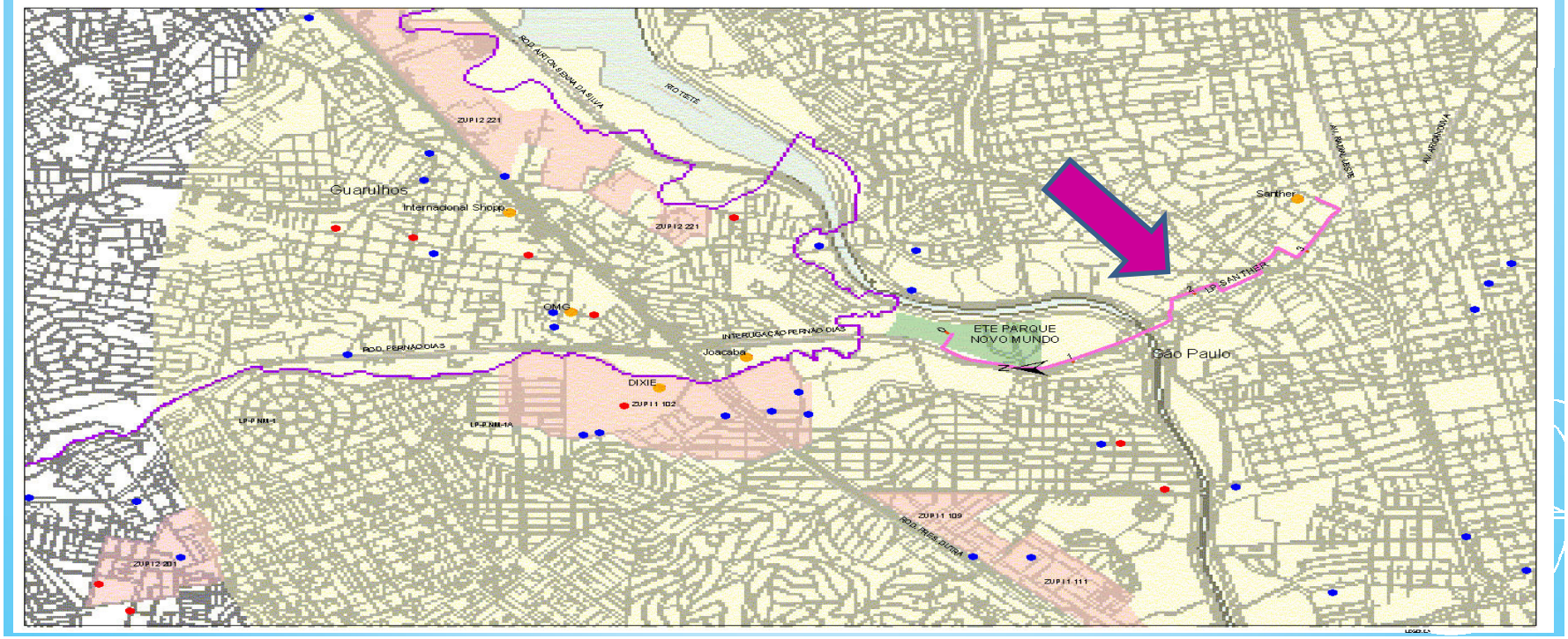
- Early WWTP converted into a conventional Water Reclamation Plant in 1998;
- Main purpose: supply recycled water to a textile industry;
- Current supply = 50.000 m^3/month.

First Step: Jesus Neto WRP
Basic flowchart



First Step: Supply to a special paper industry

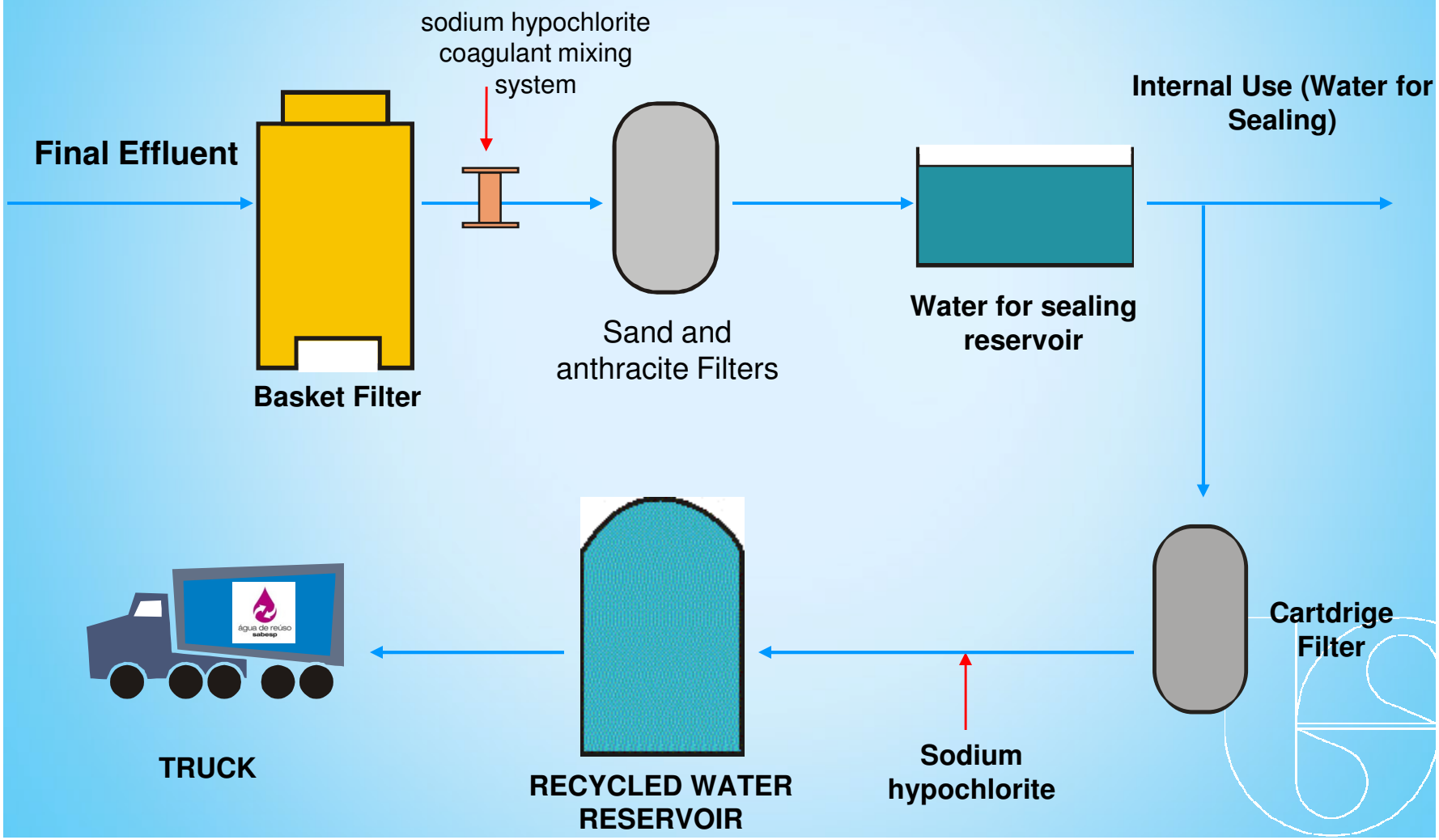
- **Supply start up:** September/2008
- **Volume:** 24 L/s – 60.000m³/month – 720.000m³/year, saving water for supply 12.000 people/day



Existing Small Filtration Plants

(Production: all Main System WWTP except Suzano plant)

Intended for Restricted Urban Uses



Second Step: Aquapolo Project

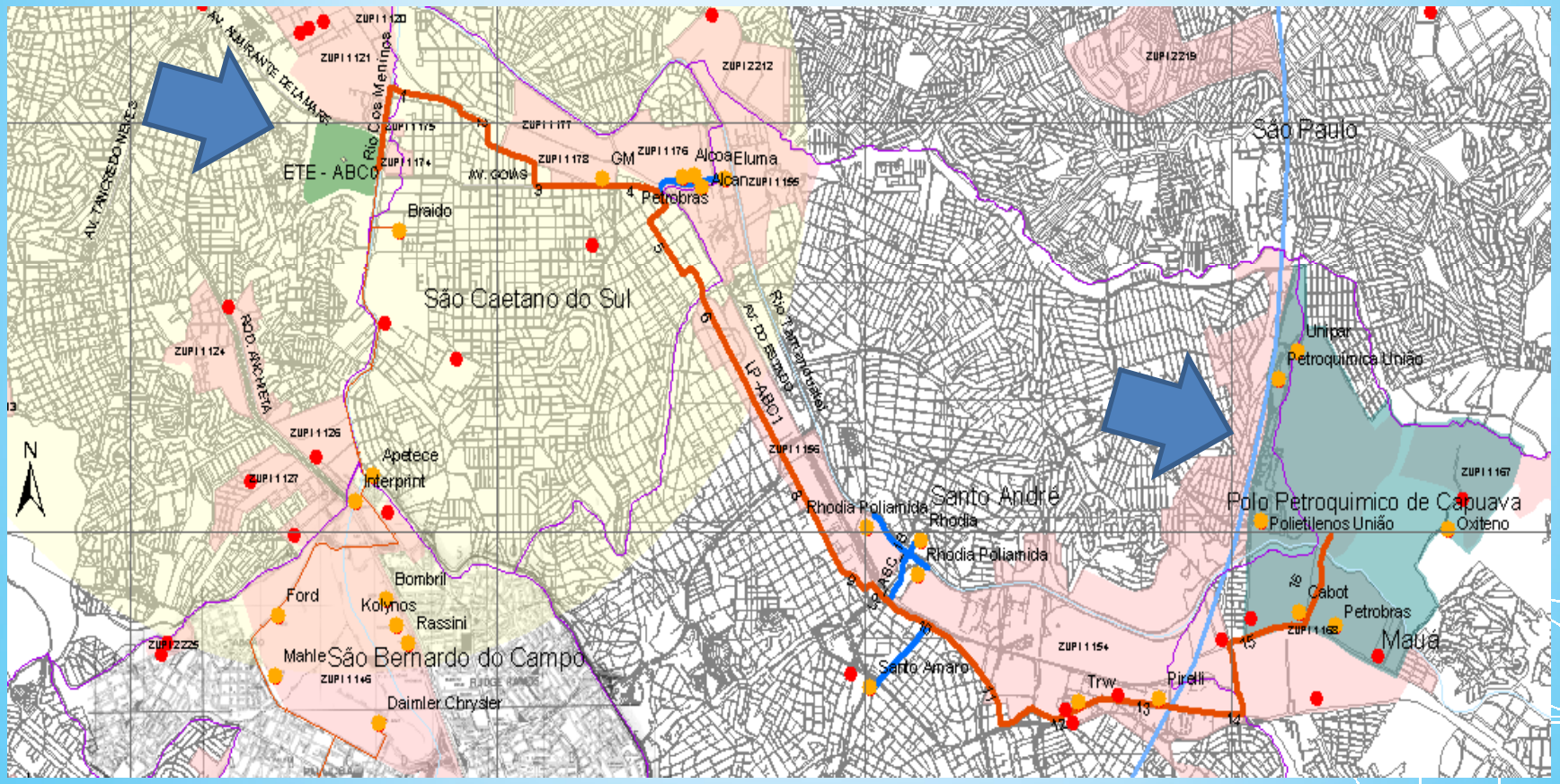
Designed to supply recycle water to increase the water availability in ABC region (the most critical water deficit in SPMR)

- Sabesp & Foz do Brasil partnership (SPE)
- The main consumer is a large Petrochemical Complex (Capuava Complex);
- Contract for 34 years with investments of US$ 157,5 million (expansion and growth of the customers).

AQUAPOLO AMBIENTAL PROJECT

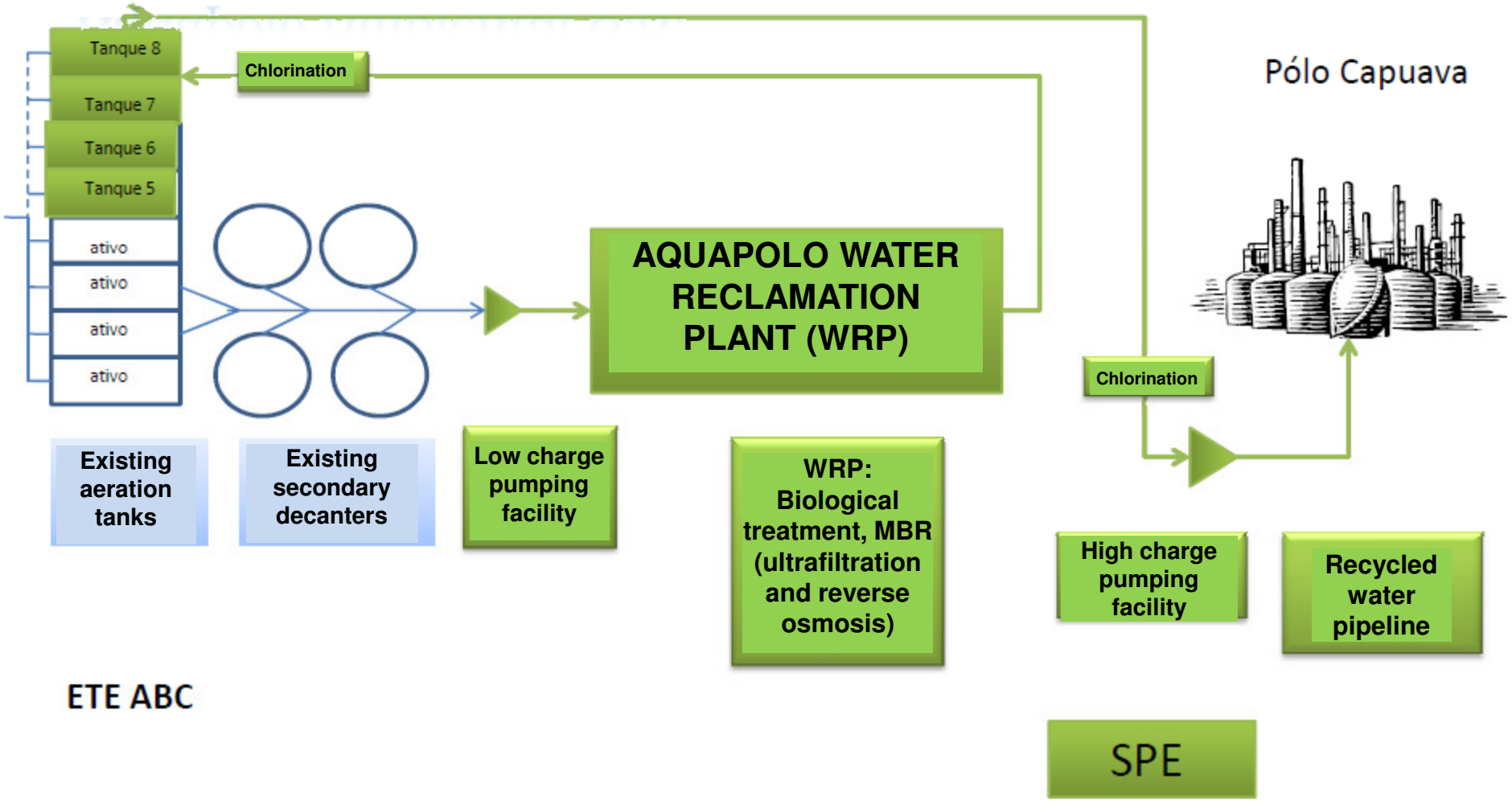
(SUPPLY OF RECYCLED WATER FROM ABC WWTP)

Initial supply of 600 L/s recycled water (total capacity of 1.000 L/s). Total pipeline length from ABC WWTP to Capuava Petrochemical Complex = 16,5 Km (through Ø 900mm pipeline)



Aquapolo Ambiental S.A.

Hydraulic Scheme of Recycled Water Production System



New Markets and Business

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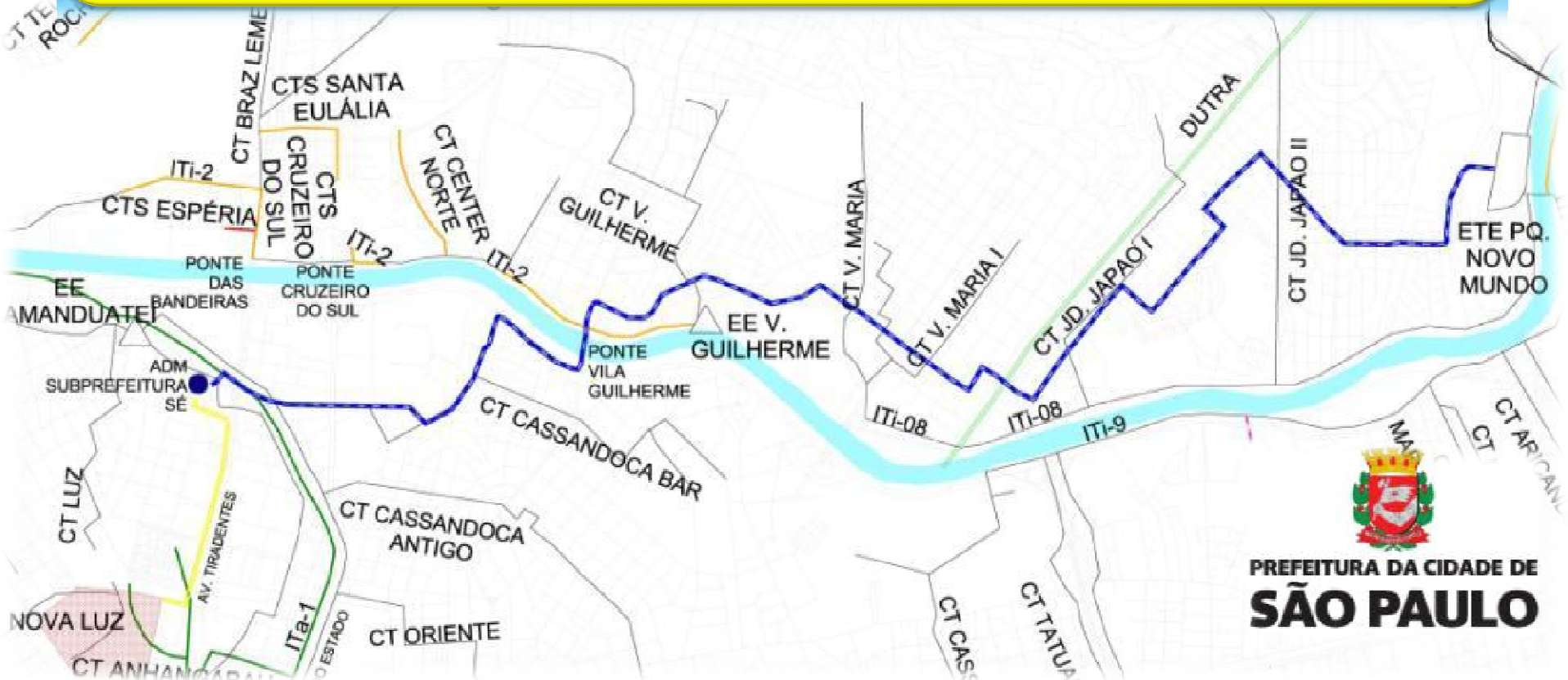
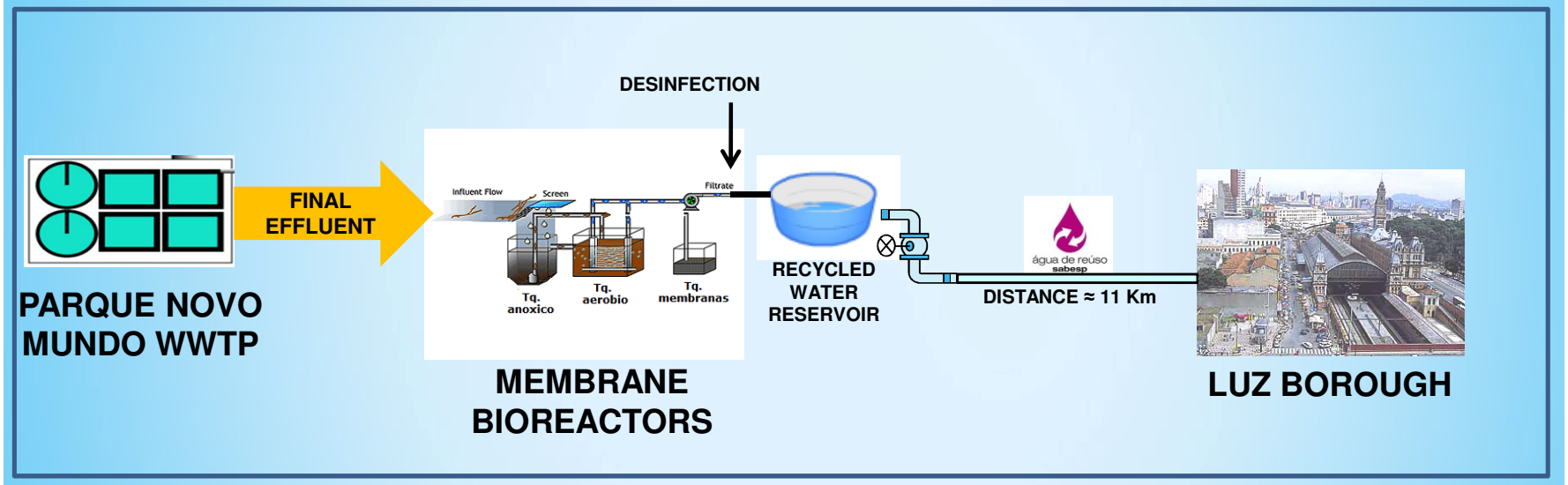
Third Step: Nova Luz Project

Goal: To develop a new alternative for irrestricted urban uses and to achieve a full public acceptance

Recycled Water System development from Parque Novo Mundo WWTP, with facilities for post-treatment, pumping, pipeline and reservation of treated effluents, serving majorly the demand from City of São Paulo's Sé borough, as well as potential consumers located along with the pipeline tracing, in compliance with the requirements for Irrestricted Urban Use, according to California Title 22 – Water.

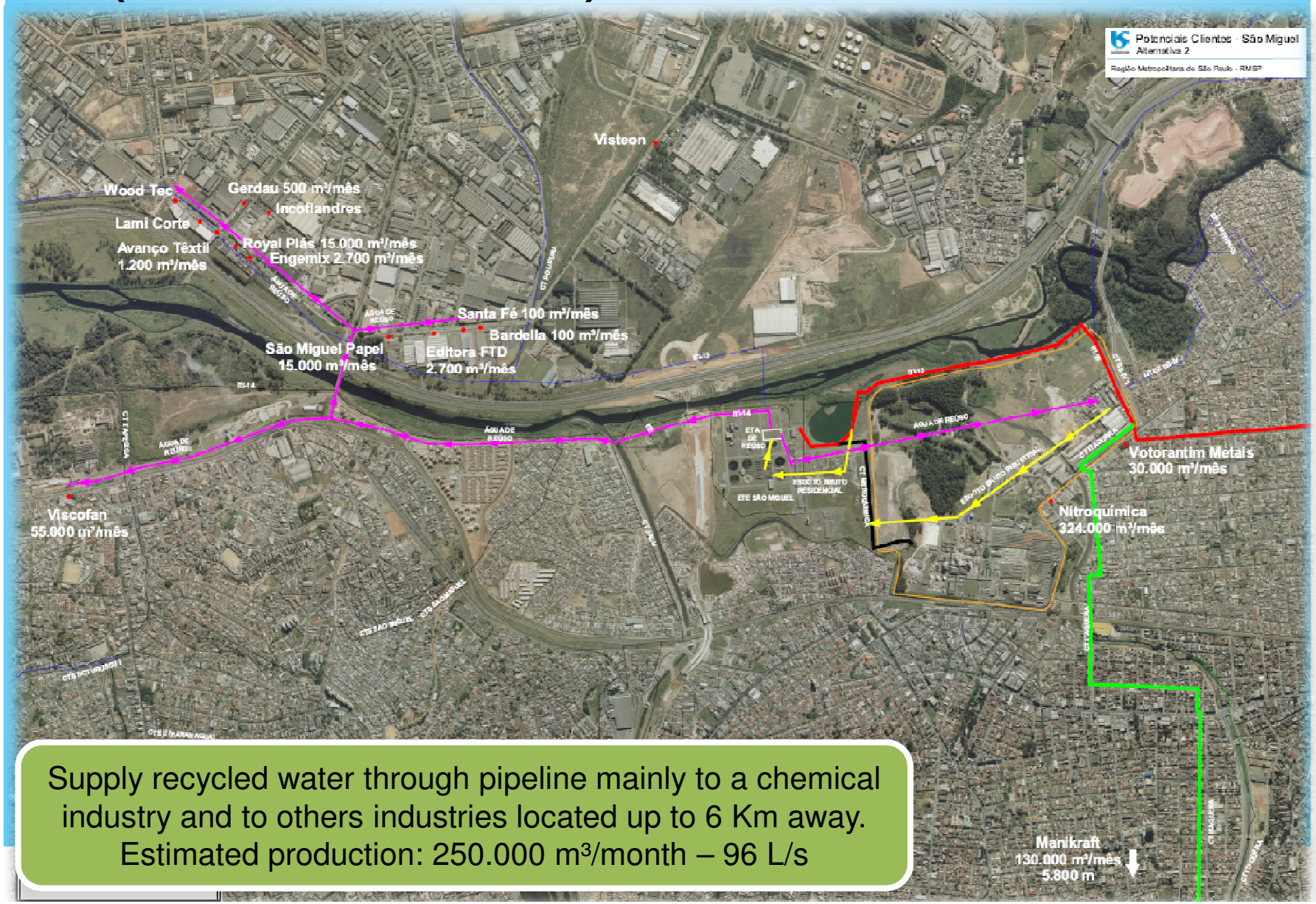


Third Step: Nova Luz Project
Basic Flowchart



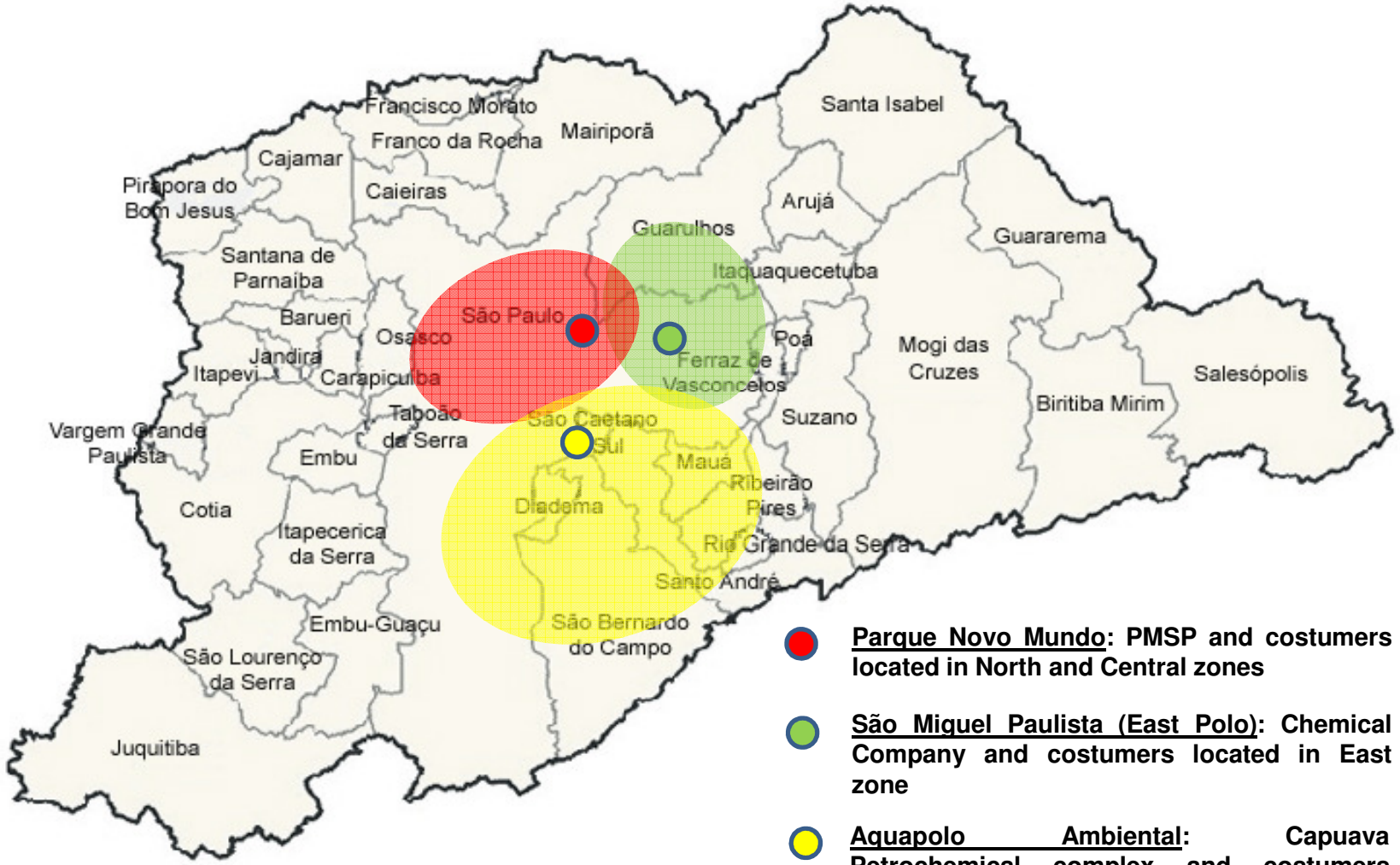
Third Step - Recycled Water – East Polo

(SUPPLY FROM SÃO MIGUEL WWTP)



Supply recycled water through pipeline mainly to a chemical industry and to others industries located up to 6 Km away.
Estimated production: 250.000 m³/month – 96 L/s

SÃO PAULO METROPOLITAN REGION
(RECYCLED WATER PRODUCTION POLOS)



Parque Novo Mundo: PMSP and costumers located in North and Central zones

São Miguel Paulista (East Polo): Chemical Company and costumers located in East zone

Aquapolo Ambiental: Capuava Petrochemical complex and costumers located in South, East and ABCD zones

New Markets and business

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What is needed next

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What is needed next

- ***Flexible regulation to guarantee public health without impairing the development of news system - (under way)***
- ***Introduction of Water reuse issues in the water resources master plans (State / Metropolitan / Municipal)***
- ***Cost- efficient technologies***
- ***Long term partnerships***

Thank you

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