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ATLAS Brazil: water supply planning for urban areas

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Marseille
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6th WORLD WATER FORUM
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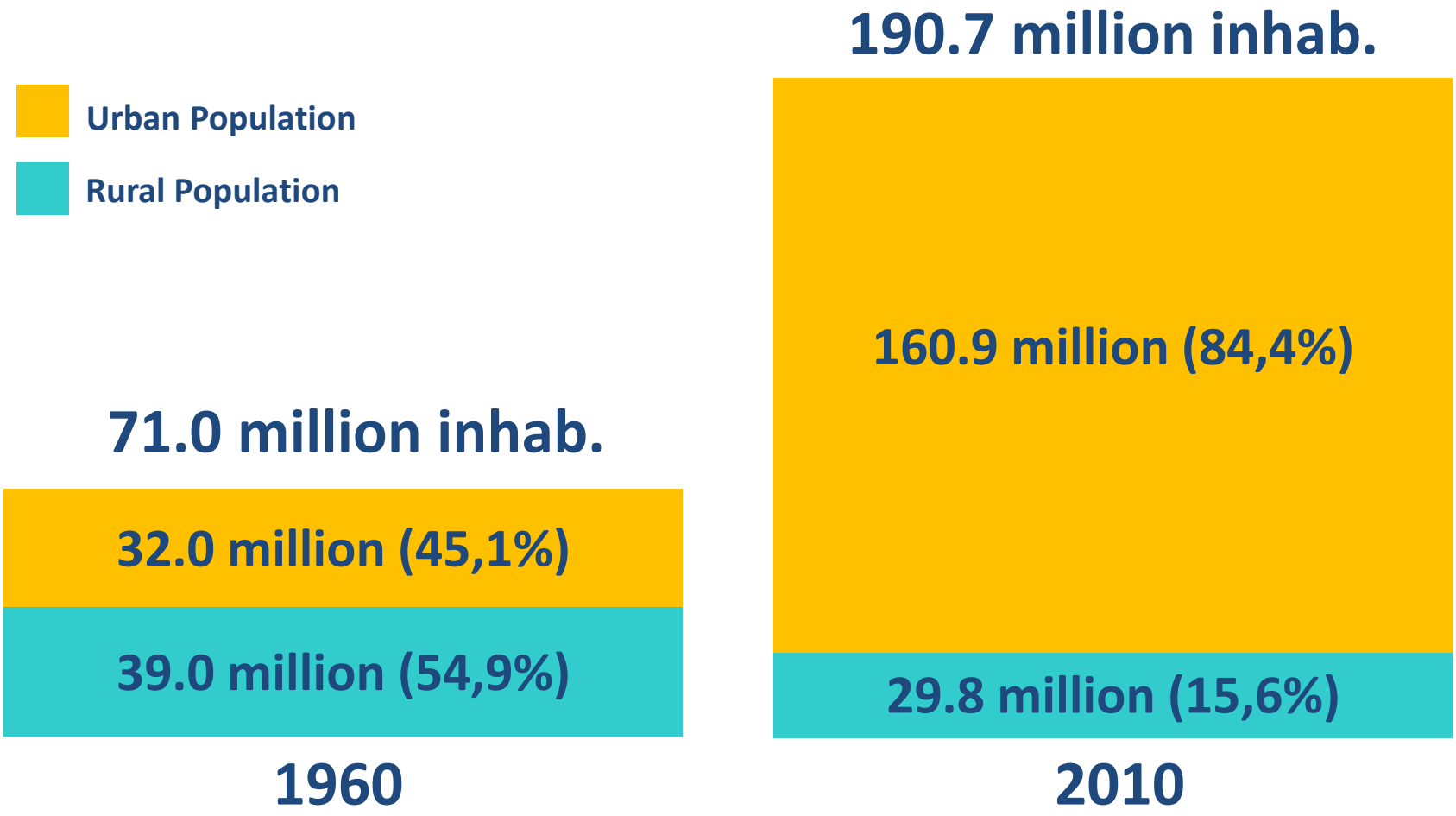
BRAZIL – Population growth and urbanization



Source: IBGE Census

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STUDY AREA

- All the 5,565 Brazilian cities located in 27 States

  - ✓ Population ranging from 250 to 18.5 million inhabitants
  - ✓ HDI from 0.475 to 0.901
  - ✓ Available surface water ranging from 91 m^3/s (Semiarid region) to 73,748 m^3/s (Amazon river basin)

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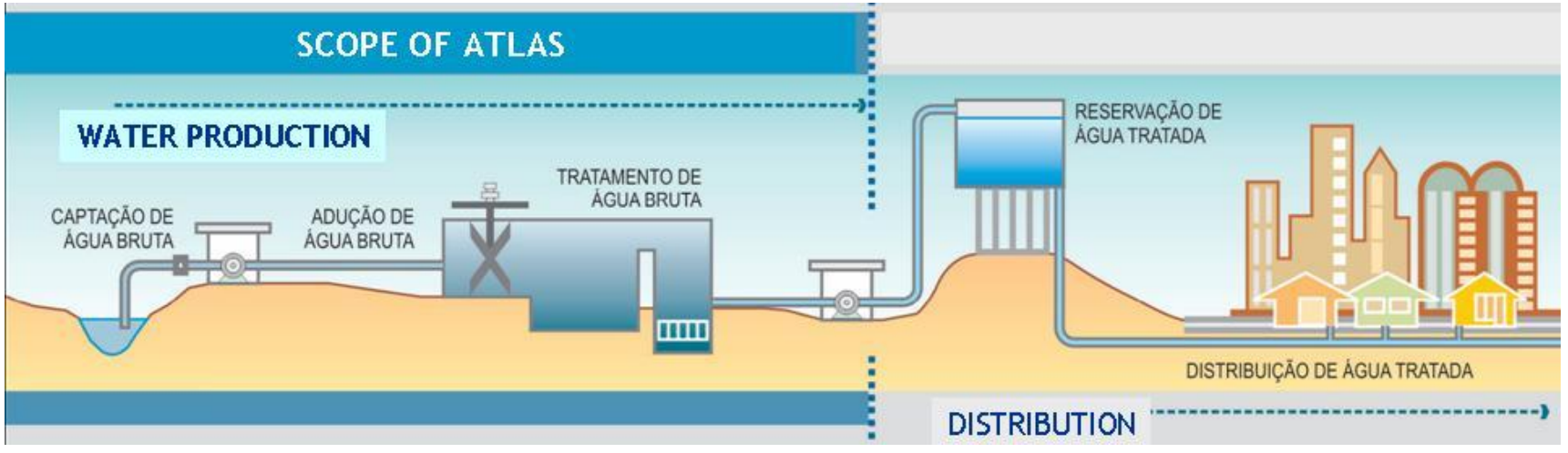
MAIN OBJECTIVE

PARADIGM CHANGE IN PLANNING TO IMPROVE EFFICIENCY OF PUBLIC INVESTMENT through:

- A detailed and complete inventory of the existing water sources and the drinking water production systems of all Brazilian cities
- The identification/proposal of the best technical alternatives and the necessary investment to enhance water security for urban water supply



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KEY TO SUCCESS: PARTICIPATORY PROCESS

BUILDING UP INSTITUTIONAL PARTNERSHIP AT DECISION-MAKING AND TECHNICAL LEVEL:

- FEDERAL MINISTRIES – Responsible for public funding
- WATER SERVICES – Responsible for technical data
  - 26 STATE COMPANIES → 3,856 cities
  - LOCAL GOVERNMENT SERVICES → 1,510 cities
  - PRIVATE COMPANIES → 199 cities

1,700 on-site visits and hundreds of meetings with the participation of 1,180 technicians and managers

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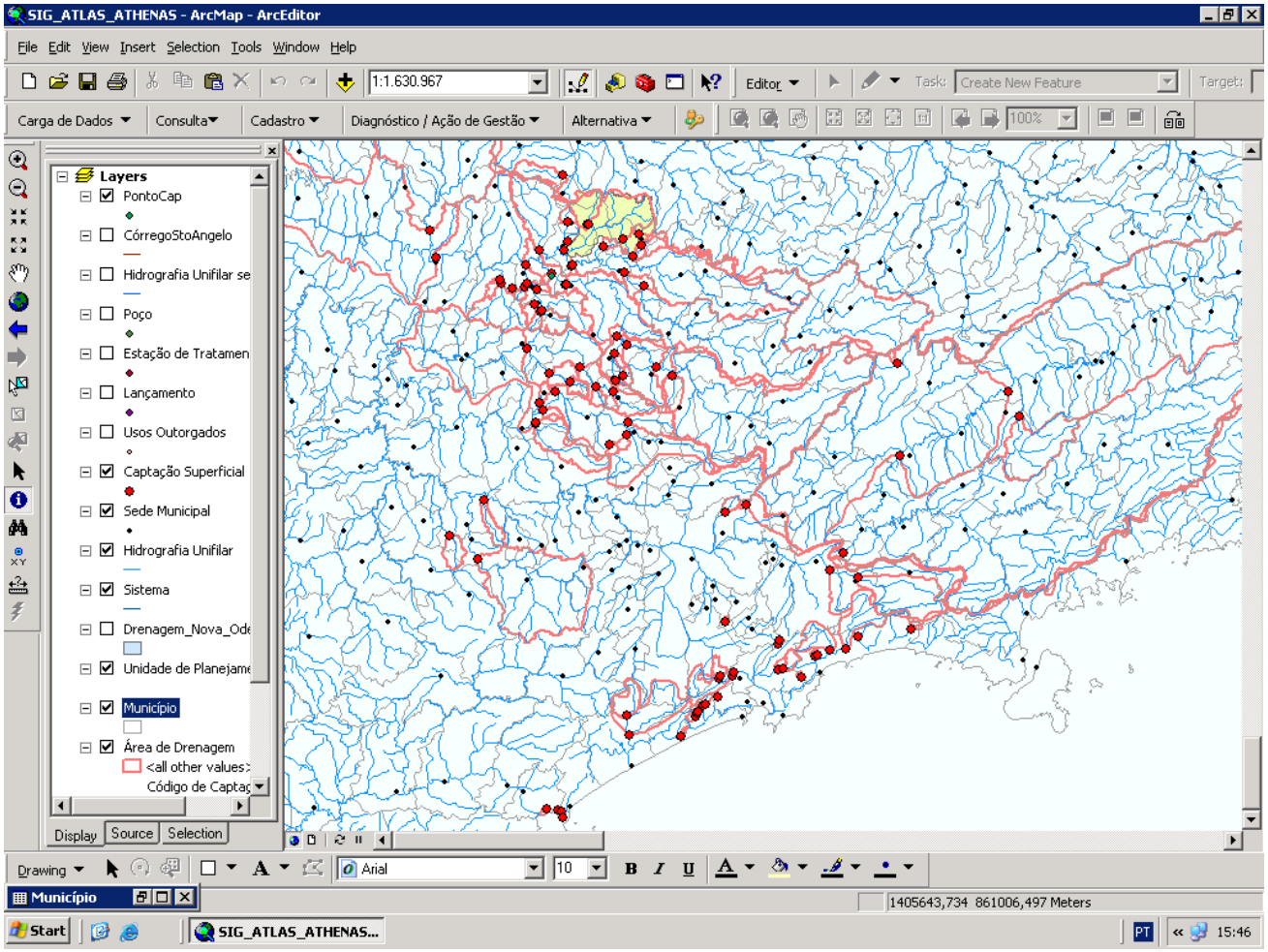
GIS ATLAS



A Geo-referenced Data Bank and Geographical Information System provide support for data systematization and hydrological and engineering analysis → GIS Atlas was originally modeled, loaded and updated during the project work

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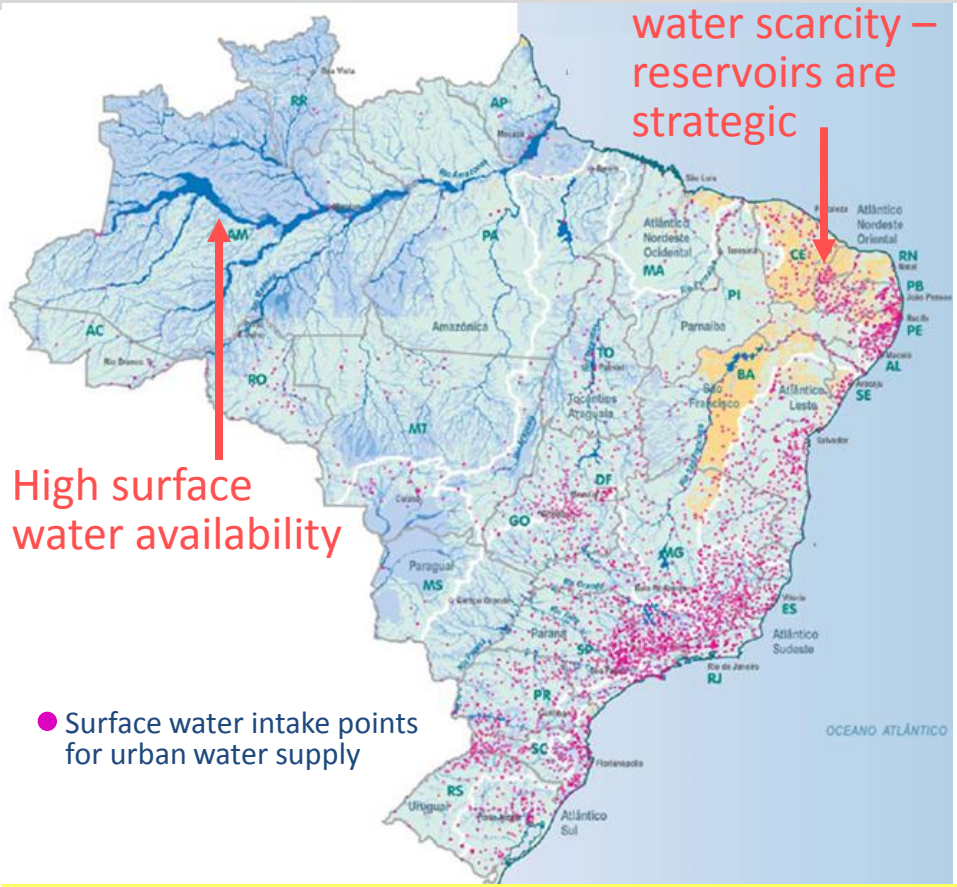
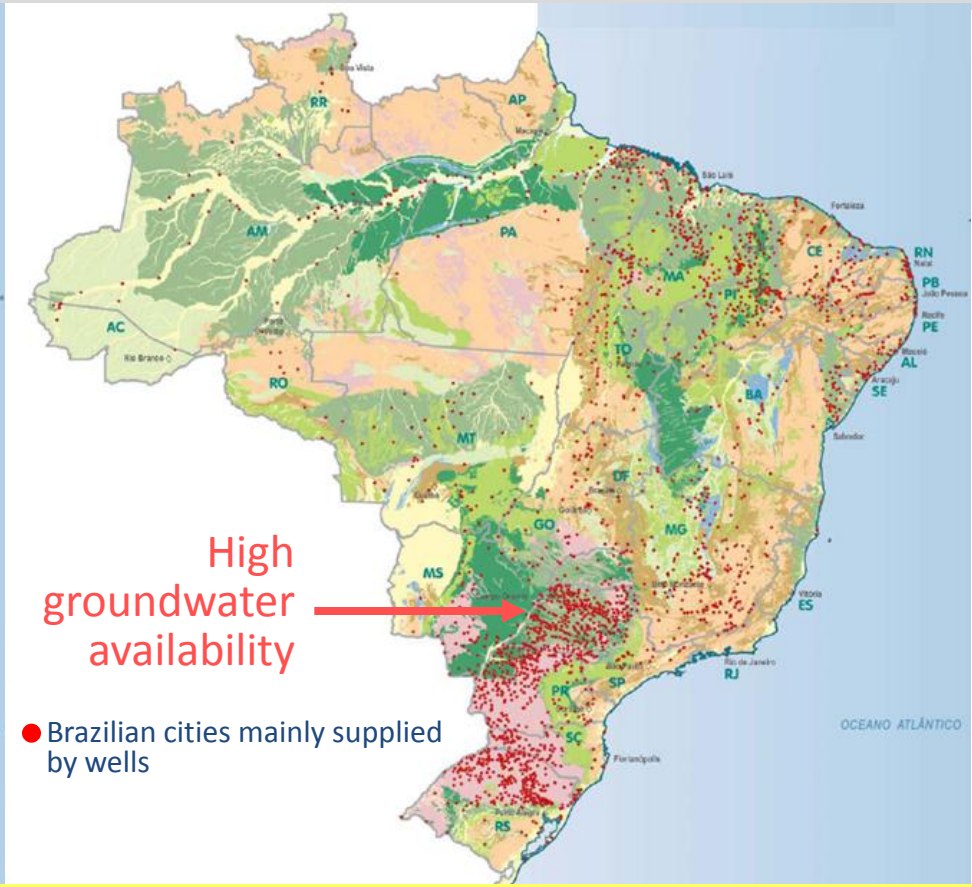
SURFACE WATER AND GROUNDWATER





58% of the cities (3,235) use mainly superficial sources;
(2,330) use mainly groundwater

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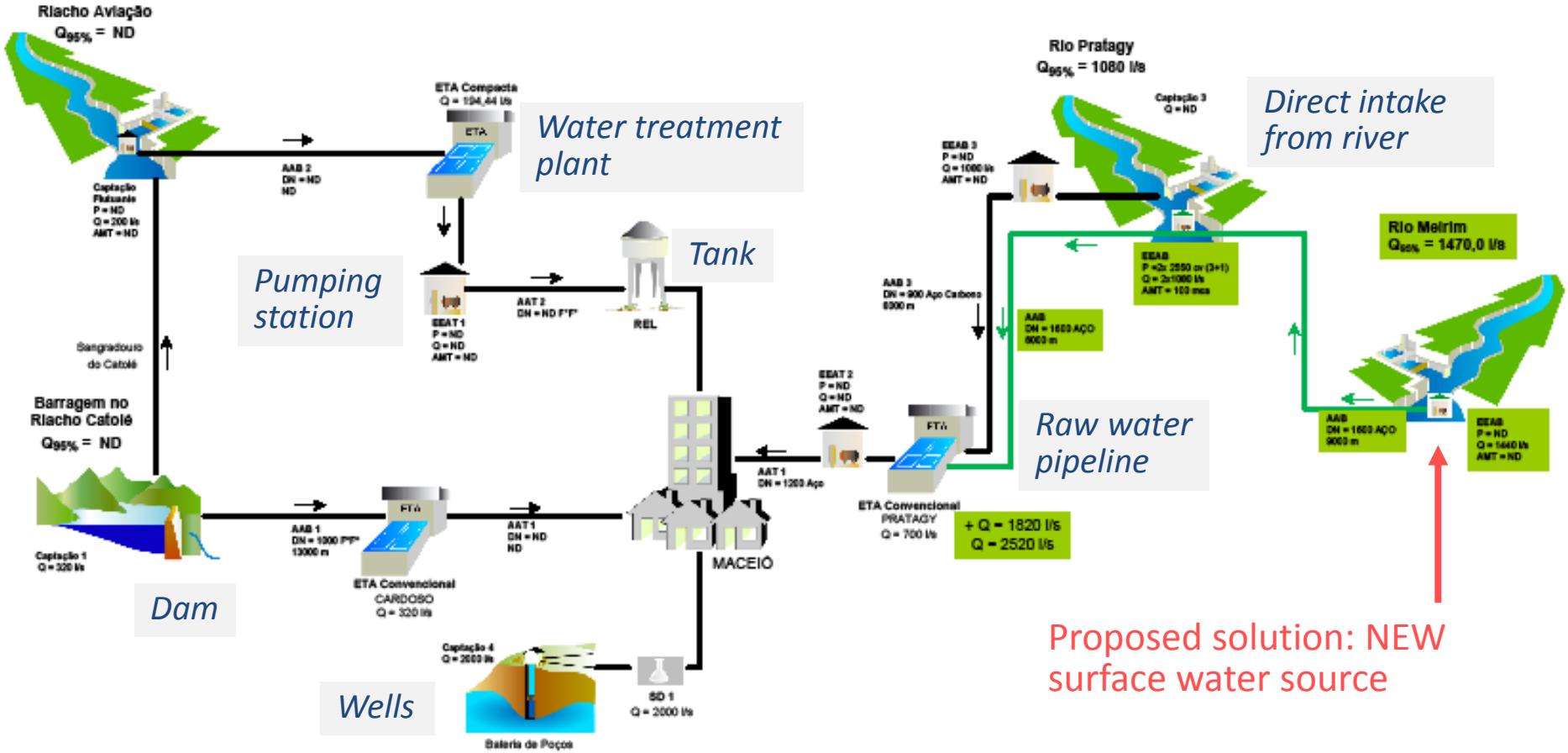
WATER SUPPLY SCHEMES

REPRESENTATION OF ALL WATER SOURCES + EXISTING AND PLANNED DRINKING WATER PRODUCTION SYSTEMS



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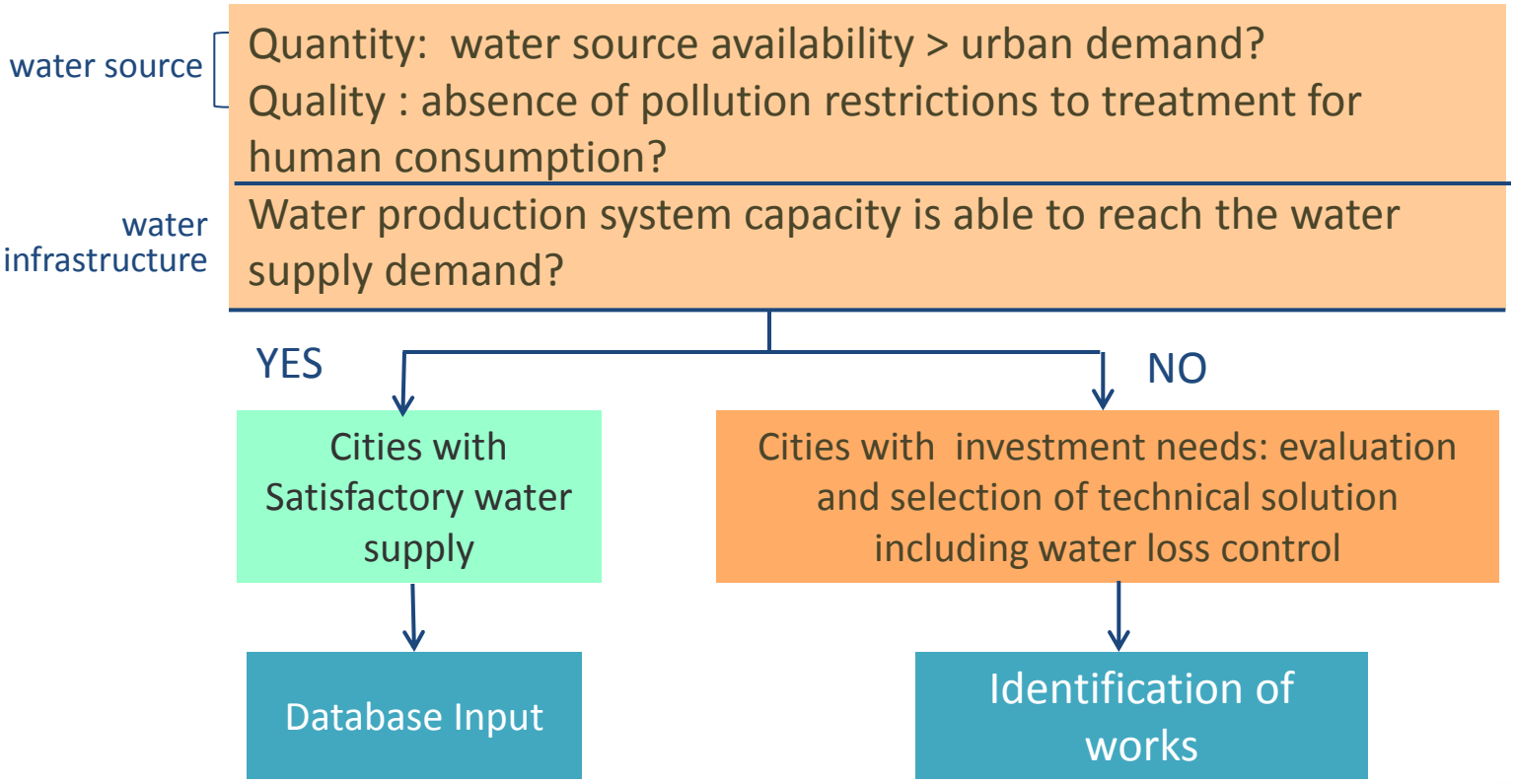
METHODOLOGY

Assessment of the water source and the drinking water production system



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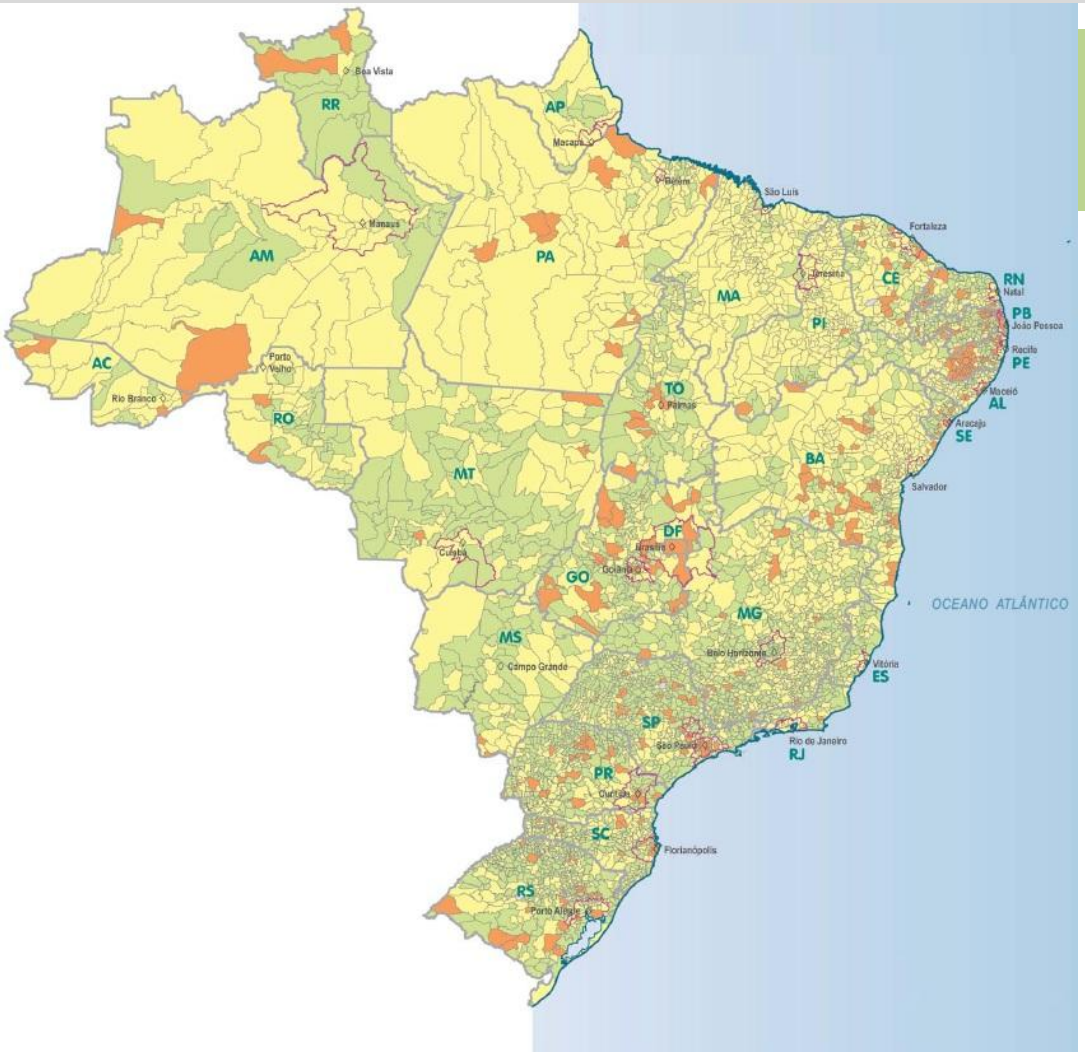
SUPPLY/DEMAND ASSESSMENT - 2015 Scenary



45% of the cities have satisfactory water supply

55% of the cities (3,059) require investment to guarantee water supply

46% → water infrastructure upgrade

9% → new or additional water source

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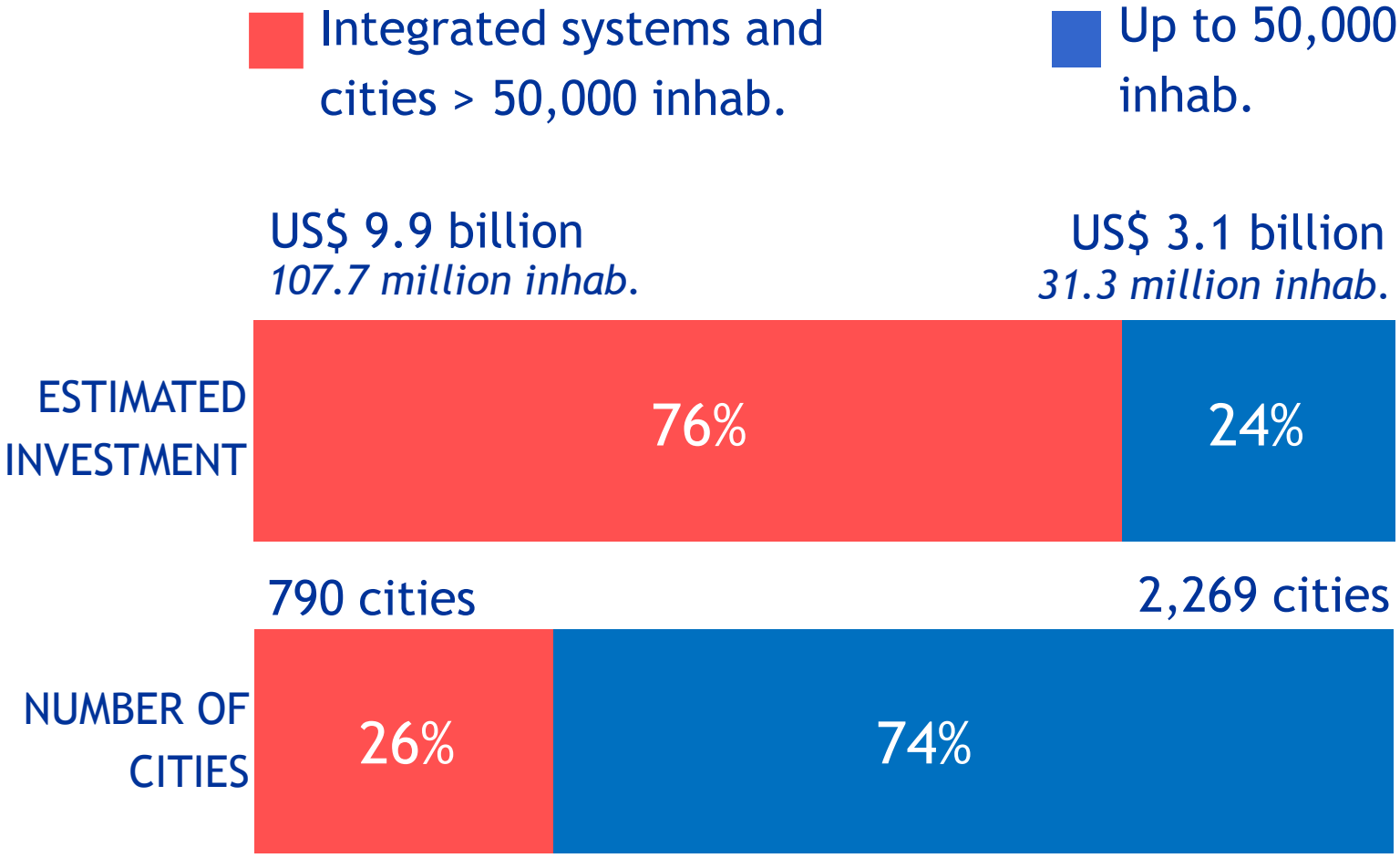
TOTAL INVESTMENT – US$ 13 billion

3,059 cities; 139 million inhabitants (2025)



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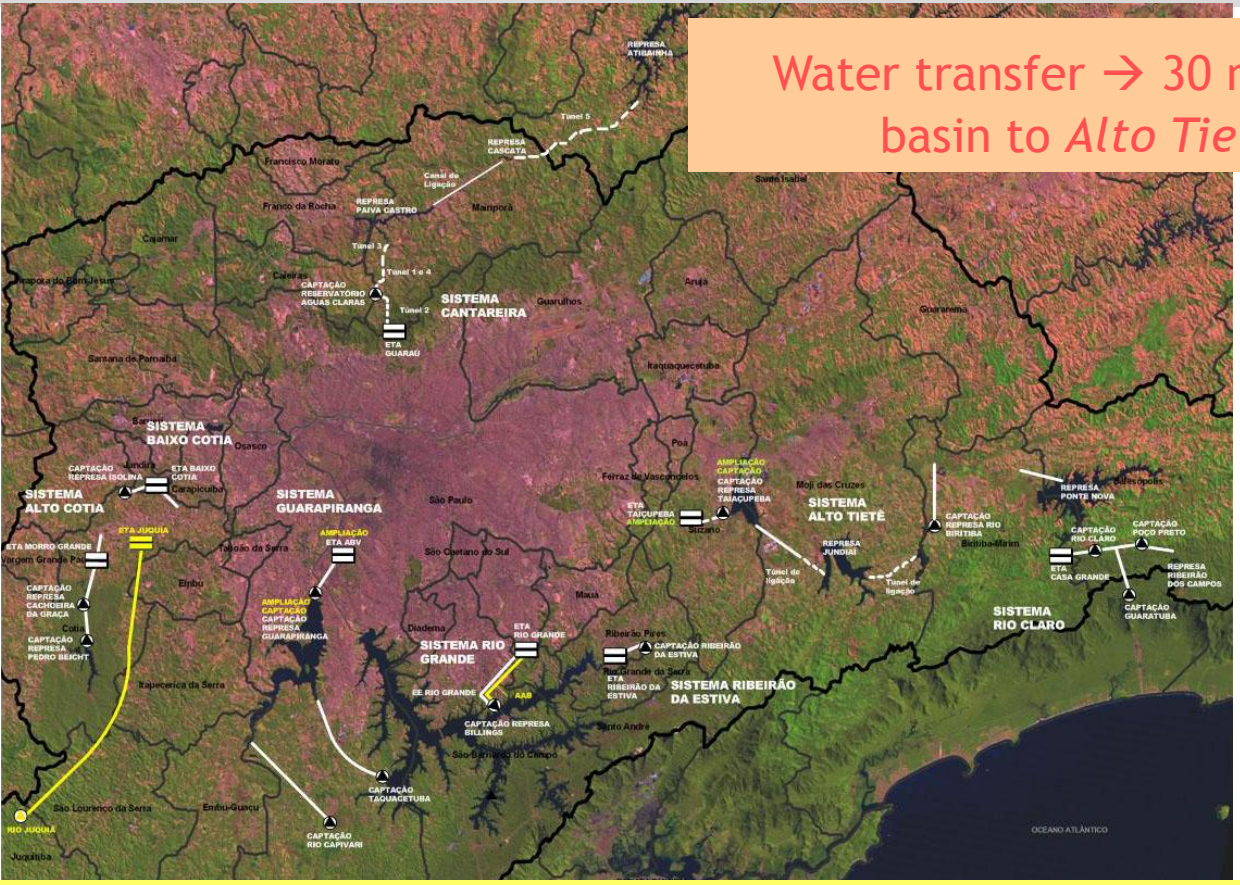
METROPOLITAN REGIONS: EX.: SÃO PAULO



Water transfer → 30 m^3/s from *PCJ* river basin to *Alto Tietê* river basin

Population: 18.5 million inhab.
Water demand: 71 m^3/s
Water demand (2025): 81.3 m^3/s

Water infrastructure upgrade and new water transfers are required

Investment needed: US$ 2.3 billion

Why is ATLAS important? Complex technical solutions and institutional conflicts require anticipation of the decision-making process

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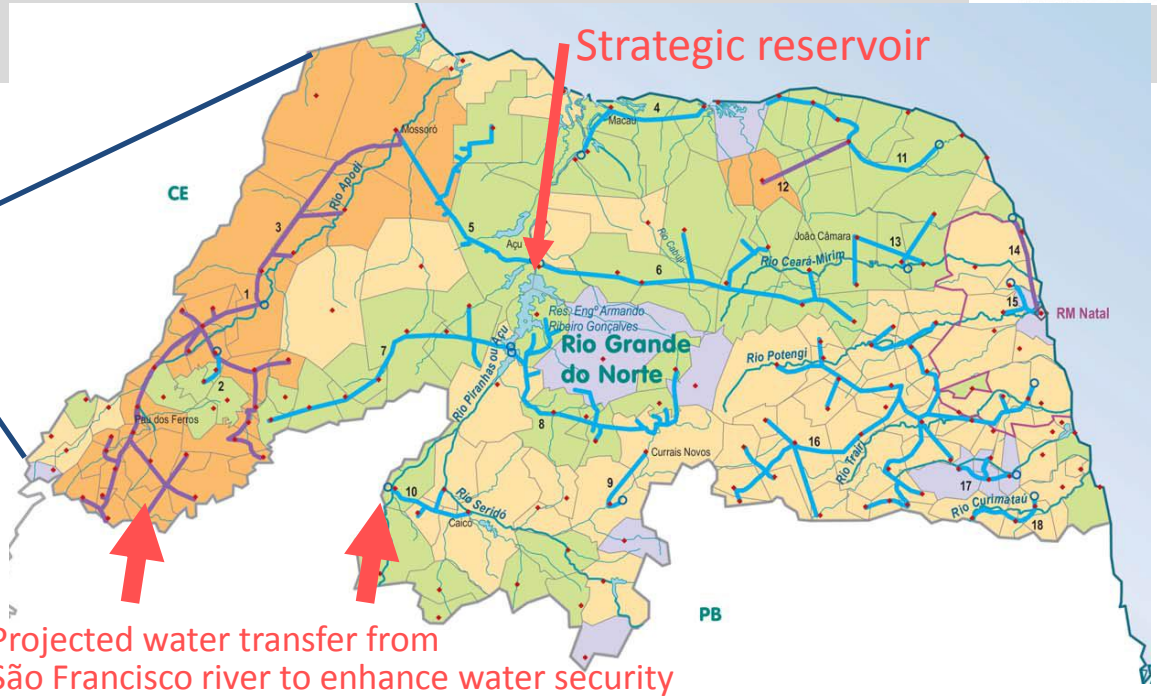
SEMIARID REGION



- INTEGRATED SYSTEMS → 54% of the Semiarid Region cities (*total – 1,133*)
- SÃO FRANCISCO RIVER → main water source for > 200 cities and several integrated systems located in 7 States

Why is ATLAS important? To guarantee an integrated approach in order to avoid investments in unsustainable local systems (water availability and O&M)

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SMALL TOWNS – 250 to 50,000 inhabitants

- 2,269 cities need to upgrade their water production system or adopt a new or additional water source
- INSTITUTIONAL FRAGILITY → 43% (976) local services have very poor operational/management structure and no technical skill to develop projects to improve their systems

Why is ATLAS important?

- A starting point to develop good quality projects and to identify opportunities of economies of scale

- A support to develop institutional models that assure the financial and operational sustainability of the water service

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SANITATION – Complementary analysis

To protect water sources against pollution, the impact of all the urban sewage effluents located upstream the water intakes was evaluated

2,926 cities need priority on sewage collection and treatment

US$ 28.1 billion were estimated to this aim

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FINAL REMARKS

ALL RESULTS AVAILABLE ON WEB → www.ana.gov.br/atlas

TRANSPARENCY:

- Planning instrument for decision-makers → public policy formulation
- Informative tool for society at large → social control

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Thank you!

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