4

Water Quality
Calidad del agua

Water quality, including safety and health of potable water for human consumption.

Calidad del agua, incluida la seguridad y la salud del agua potable para el consumo humano

Water Quality

Calidad del Agua

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WWF-Mexico

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Water Quality in the Rio Grande/Rio Bravo

Wayne Belzer

Environmental Engineer

International Boundary and Water Commission, United States Section

Water Quality Monitoring

- Texas CleanRivers Program

  USIBWC CRP – 70 sites
  TCEQ – 37 sites
  12 duplicate
  Total 95 stations

- Conventionals:
  - Field – pH, DO, temp, sp. conductance
  - Conventional – salts, nutrients
  - Microbiological (Fecal Coliform, EColi)

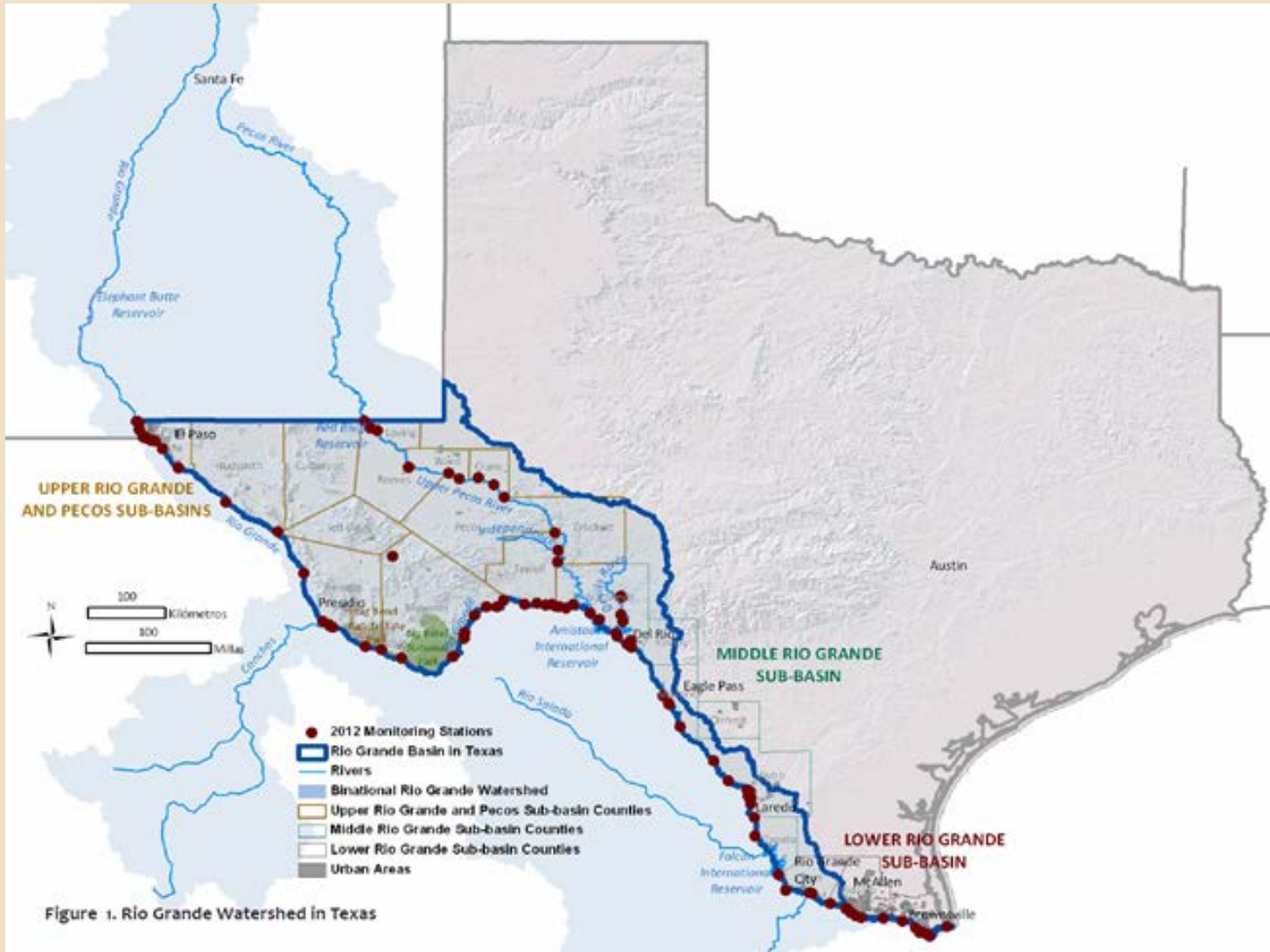

Figure 1. Rio Grande Watershed in Texas

Special Studies

- Metals in water studies throughout the basin
- Pesticides/organics in sediment study 2007-2012
- Bacteria source tracking and Bacteria concentration studies
- Big Bend mines study in 2004
- Pecos salinity study since 2008
- Manadas Creek metals study since 2007
- Basin-wide Pesticides Study 2007-2012
- Binational Toxic Substances Study

Water Quality Issues Identified

- Bacteria
- Phosphorous/Nutrients
- Nitrates
- Salts
- Mercury in fish tissue
- Depressed DO
- Fish kills
- Illegal discharging
- Trash

Solutions

- Binational Treaty Minutes
- Binational Special Studies
- Lower Rio Grande Water Quality Initiative
- IBWC/Border 2020/BECC and NADBank

“111 *years serving the community”*
años sirviendo a la comunidad”

EMPRESA SOCIALMENTE RESPONSABLE

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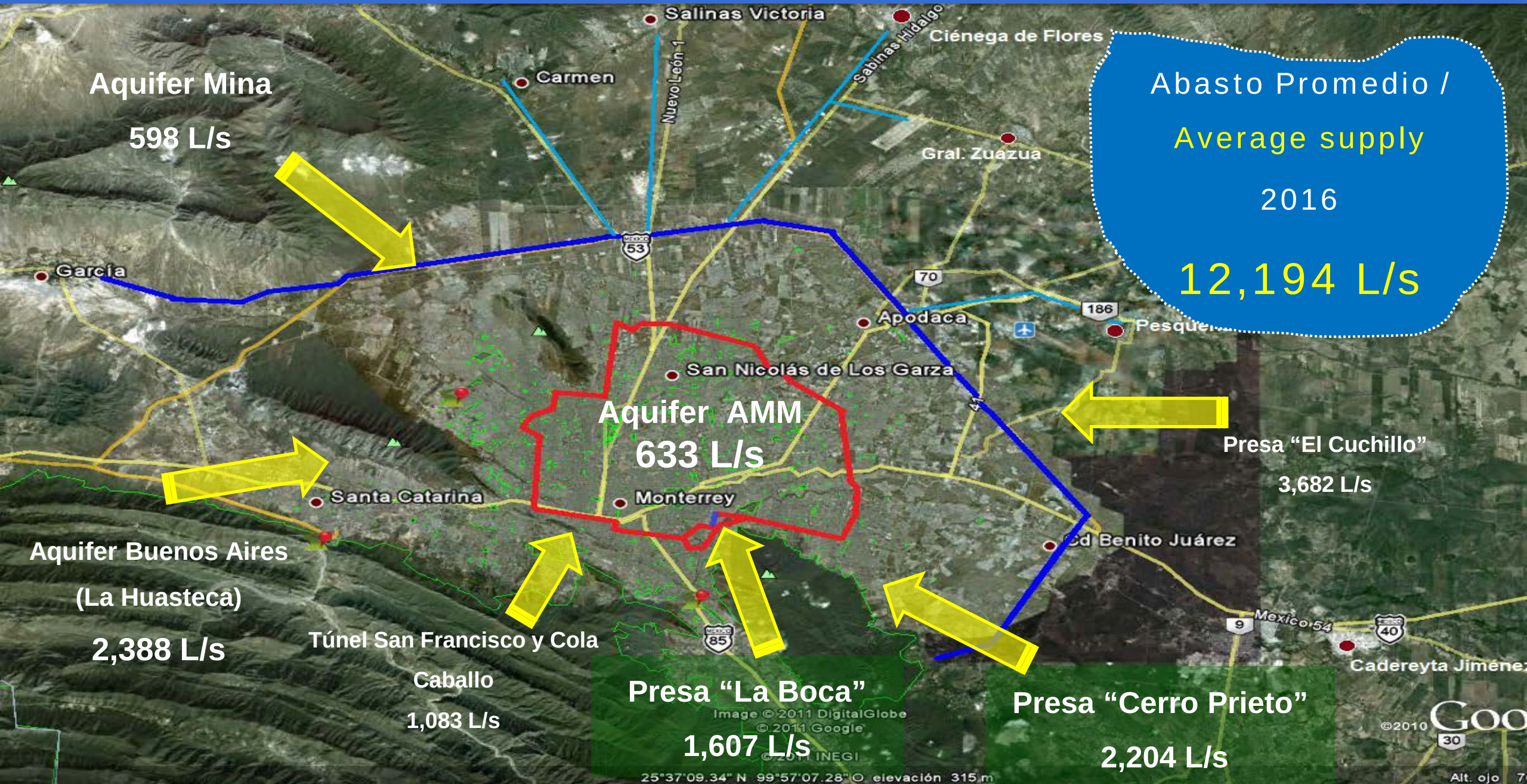
Monterrey se ubica en la cuenca hidrológica del Río Grande / Río Bravo y tiene sus condiciones climáticas típicas.

Monterrey is located in the hydrological basin of the Rio Grande / Rio Bravo and has its typical climatic conditions.

Fuentes de suministro de agua / Water supply sources



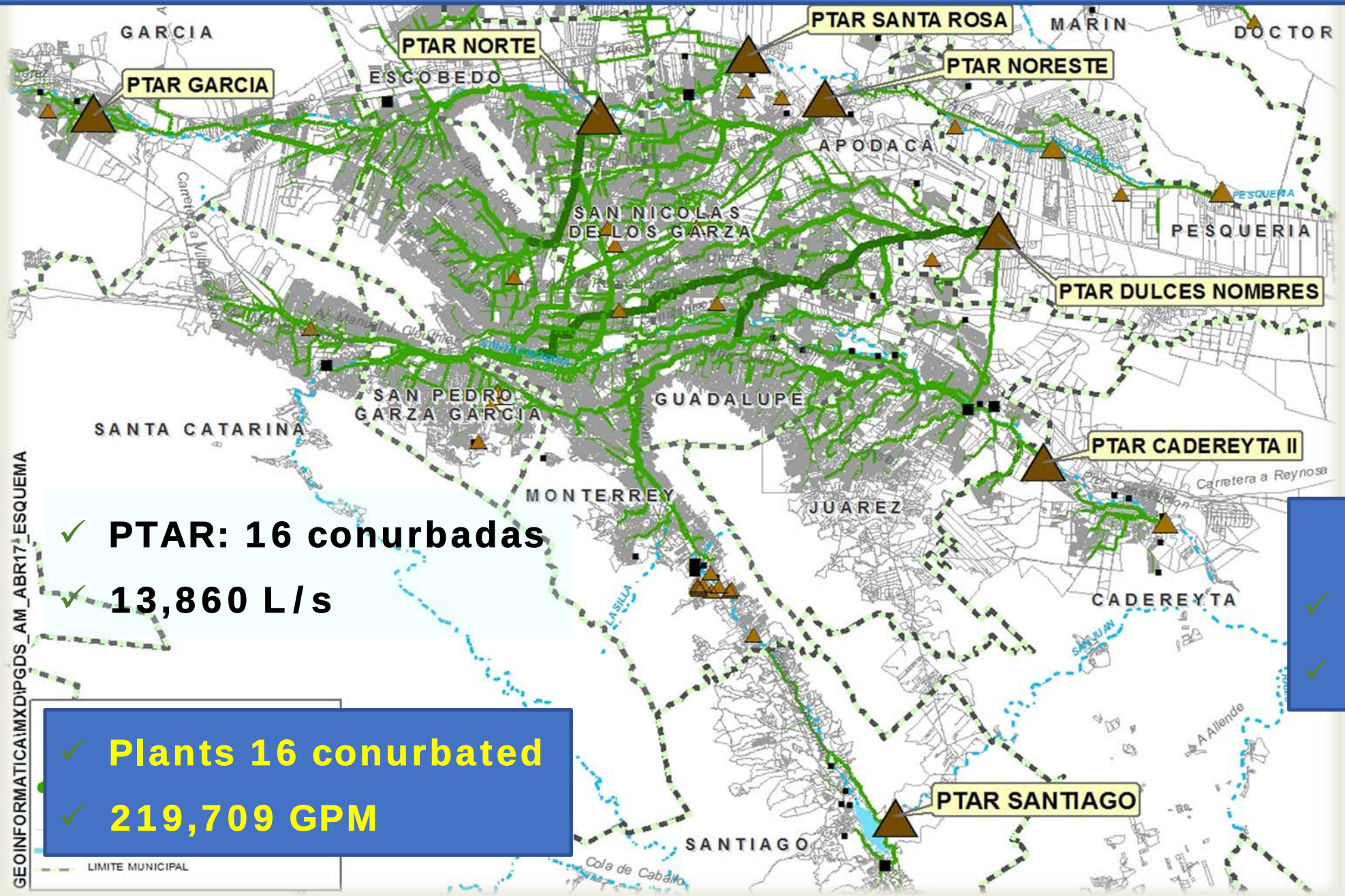
Abasto Promedio /

Average supply

2016

12,194 L/s

Saneamiento de agua residual / Residual water treatment 2016



Reuso

- ✓ 7 PTAR
- ✓ 13,140 L/s

- ✓ PTAR: 16 conurbadas
- ✓ 13,860 L/s

Reuse

- ✓ Plants 7
- ✓ 208,295 GPM

- ✓ Plants 16 conurbated
- ✓ 219,709 GPM

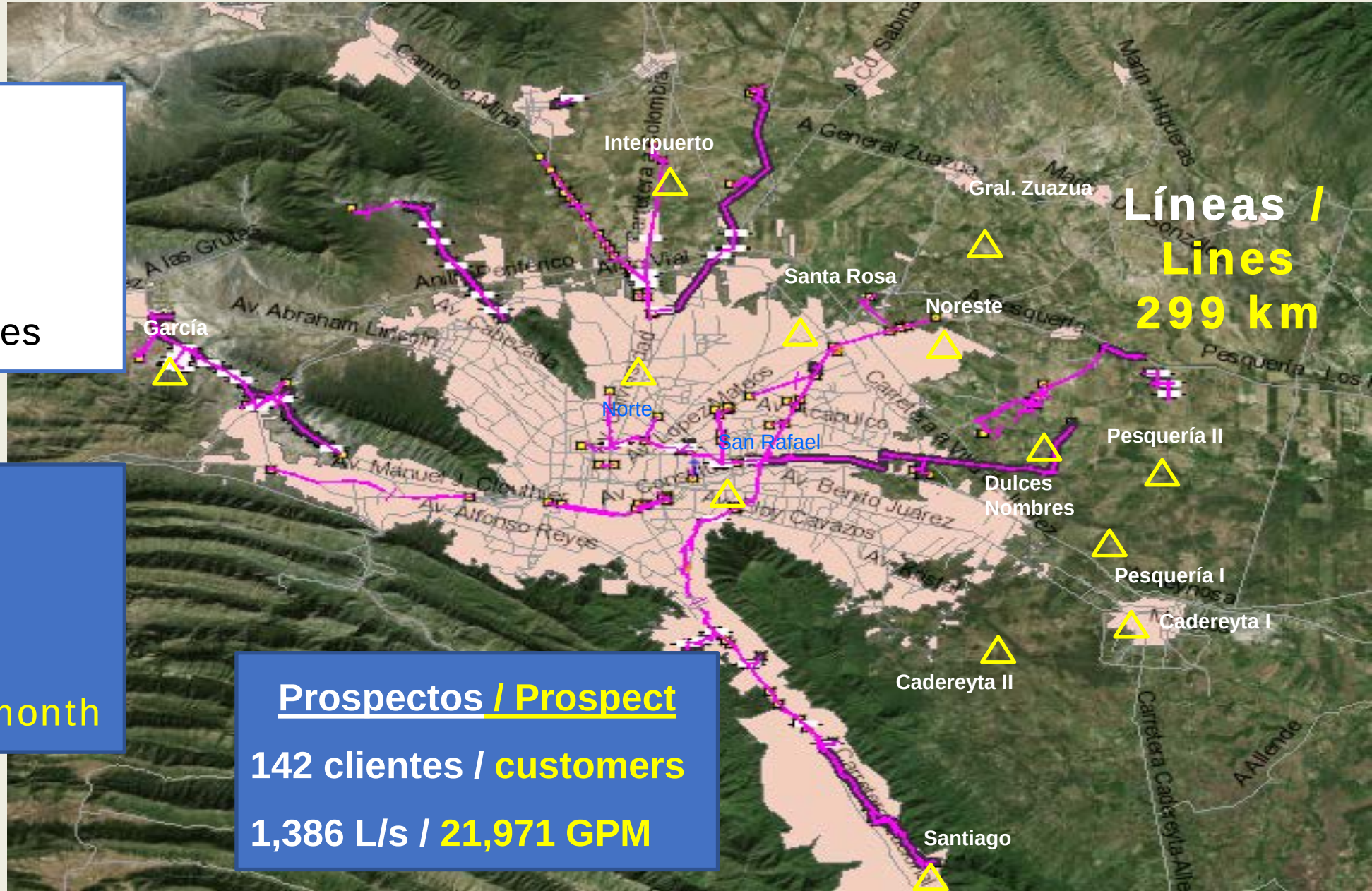
Agua residual tratada / Waste water treated

Factura agosto 2017:

- ✓ 114 contratos
- ✓ 2,672 L/s
- ✓ 3.2 Millones m³/mes

August 2017 invoice:

- ✓ 114 contracts
- ✓ 42,356 GPM
- ✓ 3.2 Million m3 / month

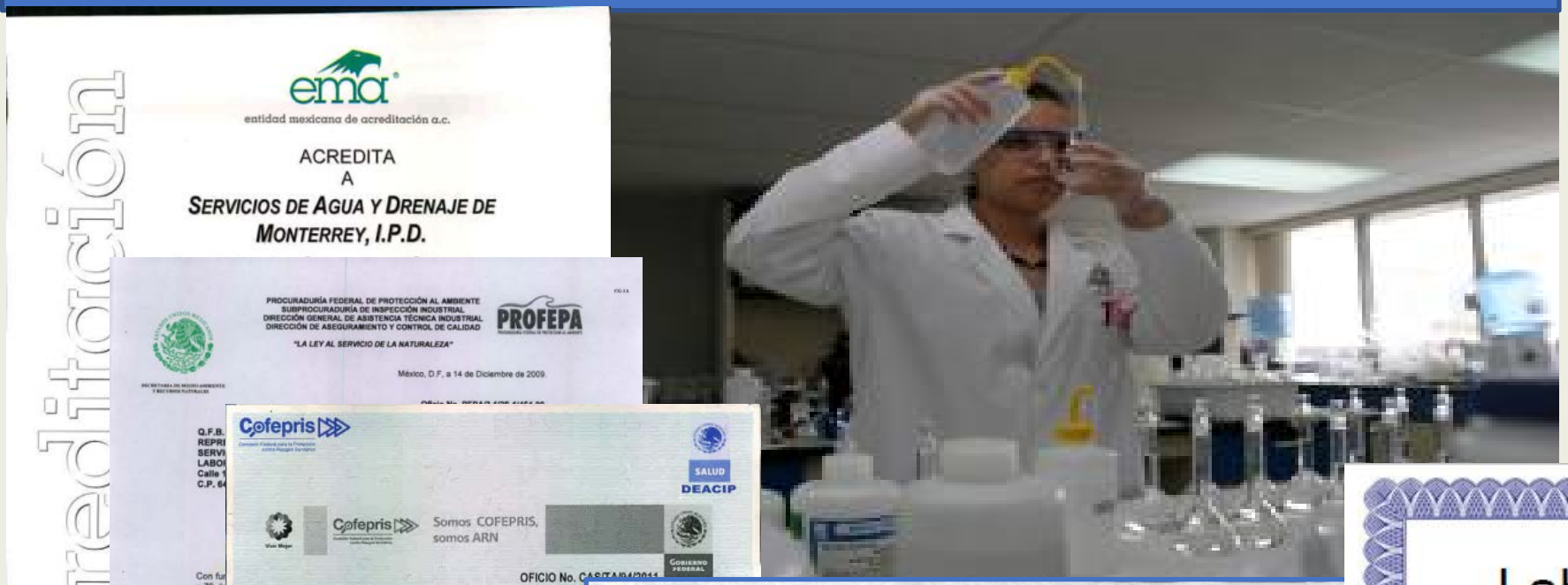


Prospectos / Prospect

142 clientes / customers

1,386 L/s / 21,971 GPM

Laboratorio Central de Calidad del Agua 1982



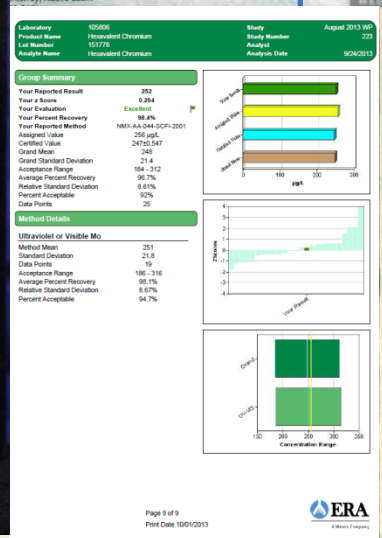
Capacidad / Capacity:

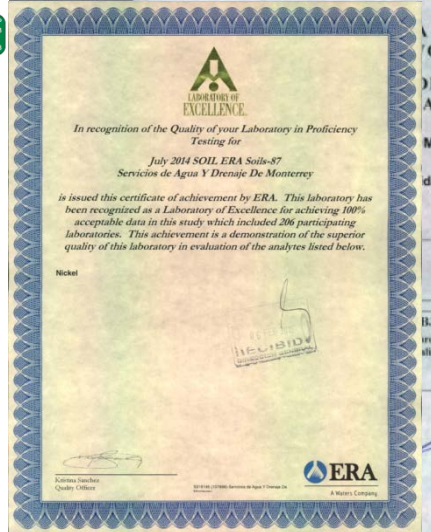
muestras / Tastes

50,000

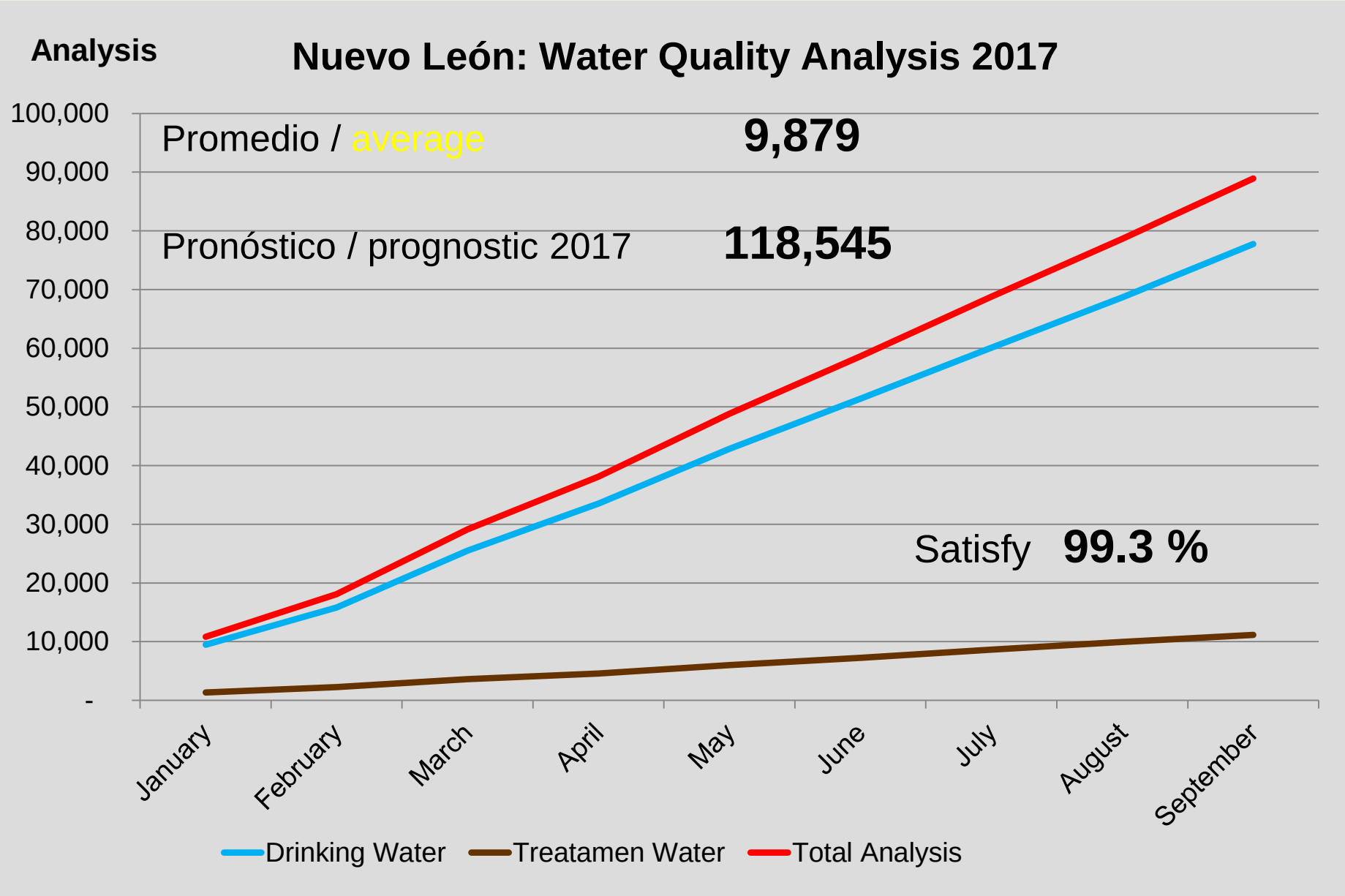
Análisis / Analysis

300,000





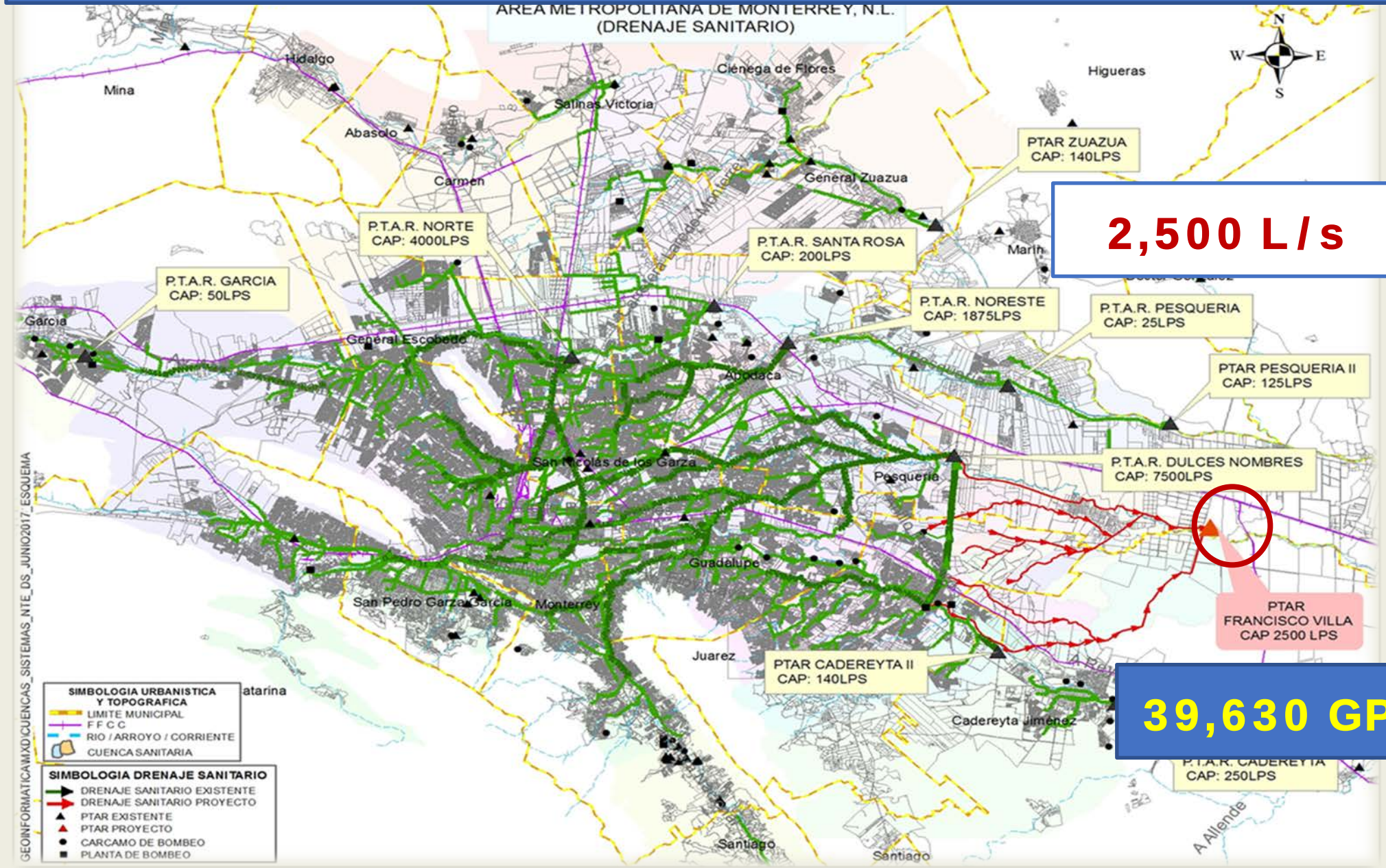
Calidad del agua / Water Quality



Se cumple con normas oficiales mexicanas en agua potable y descarga de agua residual a ríos.

It complies with Mexican official standards on drinking water and discharge of wastewater into rivers.

Nuevo proyecto en Monterrey / New project in Monterrey



2,500 L/s

Proyección de capacidad de tratamiento de aguas residuales

Projection of wastewater treatment capacity

39,630 GPM

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Gracias
Thank you

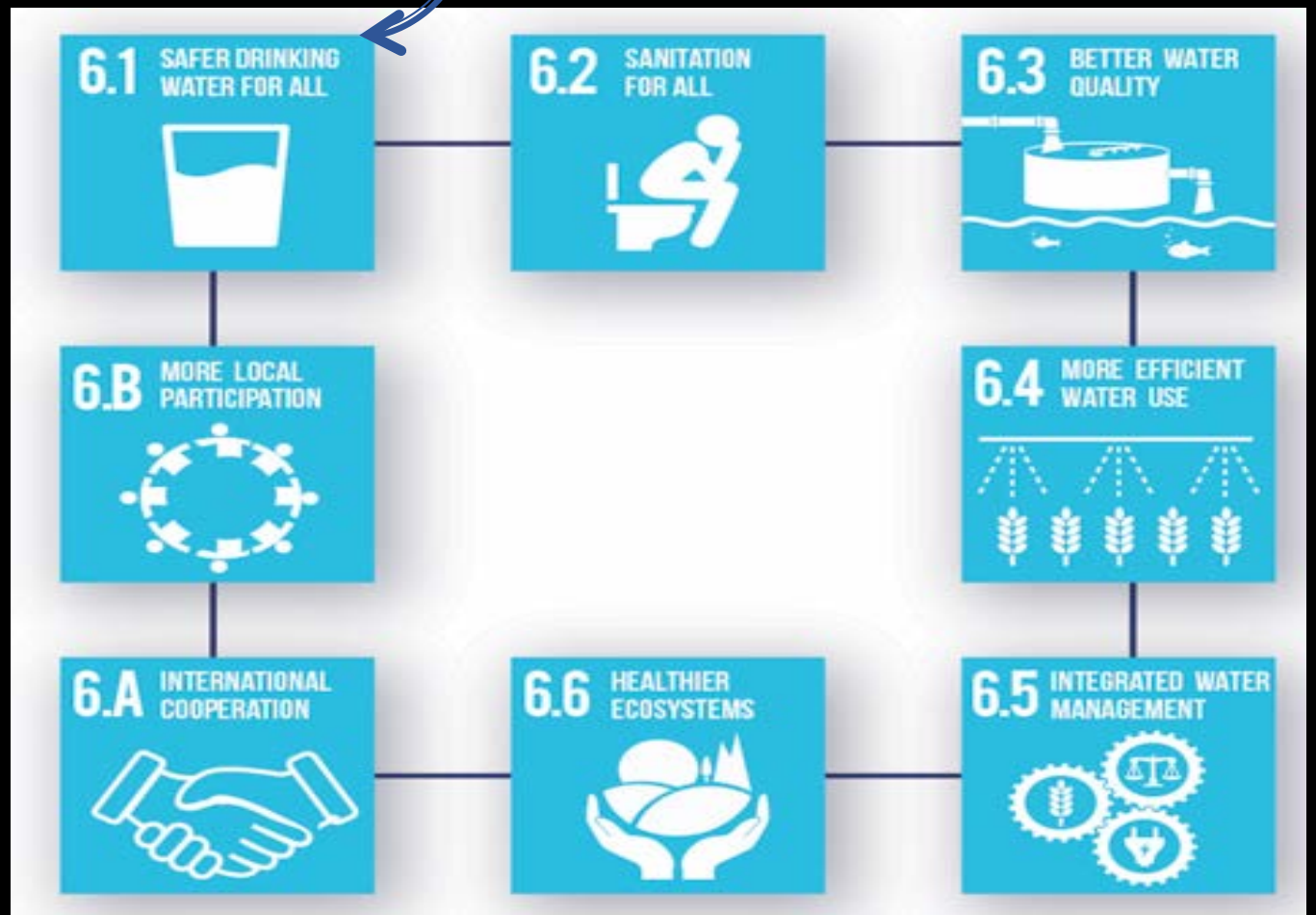
Water Quality
Calidad del agua

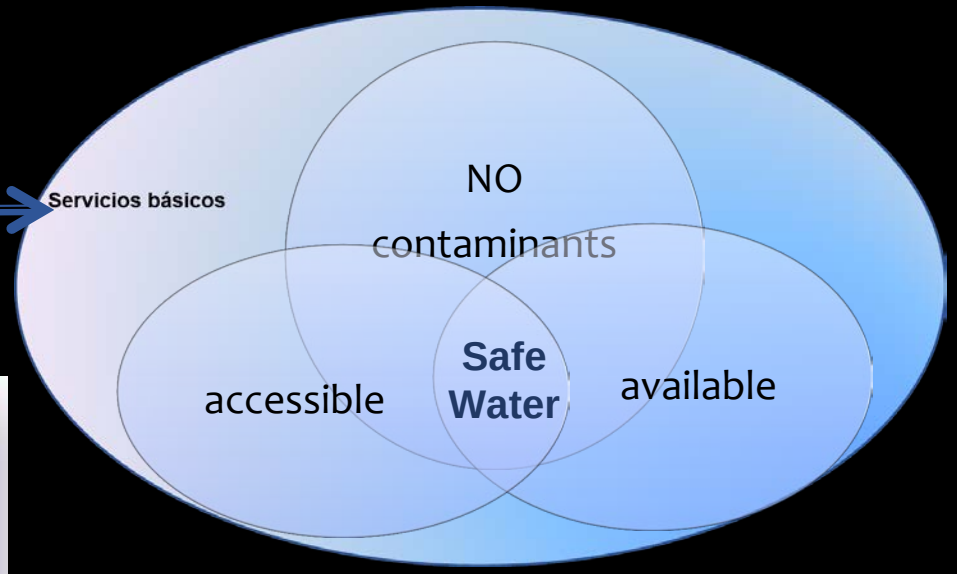
Session/Sesión 4

Water Quality, for Human Consumption
Calidad de Agua, para Consumo Humano

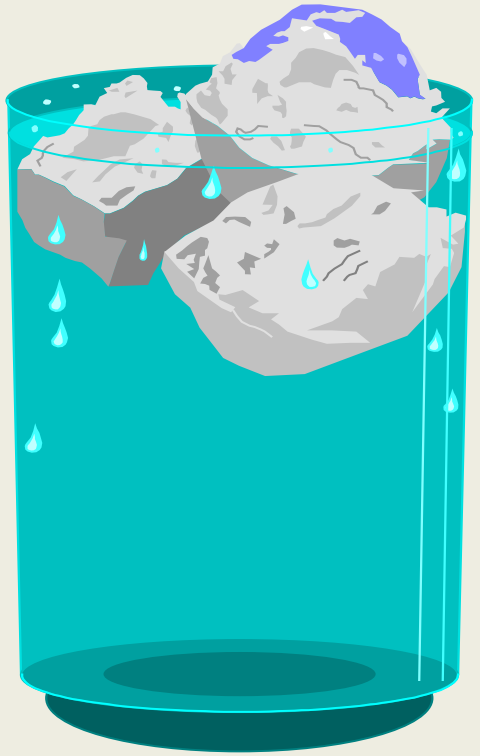
Ma. Teresa Alarcón Herrera

6 AGUA LIMPIA
Y SANEAMIENTO


6.1 SAFER DRINKING WATER FOR ALL
6.2 SANITATION FOR ALL
6.3 BETTER WATER QUALITY
6.B MORE LOCAL PARTICIPATION
6.4 MORE EFFICIENT WATER USE
6.A INTERNATIONAL COOPERATION
6.6 HEALTHIER ECOSYSTEMS
6.5 INTEGRATED WATER MANAGEMENT


Servicios básicos
NO
contaminants
accessible
Safe
Water
available

Drinking Water



- **Microorganisms**
  - bacteria
  - viruses
  - protozoa
- **Toxic substances**
  - inorganic
  - organic
- **Aesthetically acceptable**
  - taste
  - smell
  - color

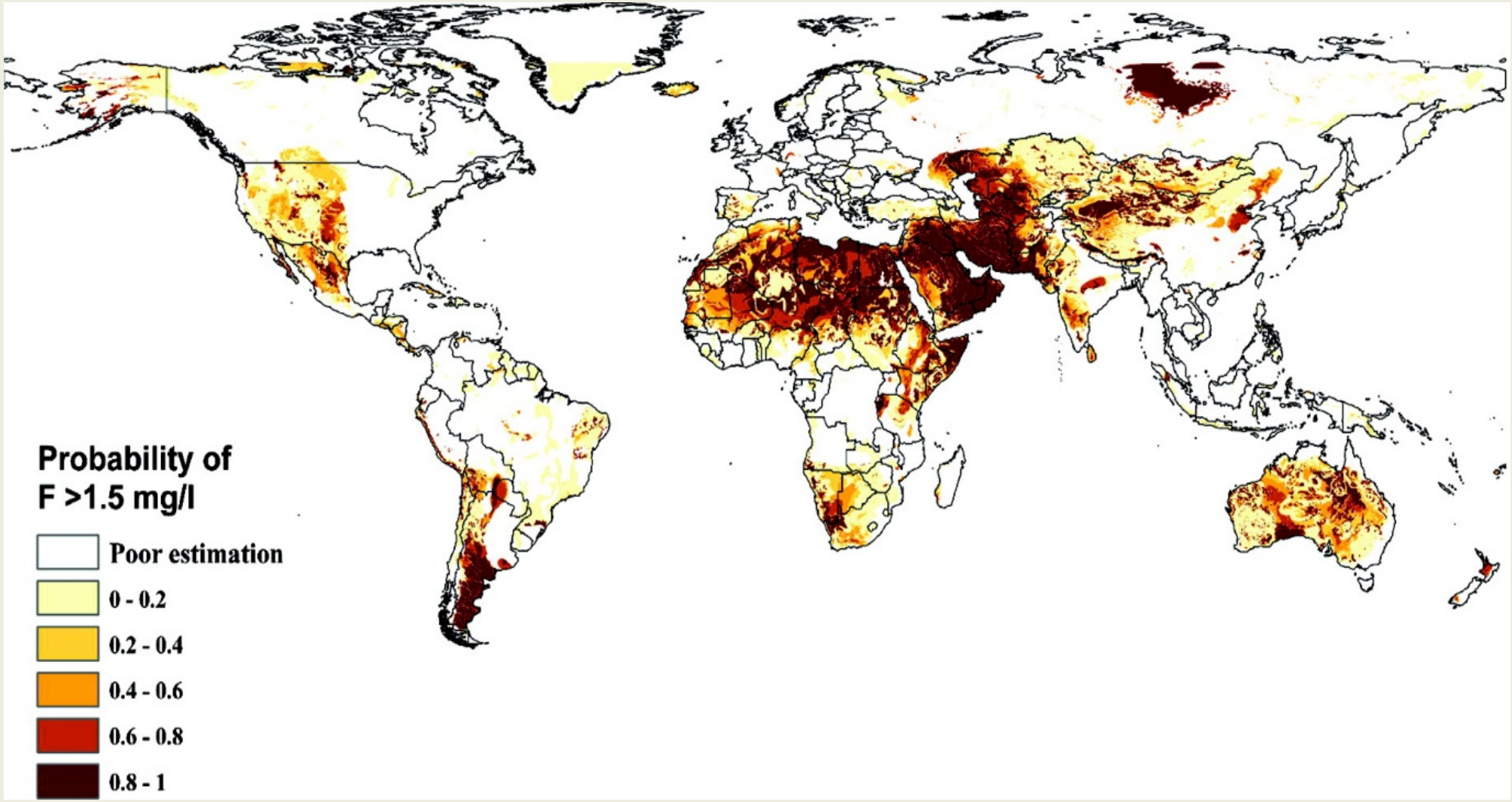
Regulations

Country/Institution	Fluoride (mg/L)	Arsenic (mg/L)
México	1.5 **1,0**	0.025 **0,01**
EPA	4.0 0.7*	0.01
WHO	1.5	0.01

Removing Arsenic & Fluoride from groundwater remains a significant Challenge

* USA- HHS (Health & Human Services) to promote public health benefits of fluoride for preventing tooth decay while minimizing the chance for dental fluorosis.

Presencia de Flúor



M Amini et al, Environ. Sci. Technol., 2008, DOI:10.1021/es071958y

Global Drinking Water Trends

5.2 billion people used safely managed drinking water services in 2015

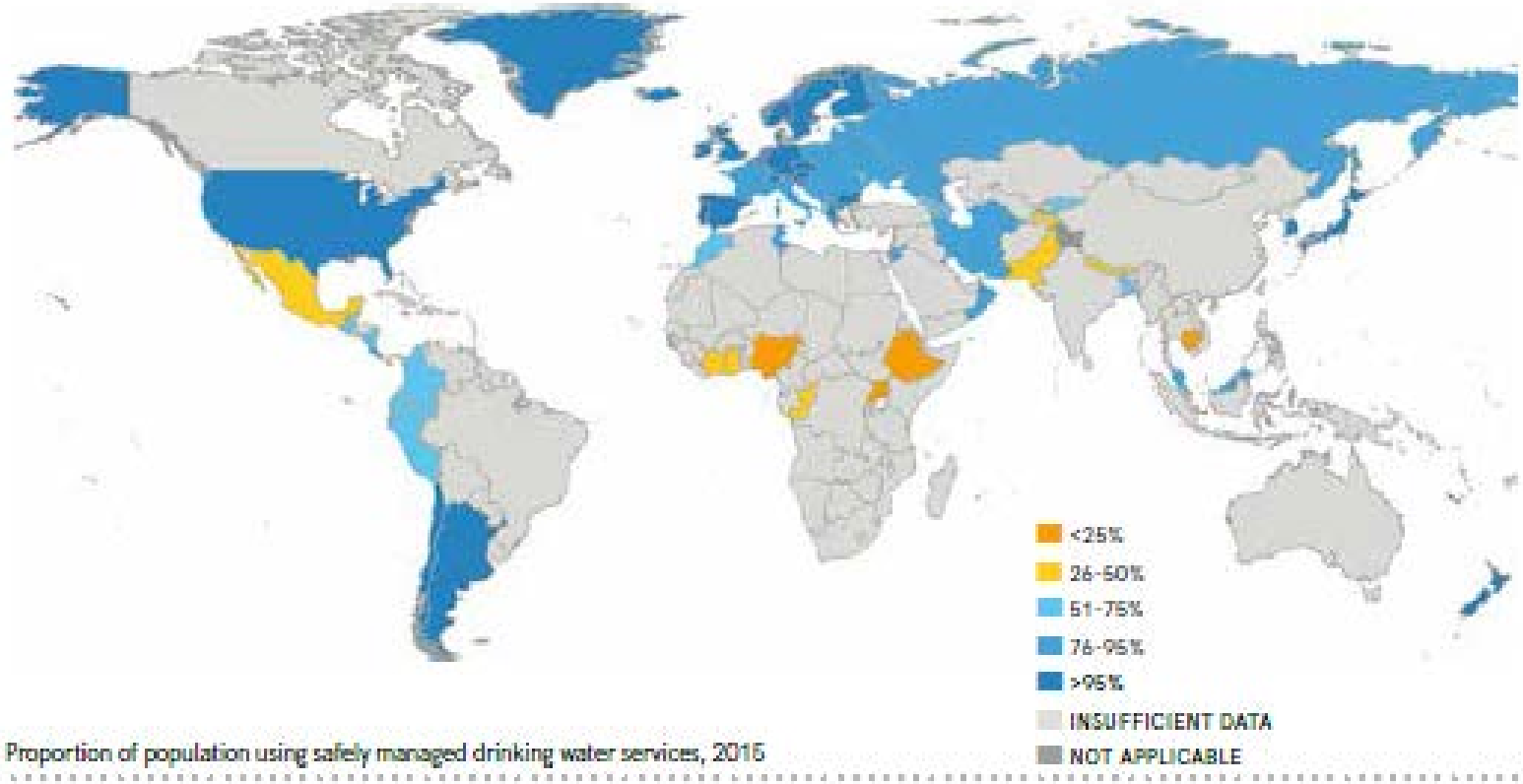


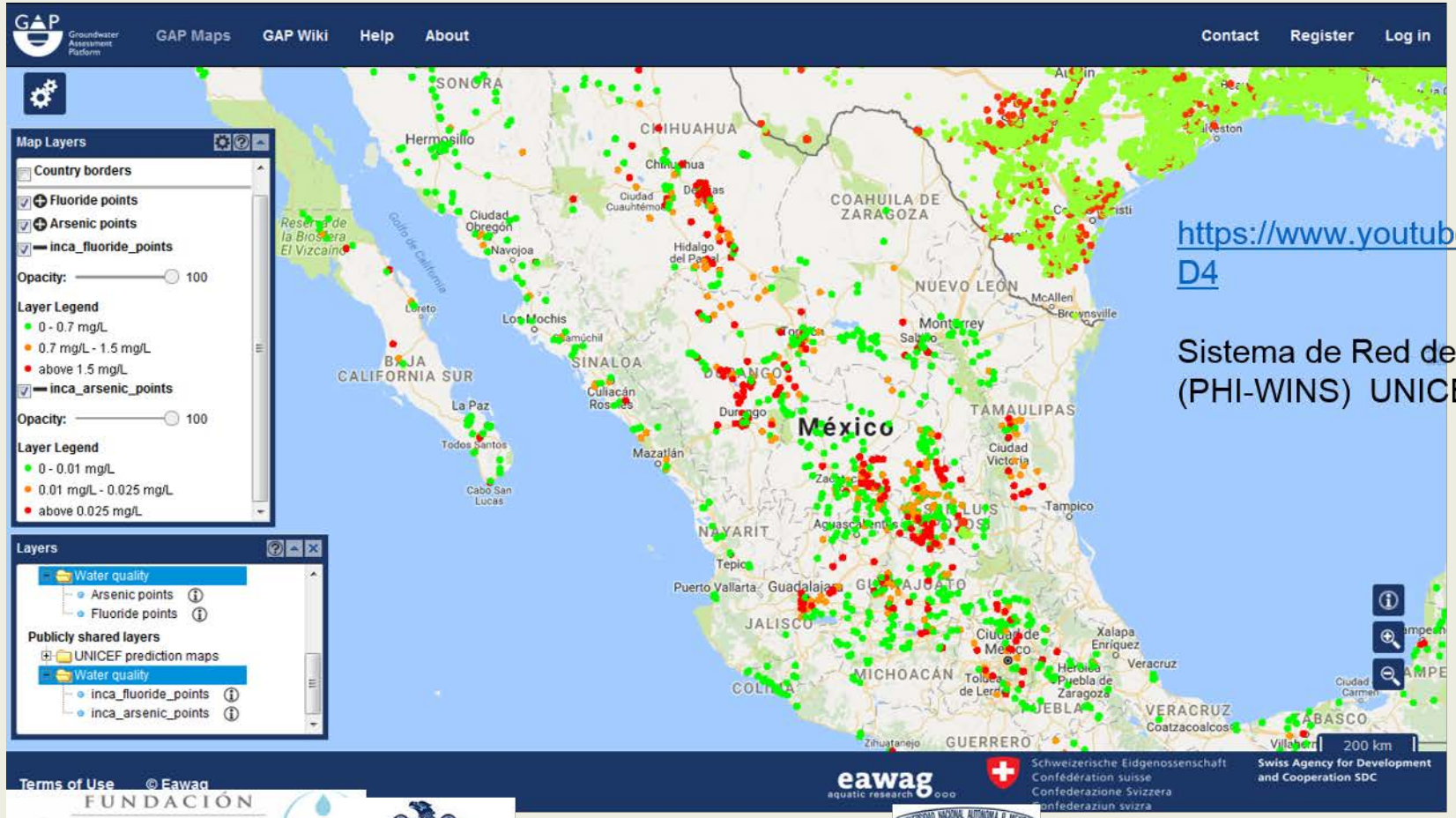
Fig. 31 Proportion of population using safely managed drinking water services, 2015

[a] For a description of the methods used to calculate country, region, and global estimates, see Annex 1.
[b] For more details on the new SDG regions, see Annex 2.

¿Drinking Water?

WHO, 2017. Progress on Sanitation and Drinking Water. 2017 Update.

Índice Nacional de Calidad del Agua INCA



https://www.youtube.com/watch?v=G2Hqv8XvuD4

Sistema de Red de Información sobre el Agua (PHI-WINS) UNICEF

Questions?
¿Preguntas?
2017 Rio Grande / Río Bravo Binational Forum | Foro Binacional

- What is one solution you heard from the speakers that could be feasible to do in your part of the river?
- RECORD: Among the solutions you discussed, what are 3 similarities across the basin?
- ¿Qué solución escucharon que podría ser factible en su parte del río?
- -GRABE: Entre las soluciones que discutieron, ¿cuáles son 3 similitudes en toda la cuenca?