



Gonzalo Delacámara | @economiadelagua

Desafíos futuros en la gestión del agua



12 de abril, 2018 //
Castellón

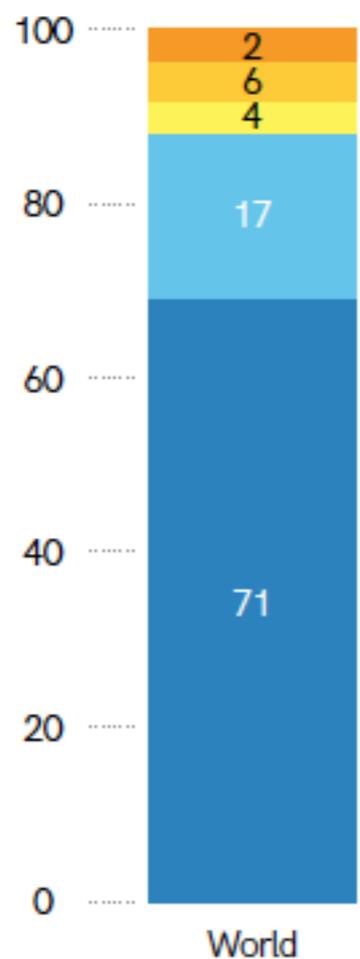
Jody Xiong of DDB China



Servicios locales, desafíos globales

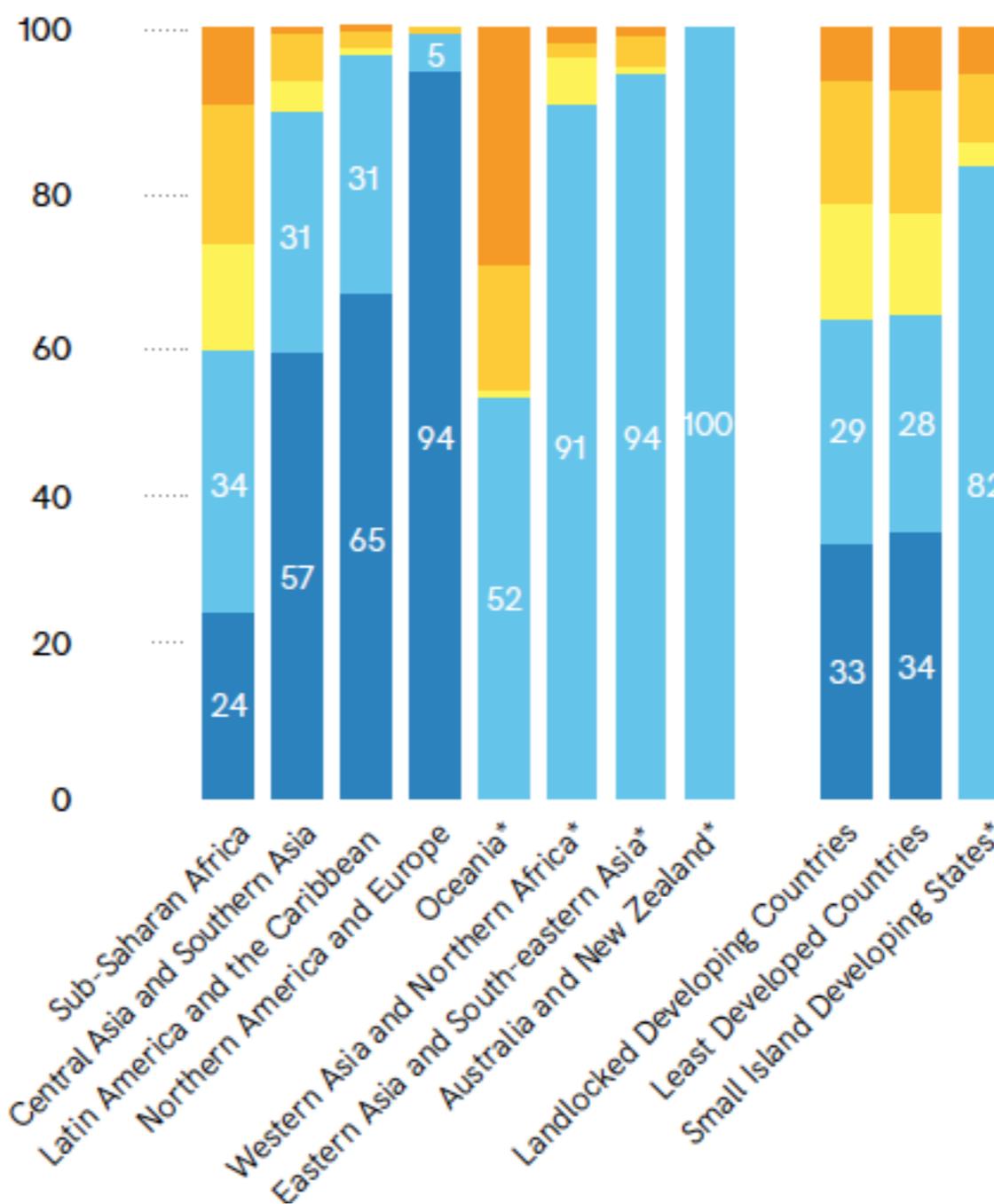
Salir de la comunidad del agua

7 out of 10 people used safely managed drinking water services in 2015

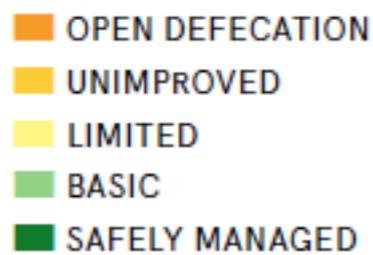
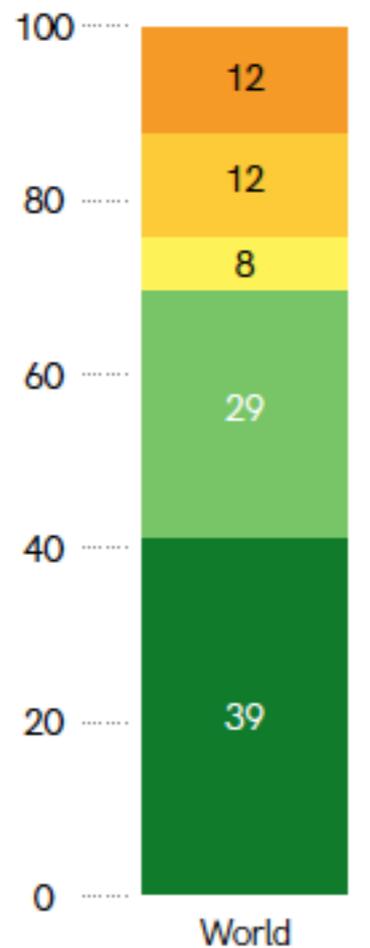


■ SURFACE WATER
■ UNIMPROVED
■ LIMITED
■ BASIC
■ SAFELY MANAGED

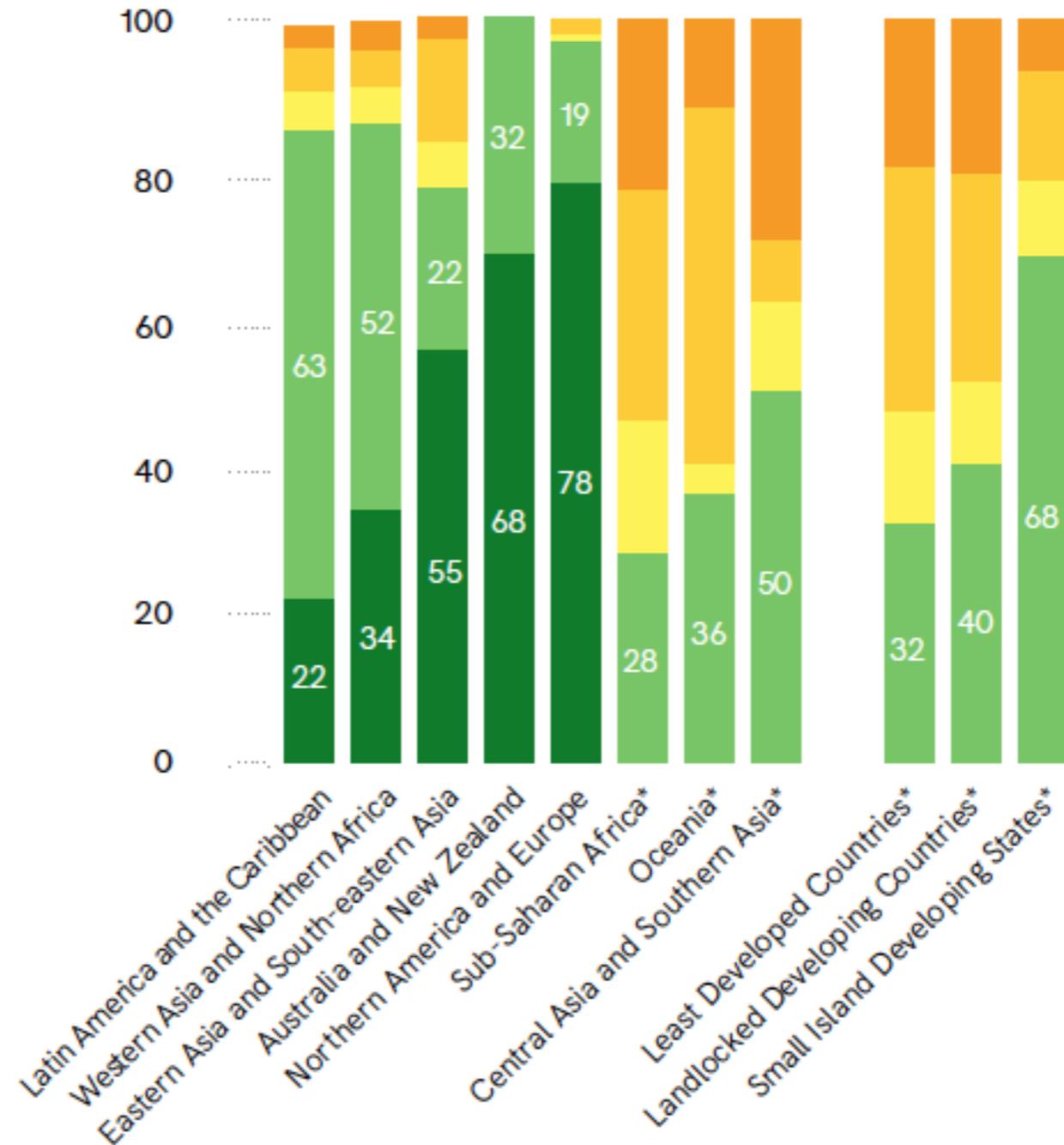
Estimates of safely managed drinking water services are available for four out of eight SDG regions



Two out of five people used safely managed sanitation services in 2015

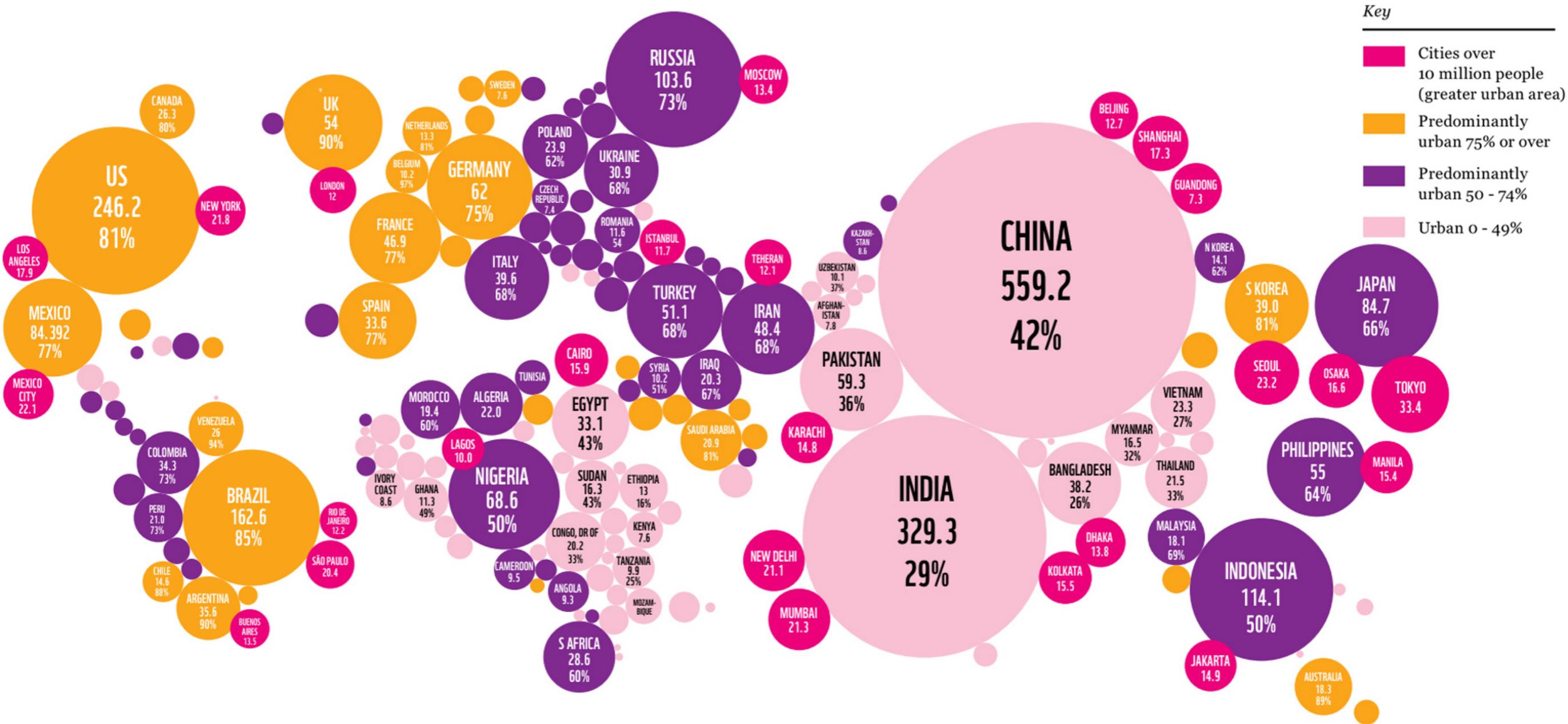


Estimates of safely managed sanitation services are available for five out of eight SDG regions

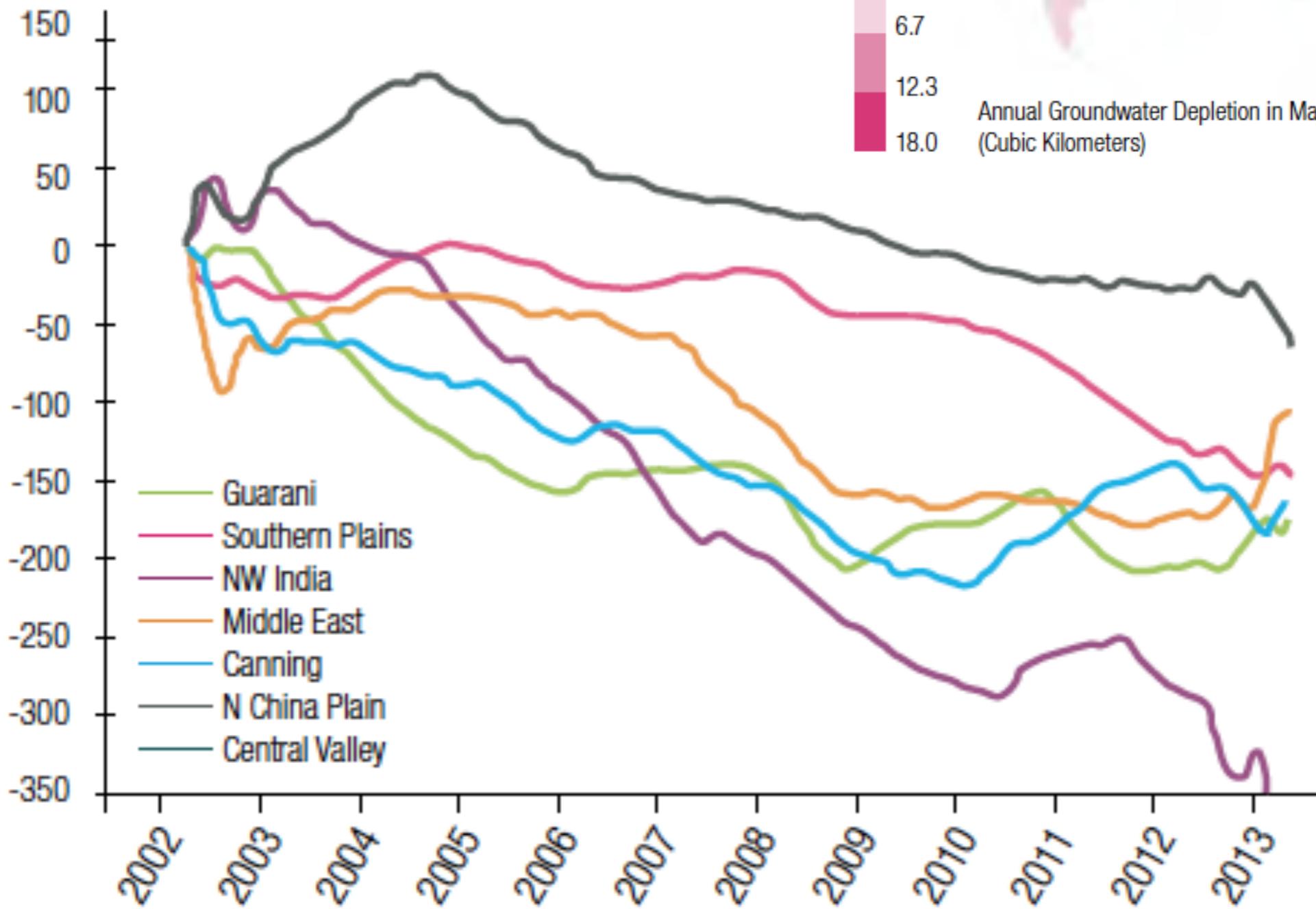






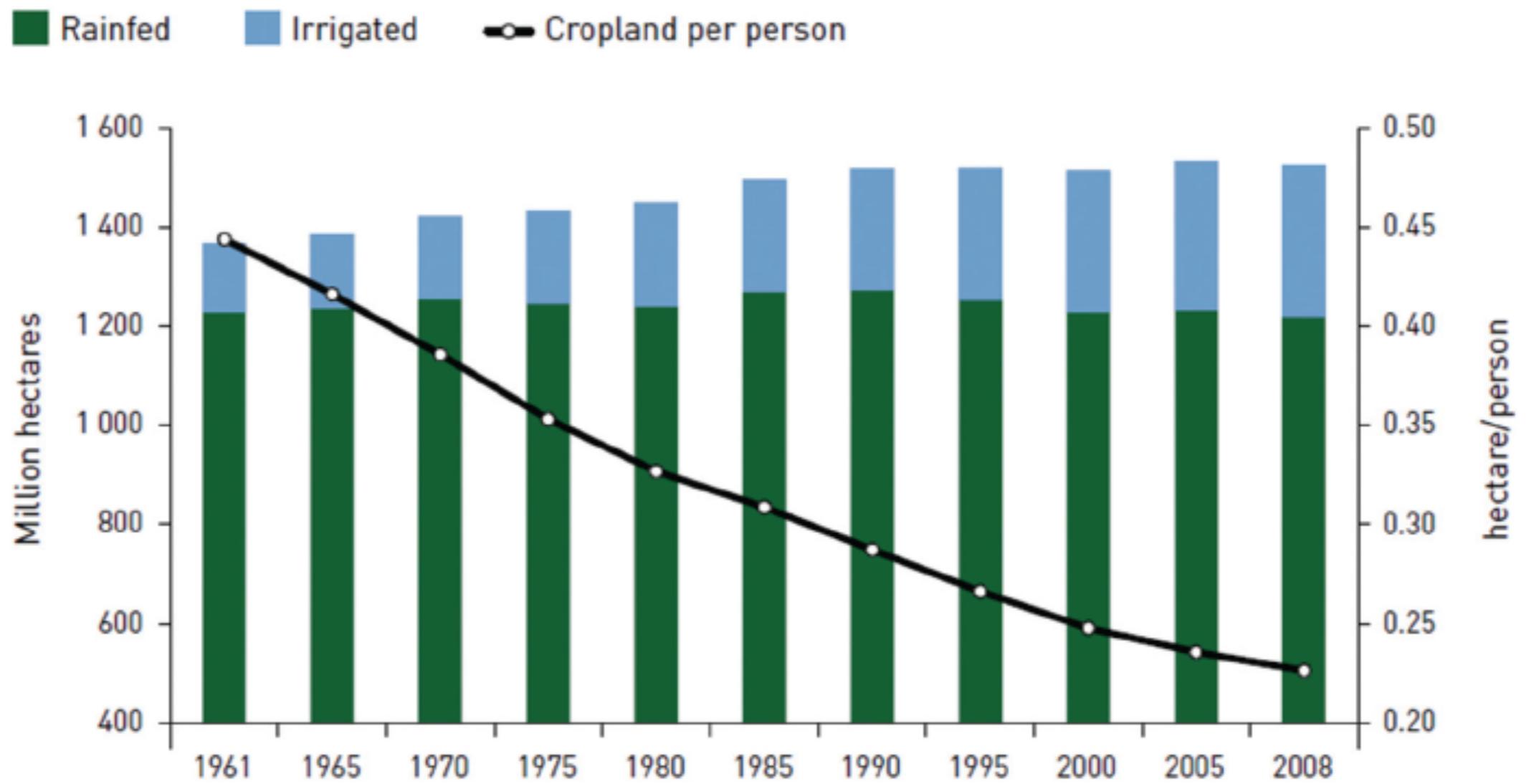


Total water storage anomaly (mm eq water height)



1.0
6.7
12.3
18.0
Annual Groundwater Depletion in Major Aquifers
(Cubic Kilometers)

- Guarani
- Southern Plains
- NW India
- Middle East
- Canning
- N China Plain
- Central Valley



Source: FAO (2010b)

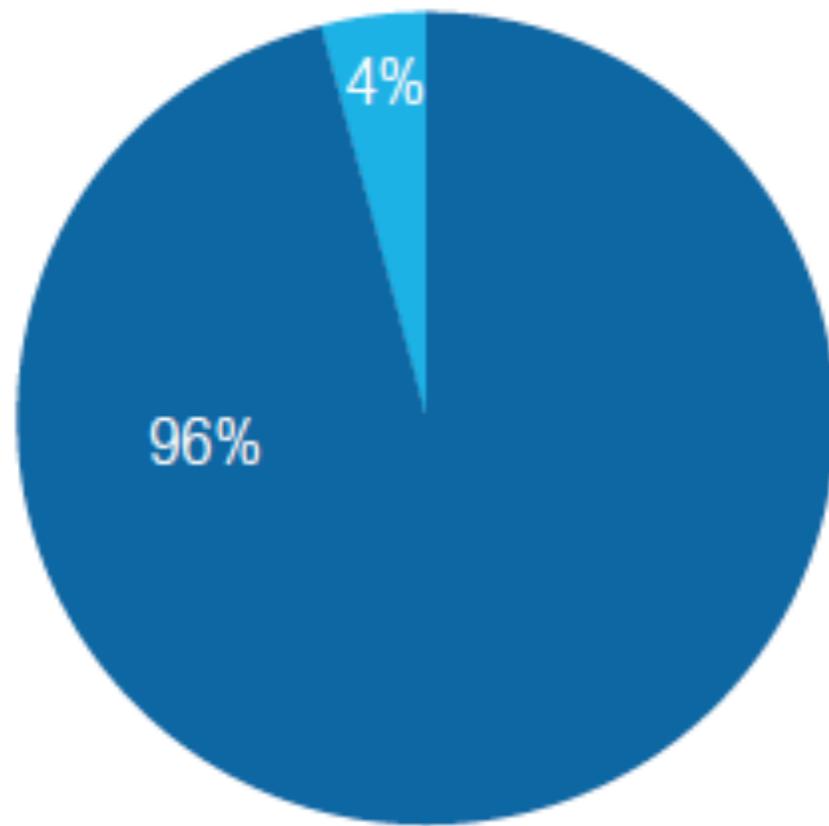
La noción de límite

El desafío de largo plazo – la seguridad hídrica

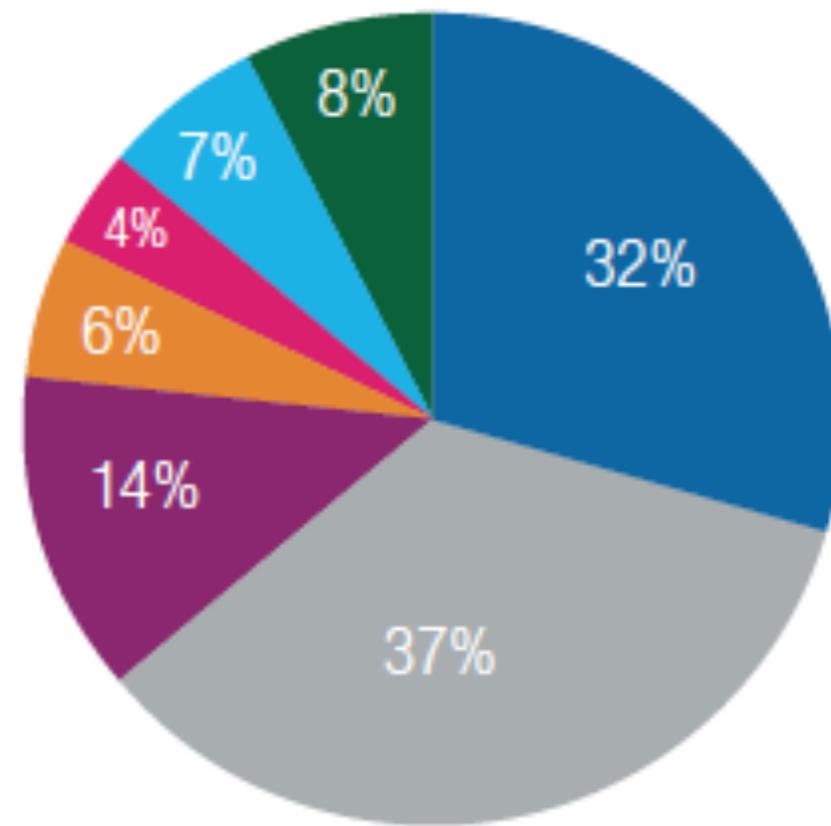








1991



2020

- Local Surface Water
- Water Importation
- Water Conservation (Agriculture)
- Water Conservation (Urban)

- Water Recycling
- Ground Water
- Seawater Desalination





Northern Colorado Water Conservancy District

Colorado-Big Thompson Project

Legend

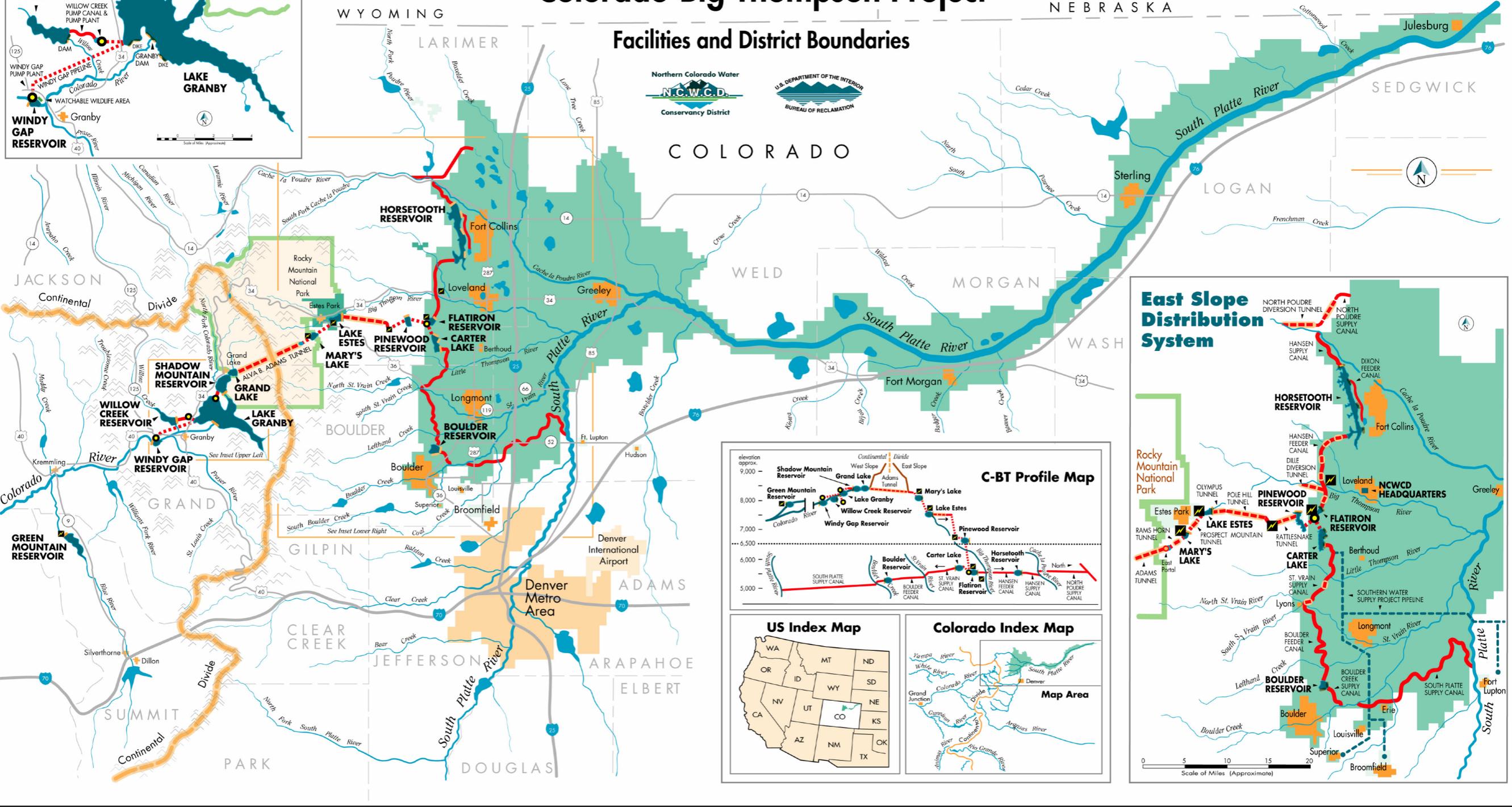
- Canal
- Pipeline/Conduit
- Tunnel
- Dam
- Power Plant
- Pump Plant
- C-BT Reservoir
- City/Town
- NCWCD Boundaries
- SWSP Pipeline

Scale of Miles (Approximate)

JA Dohrtrom 10/96

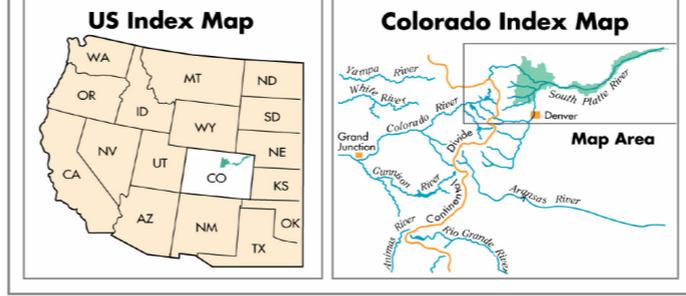
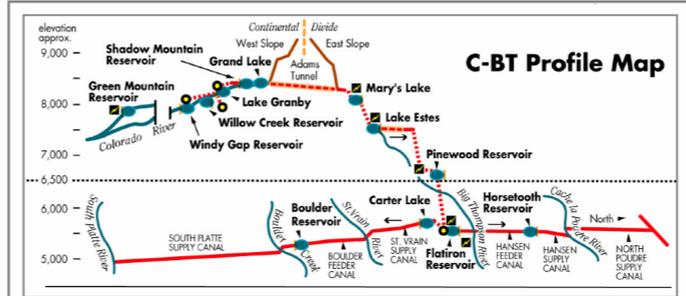
West Slope Collection System

SHADOW MOUNTAIN RESERVOIR
WILLOW CREEK RESERVOIR
WINDY GAP RESERVOIR
GRAND LAKE
LAKE GRANBY



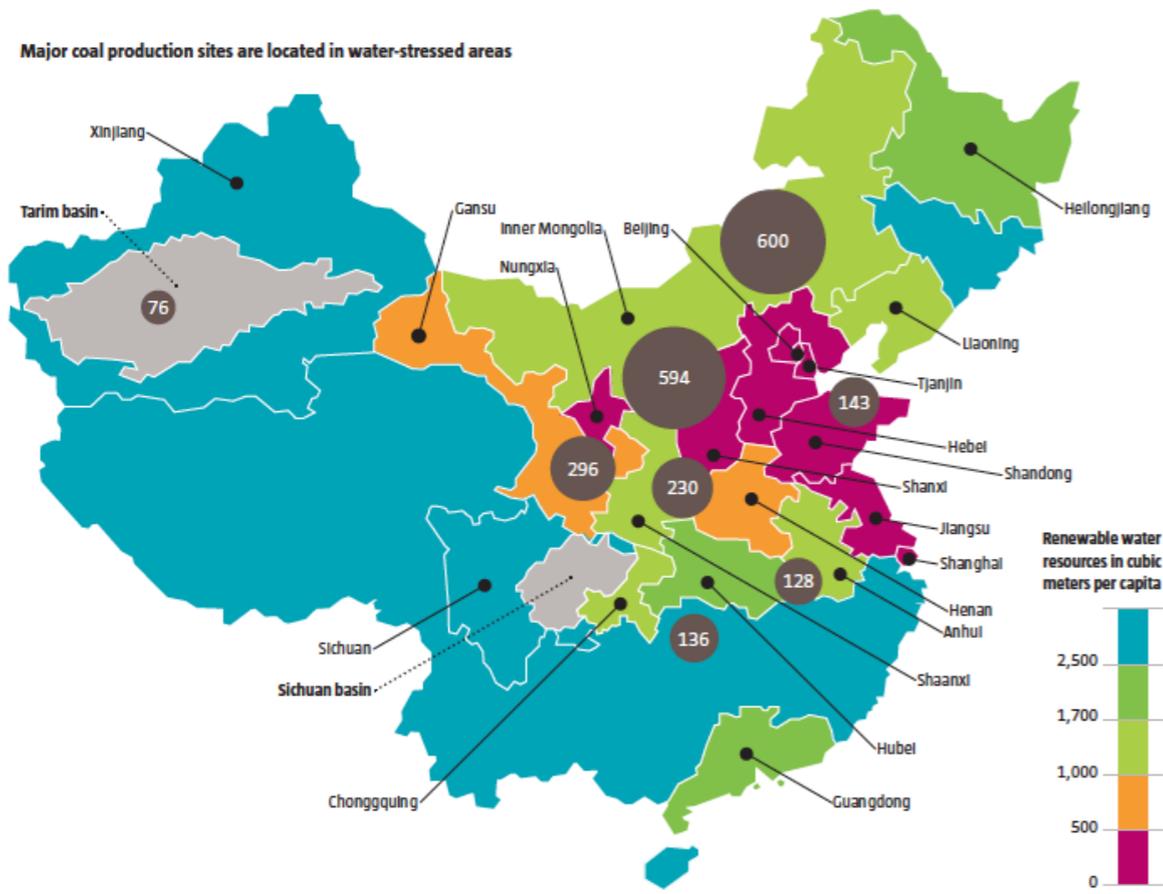
East Slope Distribution System

HORSETOOTH RESERVOIR
FLATIRON RESERVOIR
CARTER LAKE
MARY'S LAKE
LAKE ESTES
PINWOOD RESERVOIR
BOULDER RESERVOIR
WINDY GAP RESERVOIR
WILLOW CREEK RESERVOIR
SHADOW MOUNTAIN RESERVOIR
GRAND LAKE
GREEN MOUNTAIN RESERVOIR





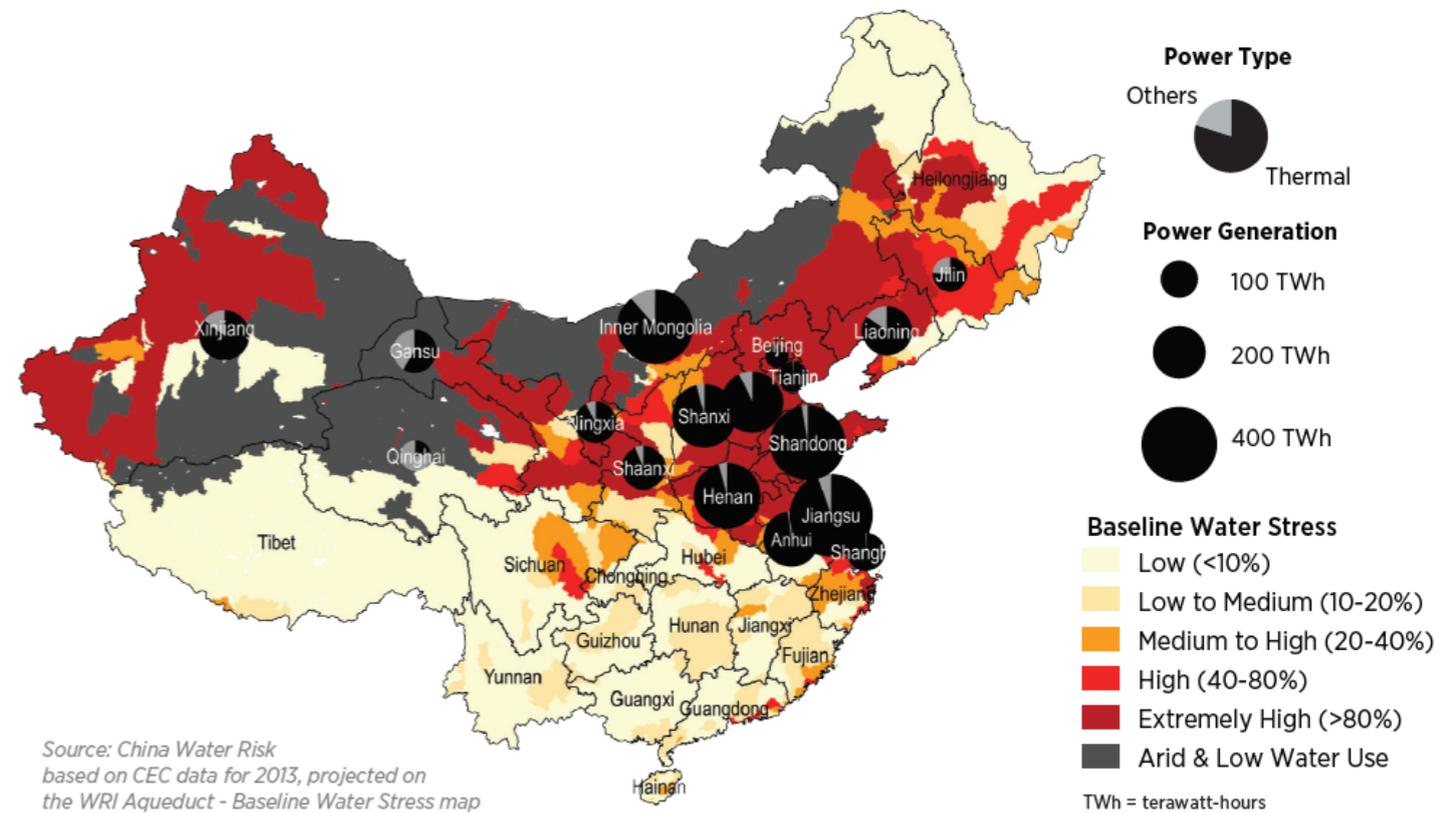
Major coal production sites are located in water-stressed areas



■ Absolute scarcity
 ■ Scarcity
 ■ Stress
 ■ Vulnerability
 ■ Low water-related risk

● Major coal production centers, 2009 (Mt)
 ■ High potential for shale gas production

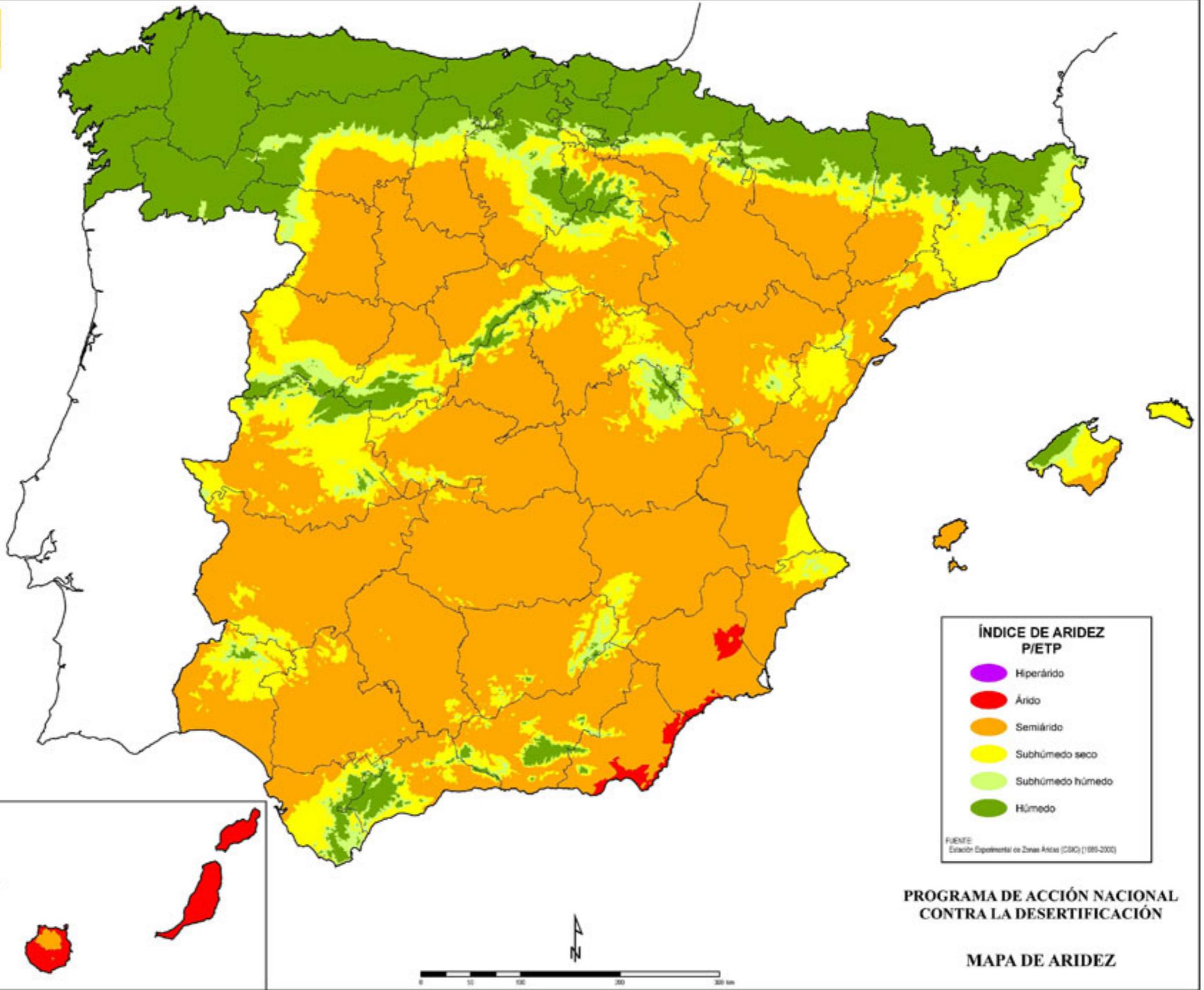
Source: International Energy Agency, World Energy Outlook 2012

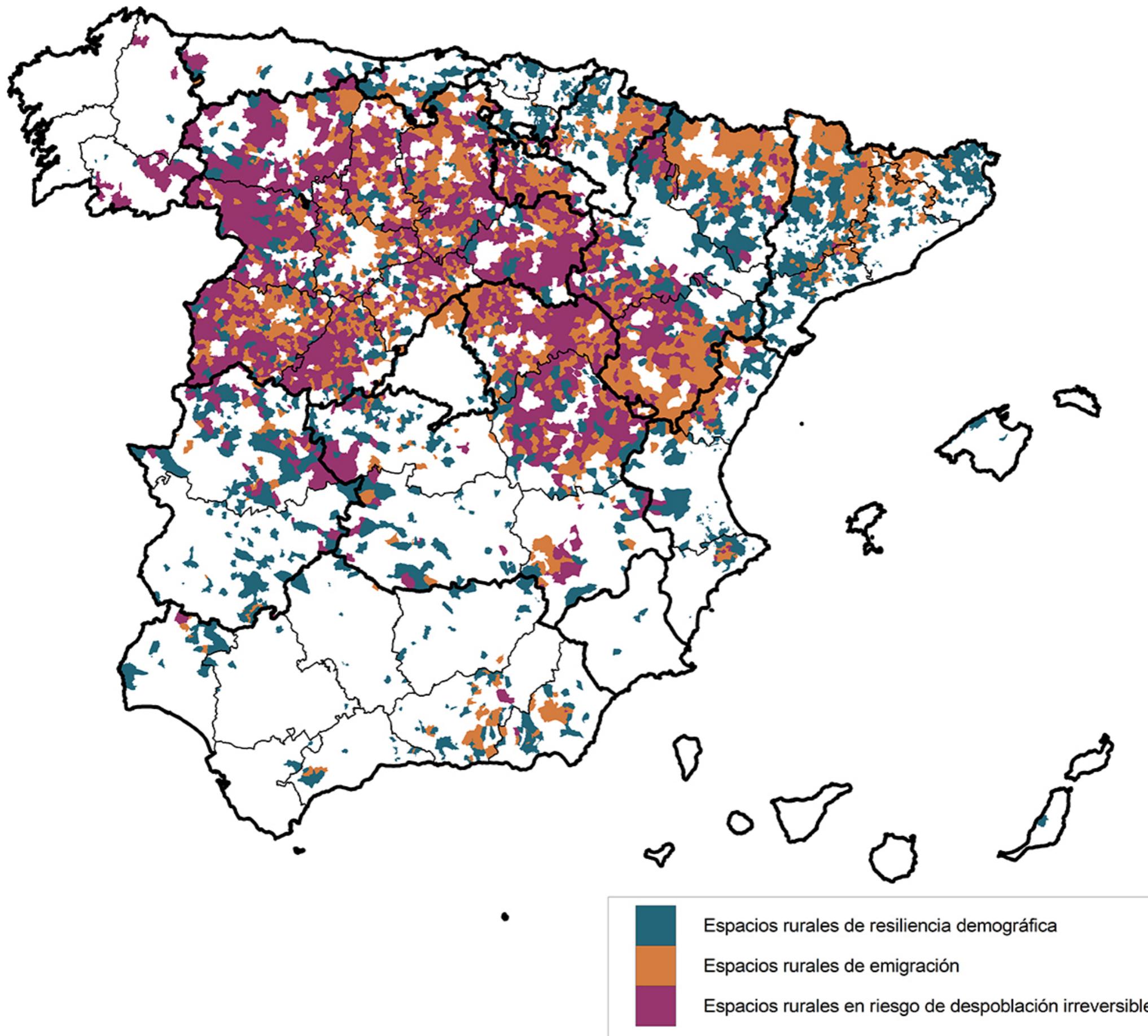


Source: China Water Risk based on CEC data for 2013, projected on the WRI Aqueduct - Baseline Water Stress map



World Resources Institute (WRI), 2014

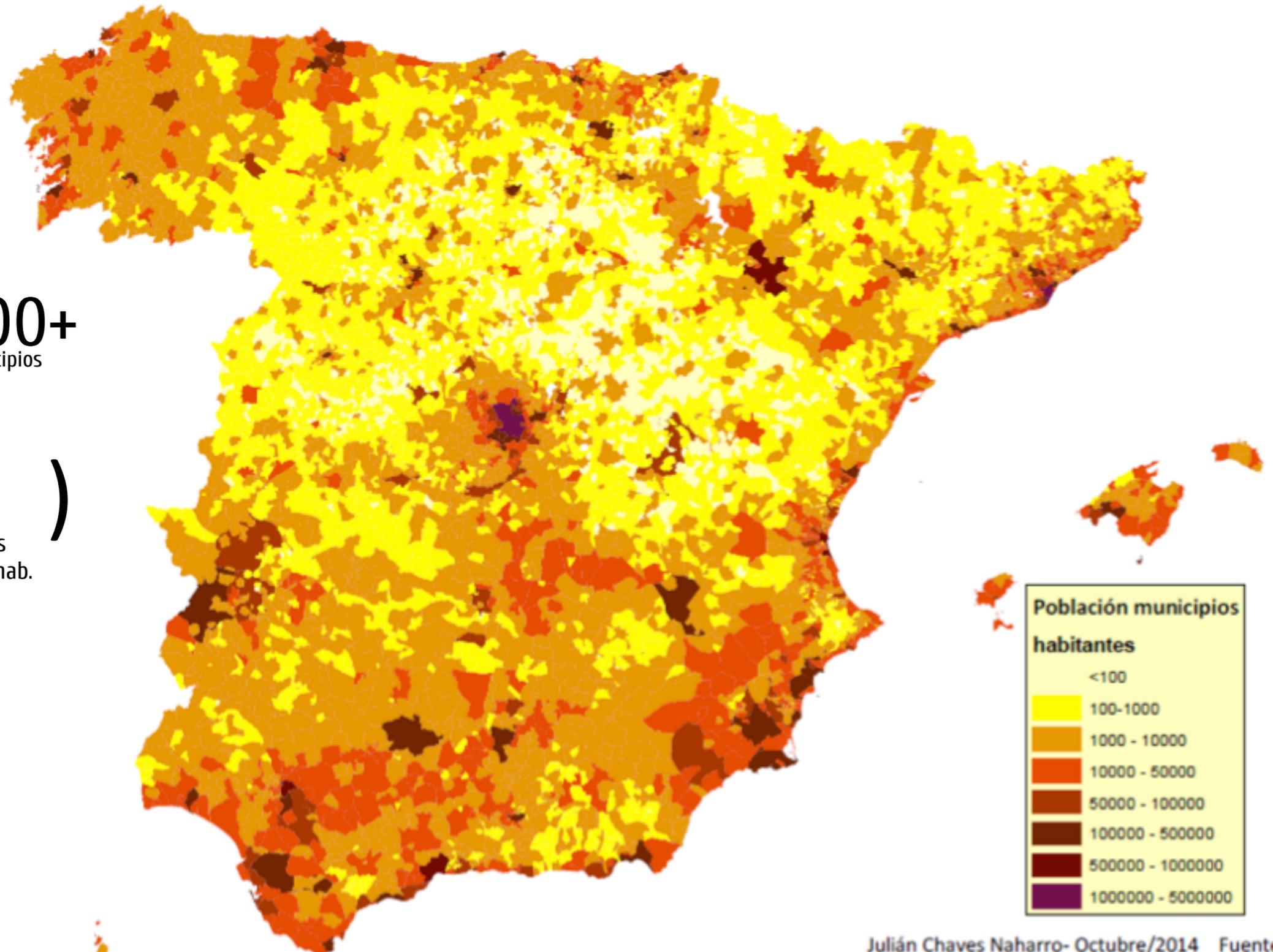




Fragmentación de los operadores **2.500+**

8.100+
municipios

(
6.819
municipios
con < 5.000 hab.
)

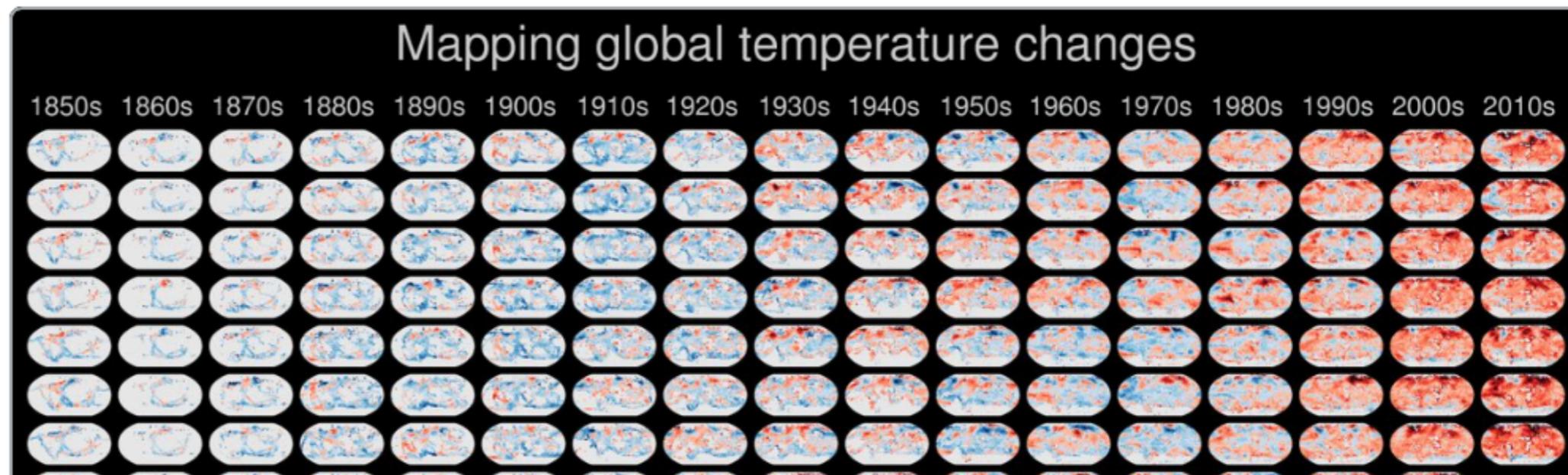
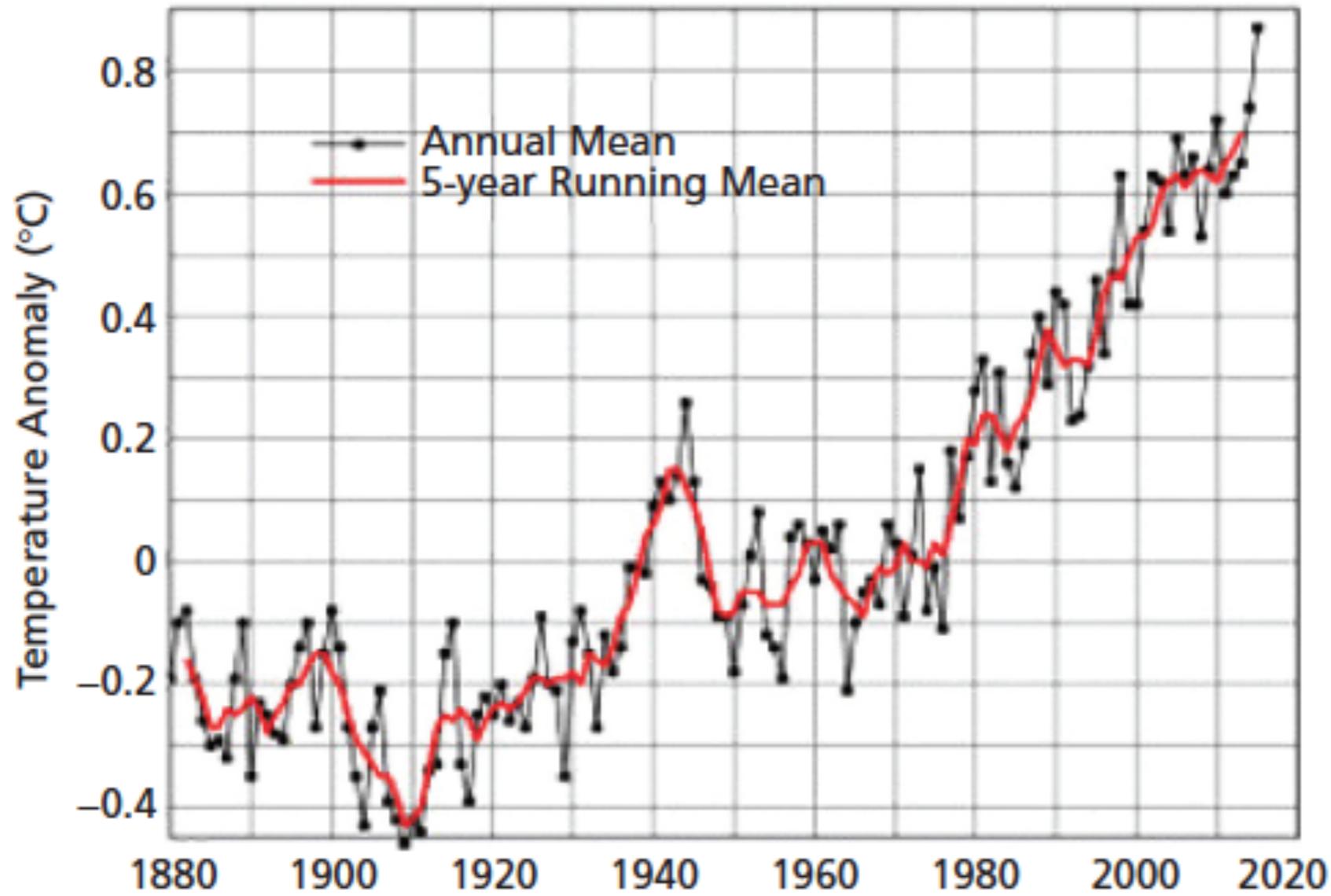


Julián Chaves Naharro- Octubre/2014 Fuente:INE

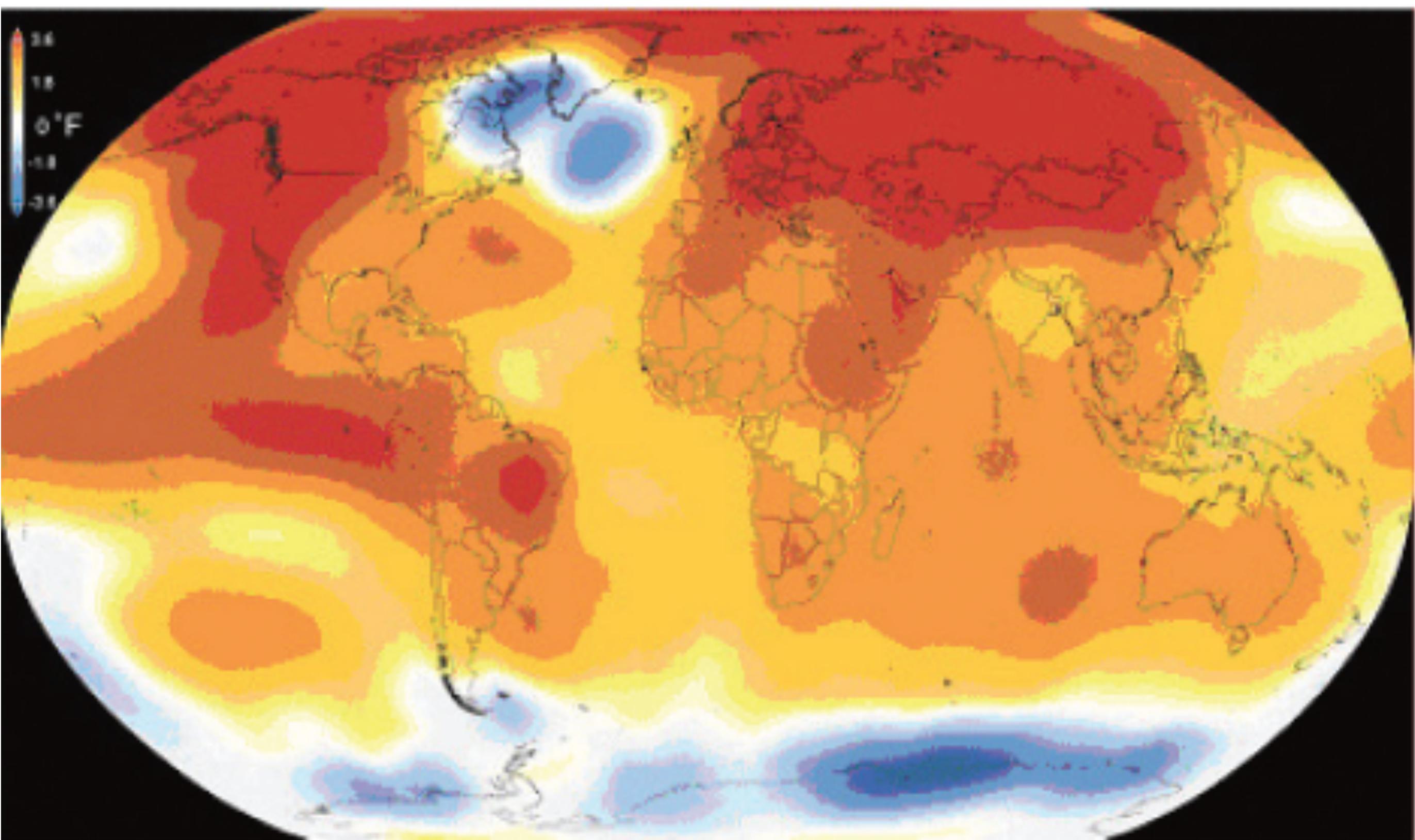
El cambio climático

Incertidumbre, adaptación y coordinación de políticas sectoriales

Global Land–Ocean Temperature Index



Temperatura media global en la superficial del planeta desde 1880 a 2015, en relación a la media 1951-1980.
Fuente: NASA GISS (2016)

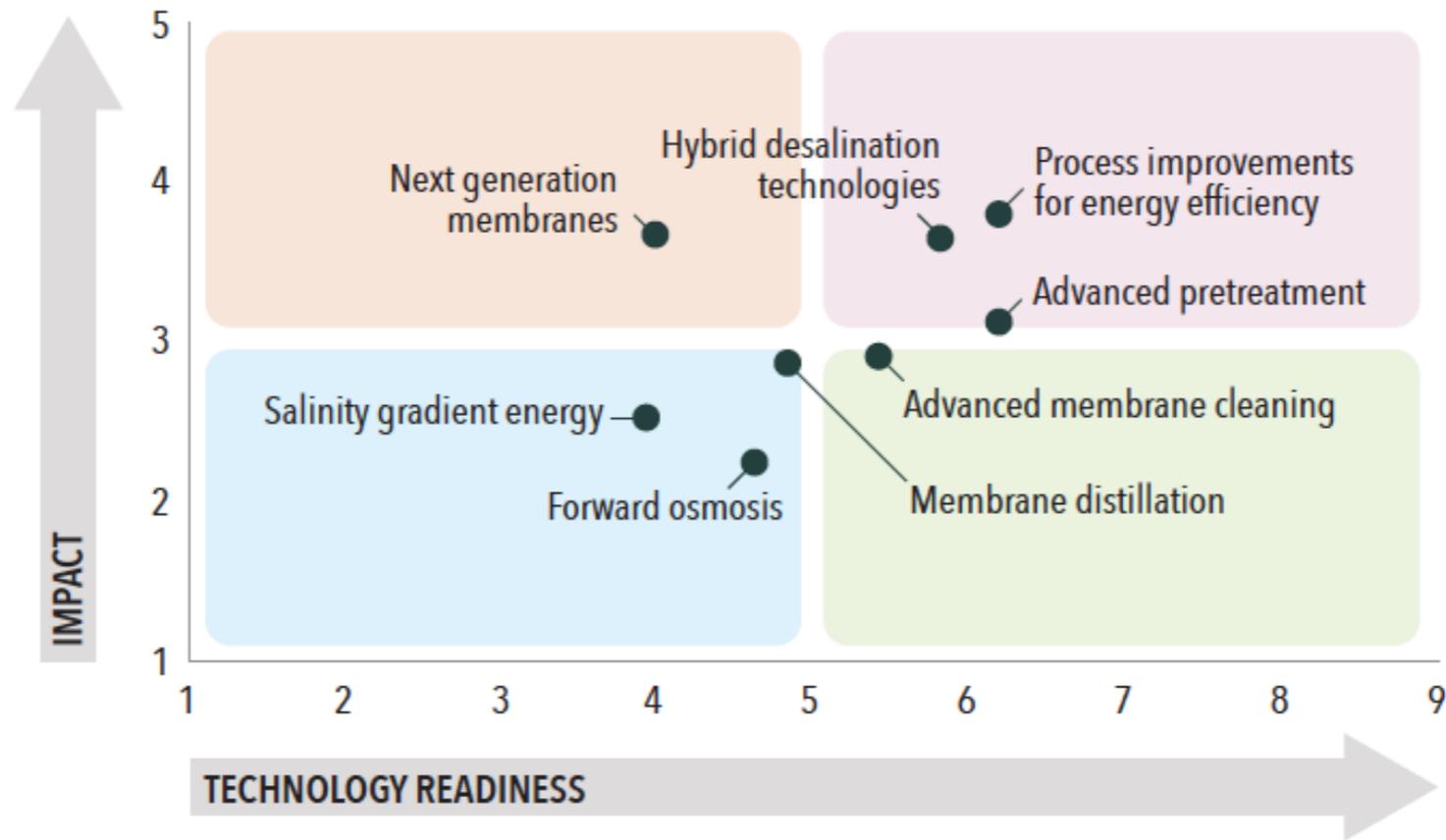


NASA Goddard Space Flight Center's Scientific Visualization Studio (Brown et al., 2016)

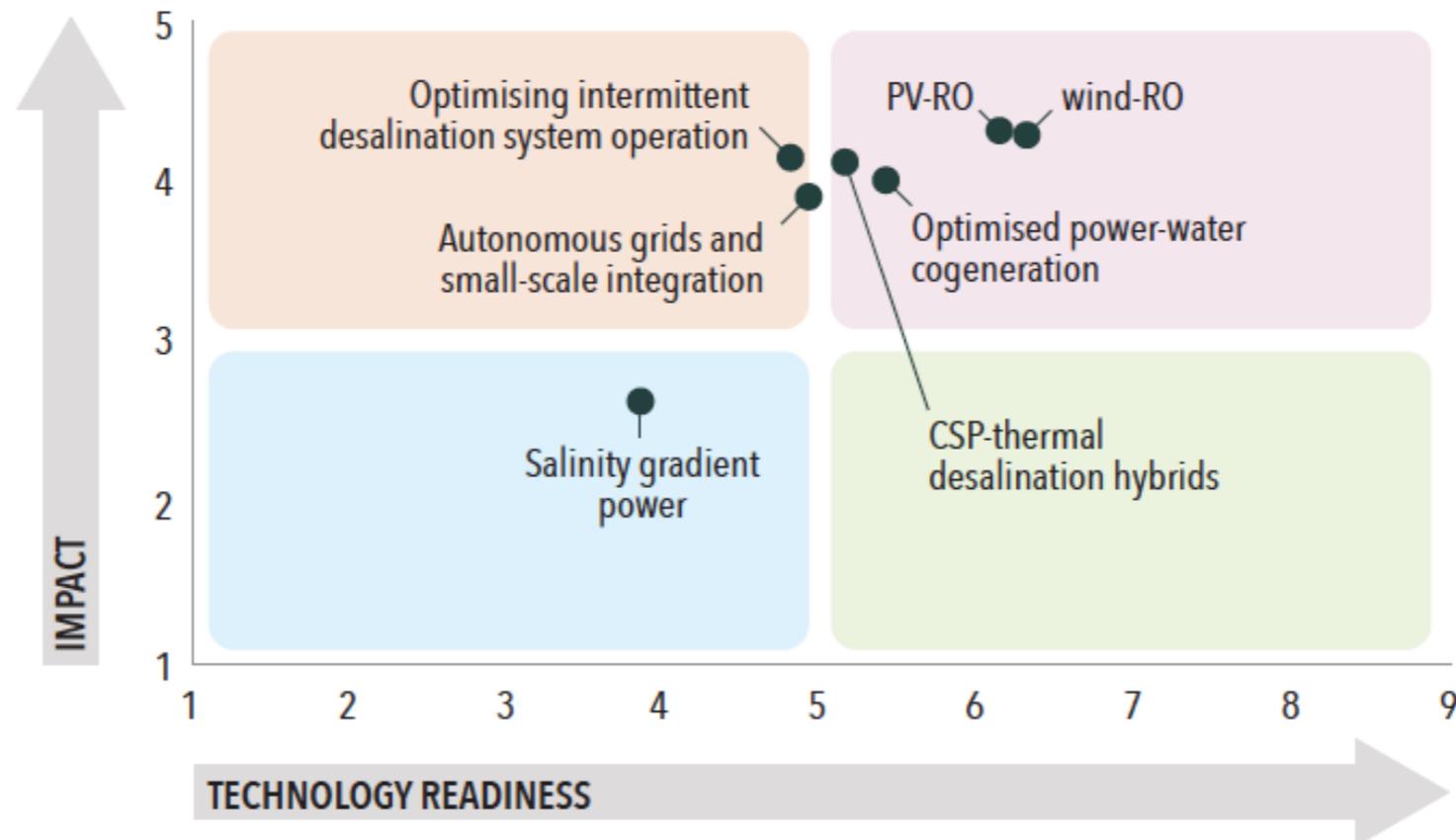
Cuando los retos no
son (sólo)
tecnológicos

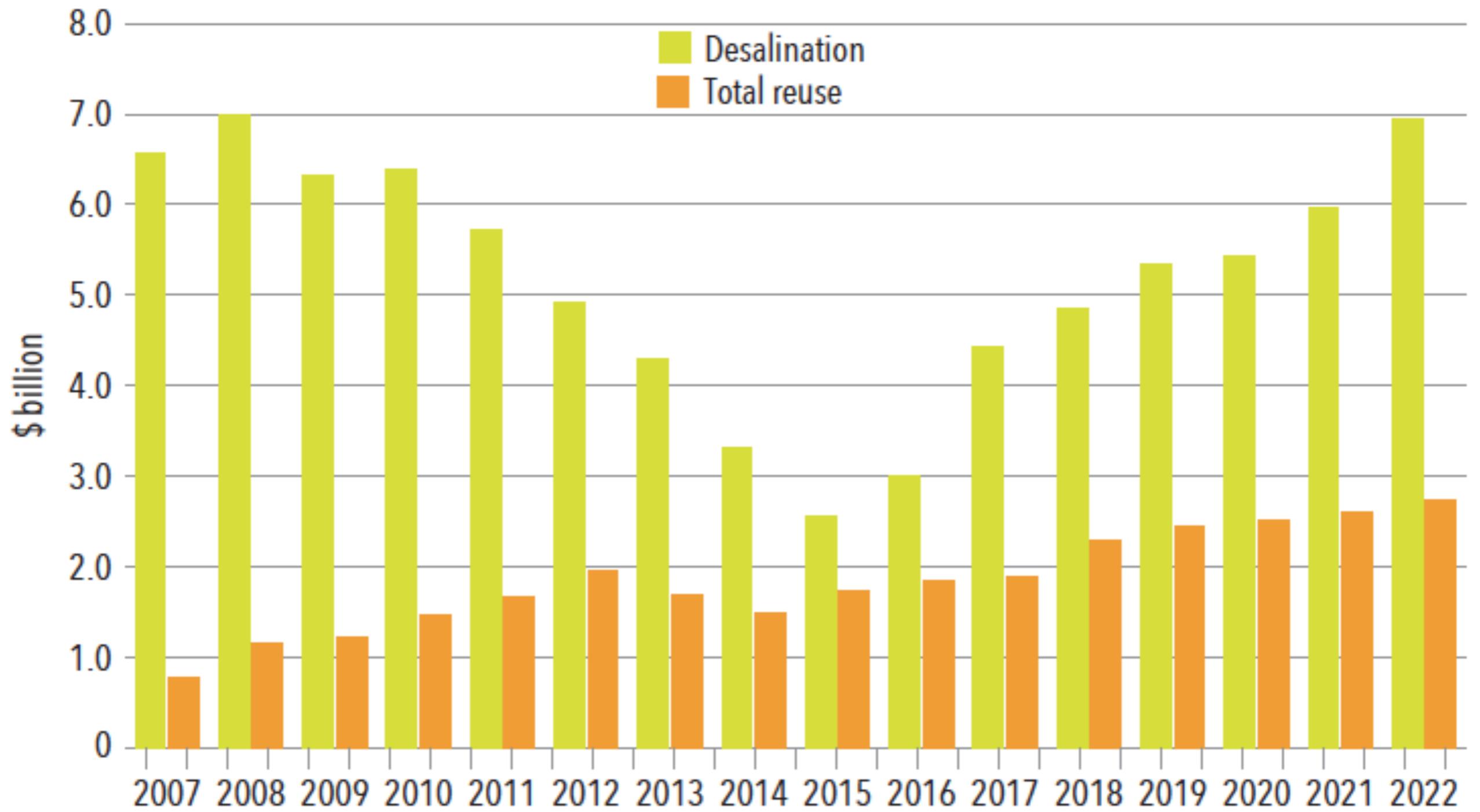
El papel de los incentivos

GHG reduction versus technology readiness level for desalination technologies



GHG impact versus technology readiness level for several low carbon desalination systems

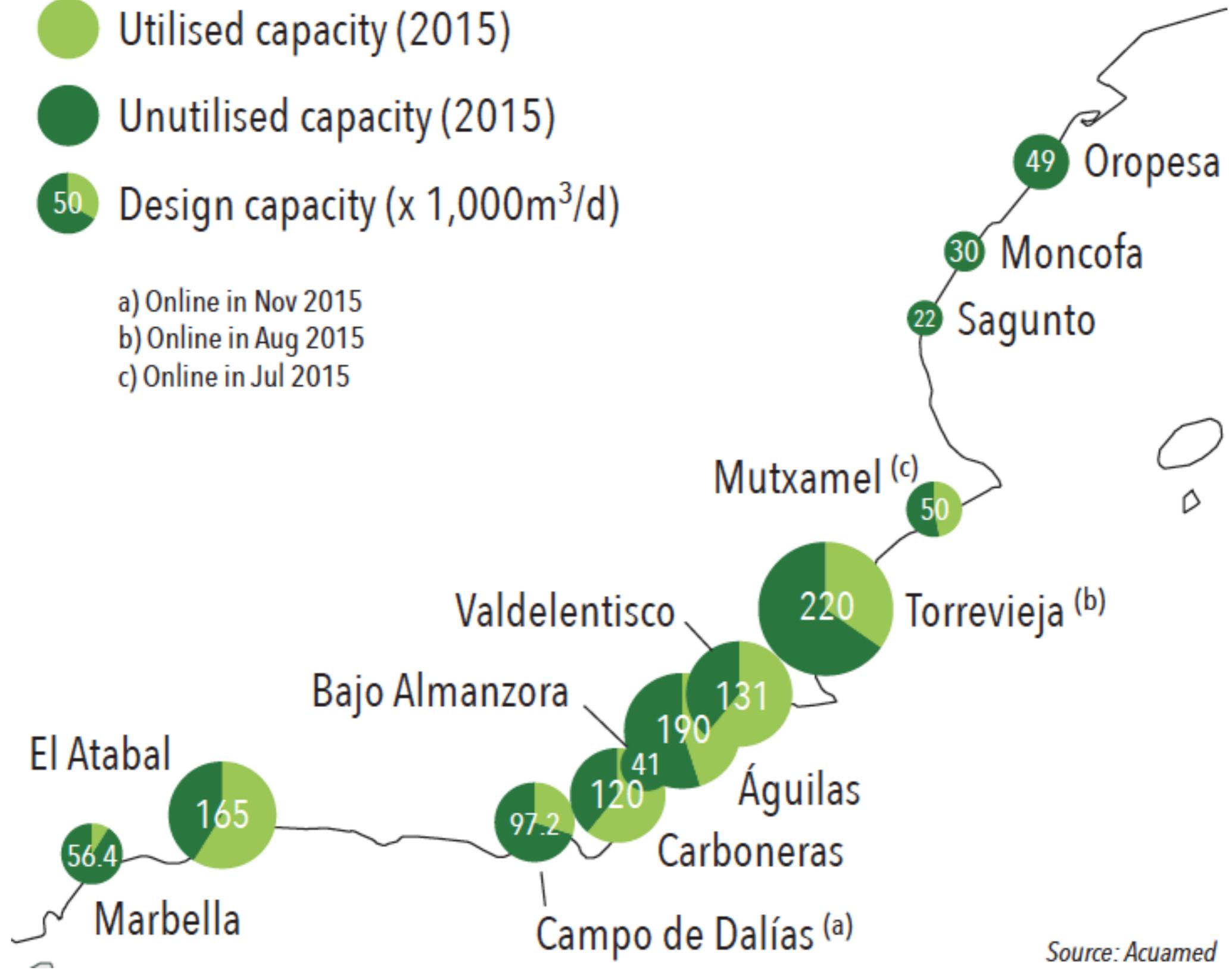




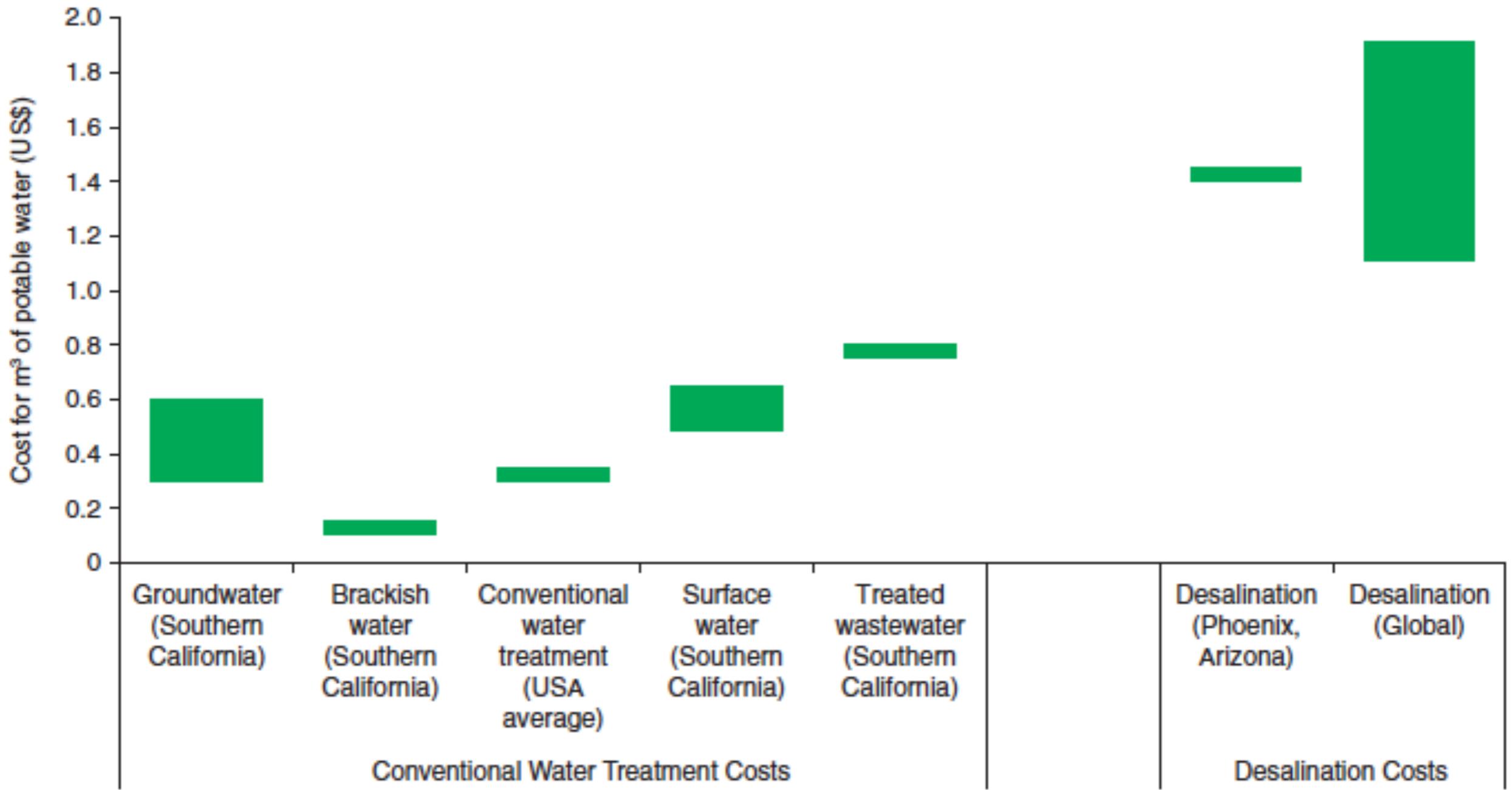
Source: GWI DesalData

- Utilised capacity (2015)
- Unutilised capacity (2015)
- 50 ● Design capacity (x 1,000m³/d)

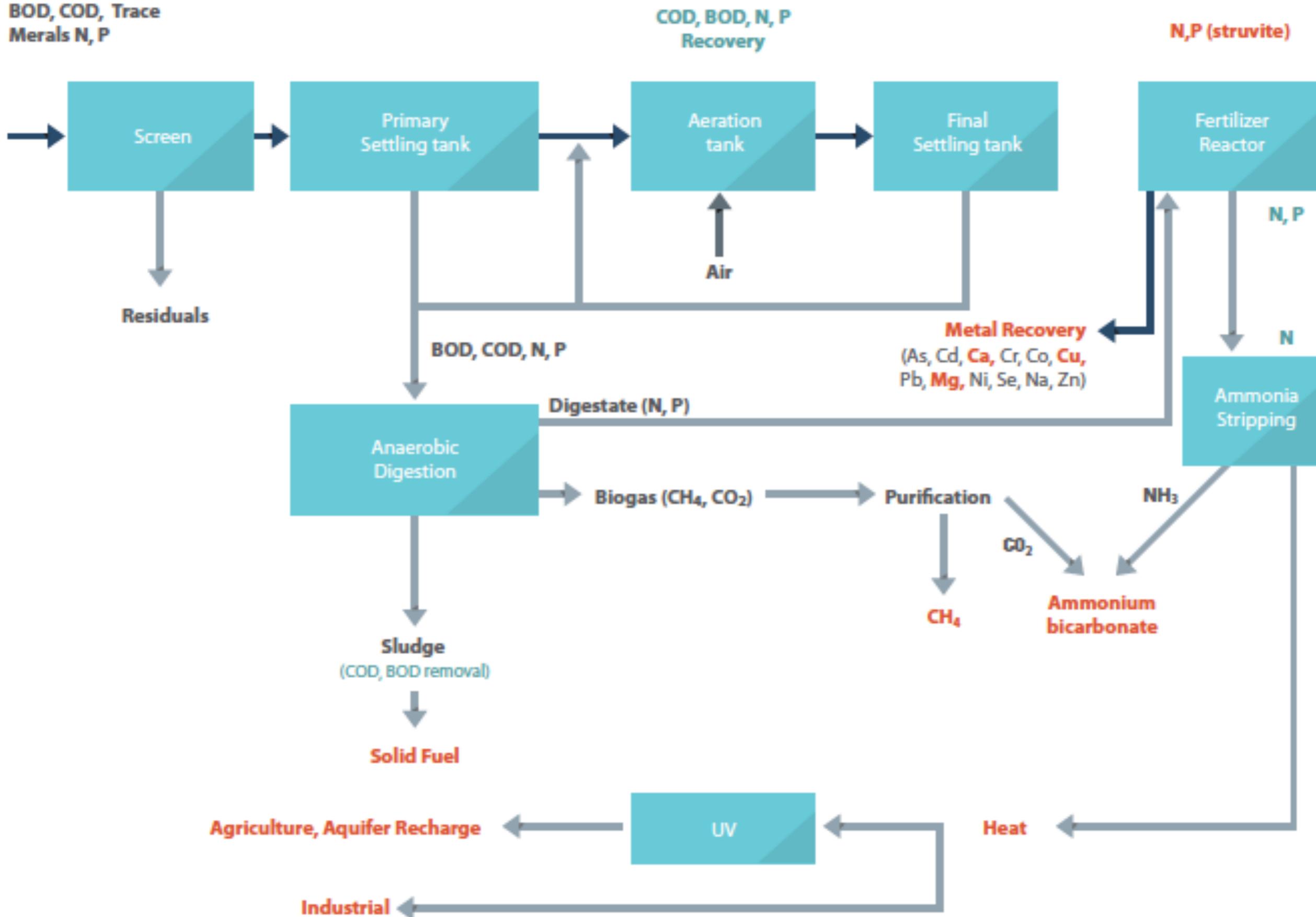
a) Online in Nov 2015
 b) Online in Aug 2015
 c) Online in Jul 2015

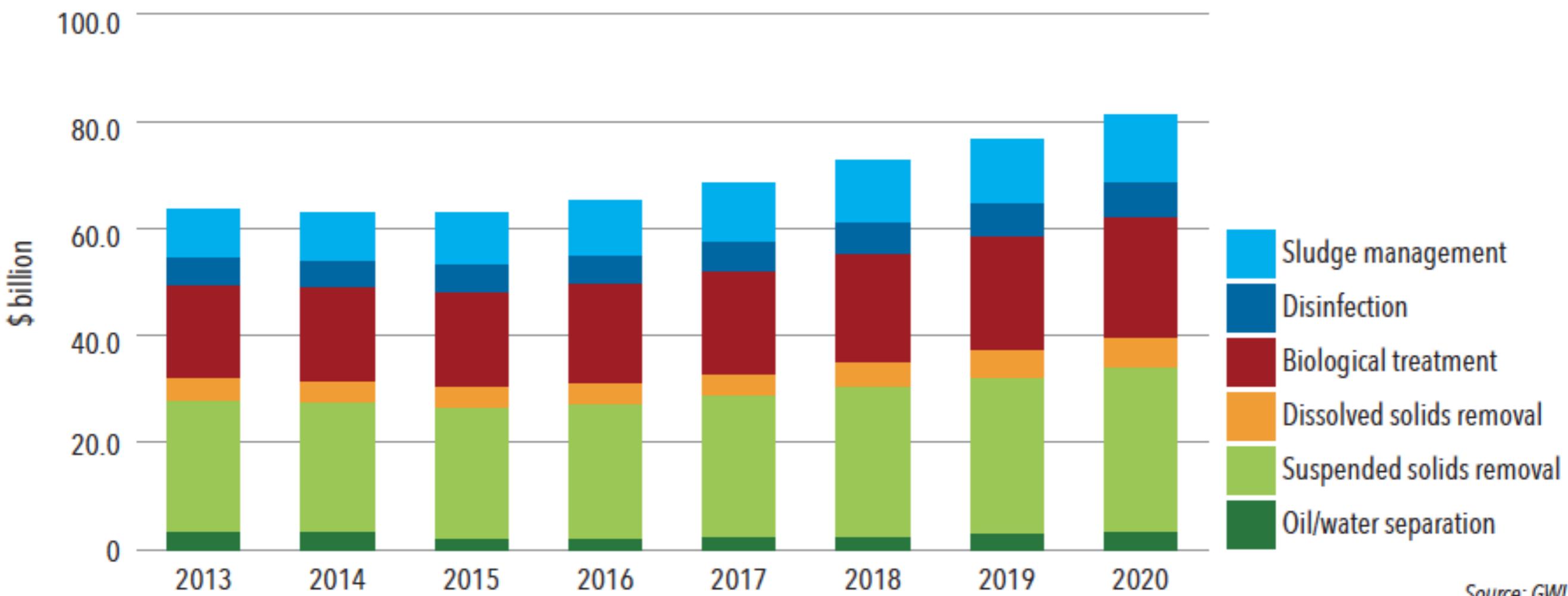


Source: Acuamed



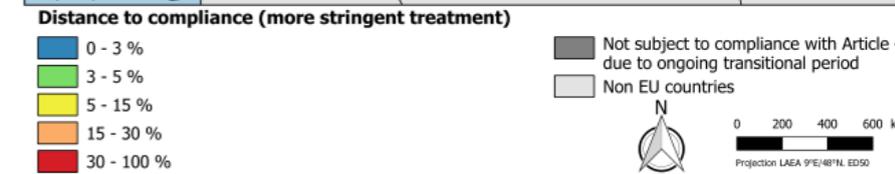
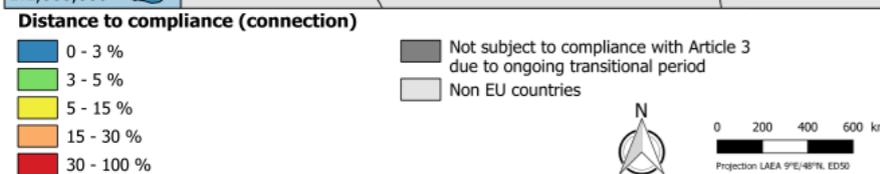
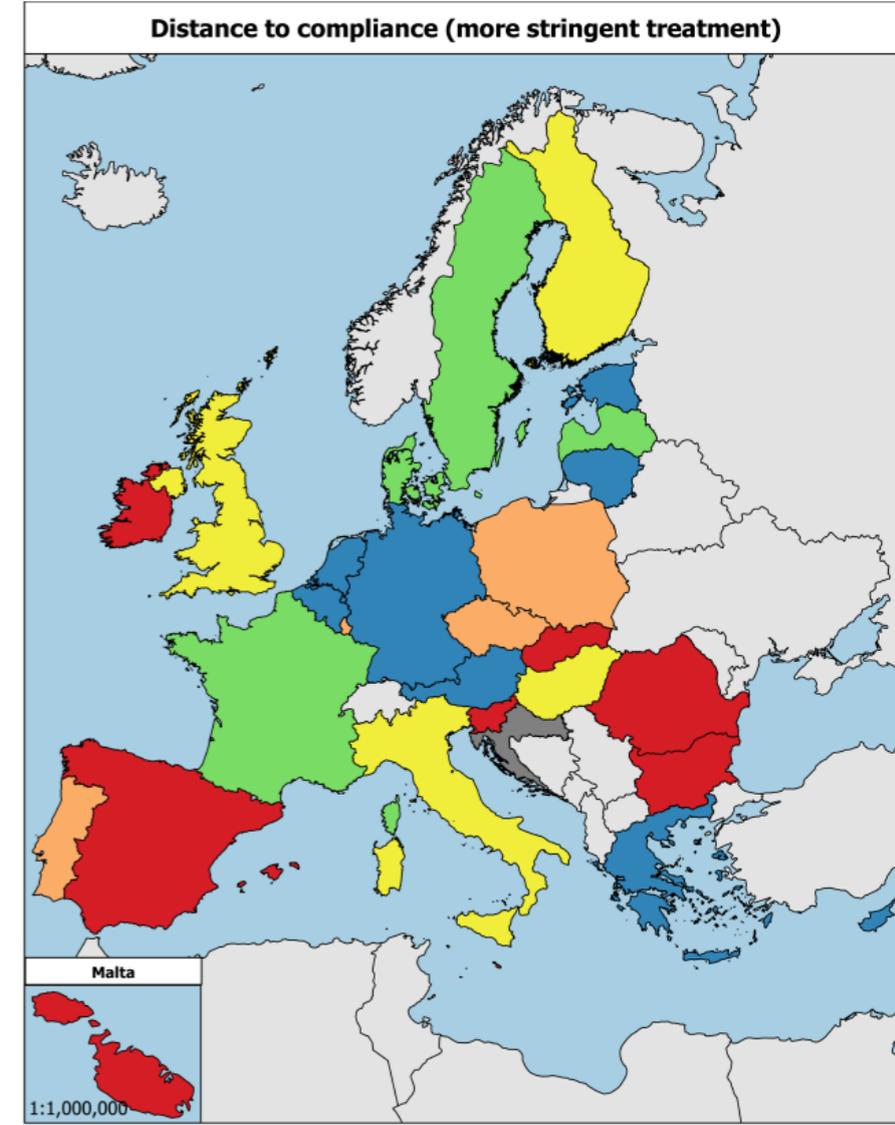
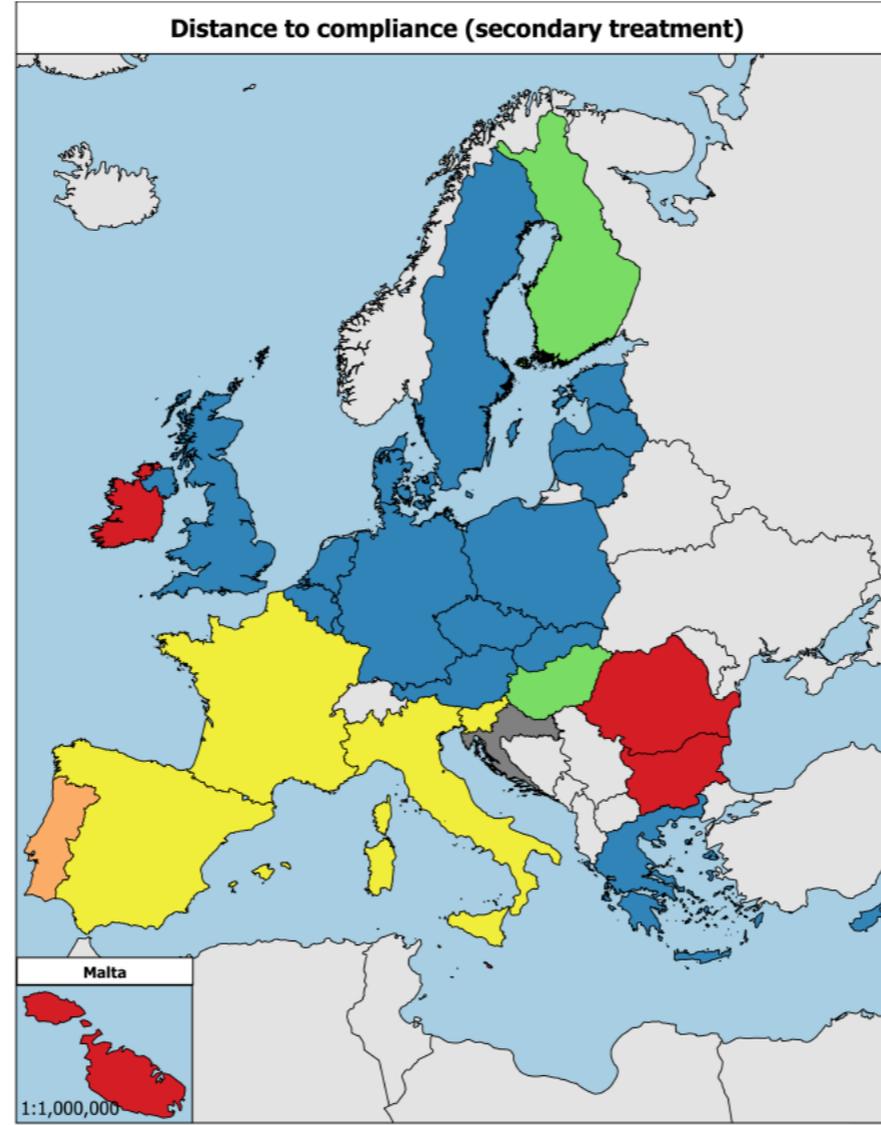
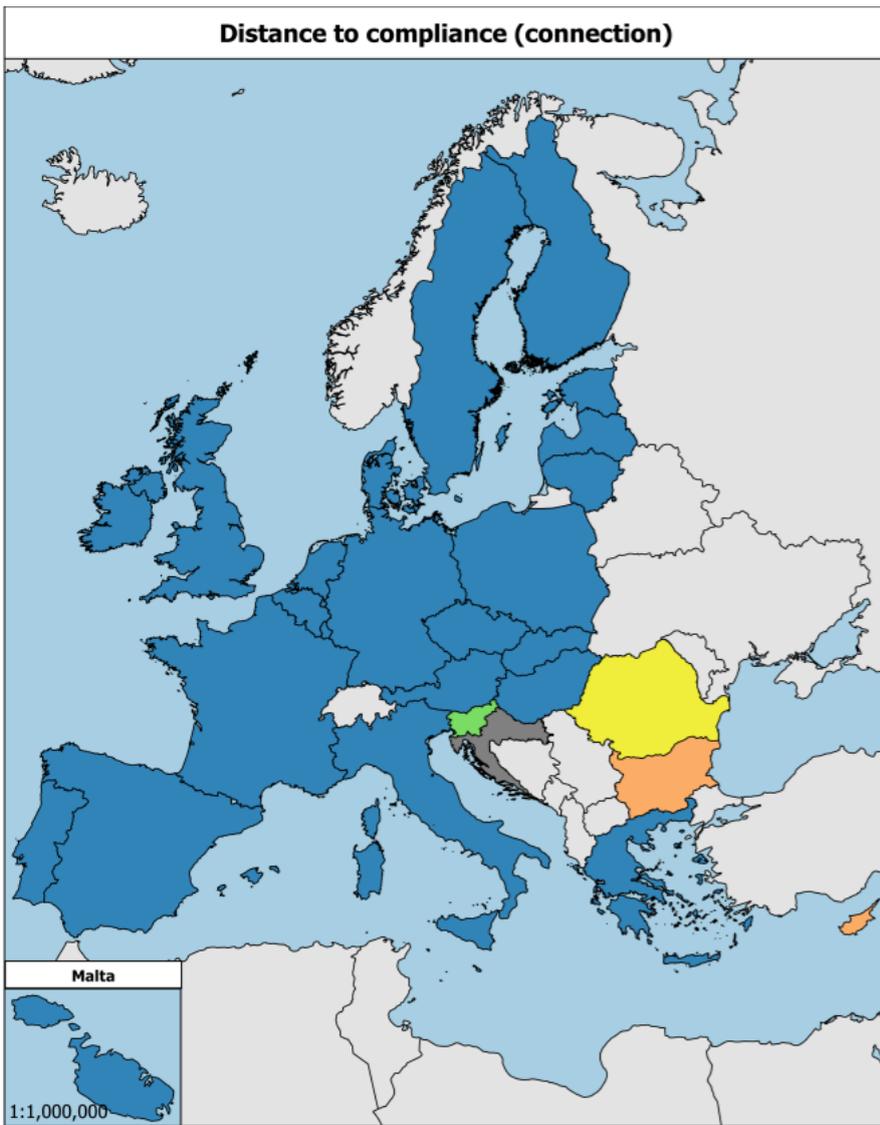
Domestic WW
BOD, COD, Trace
Metals N, P





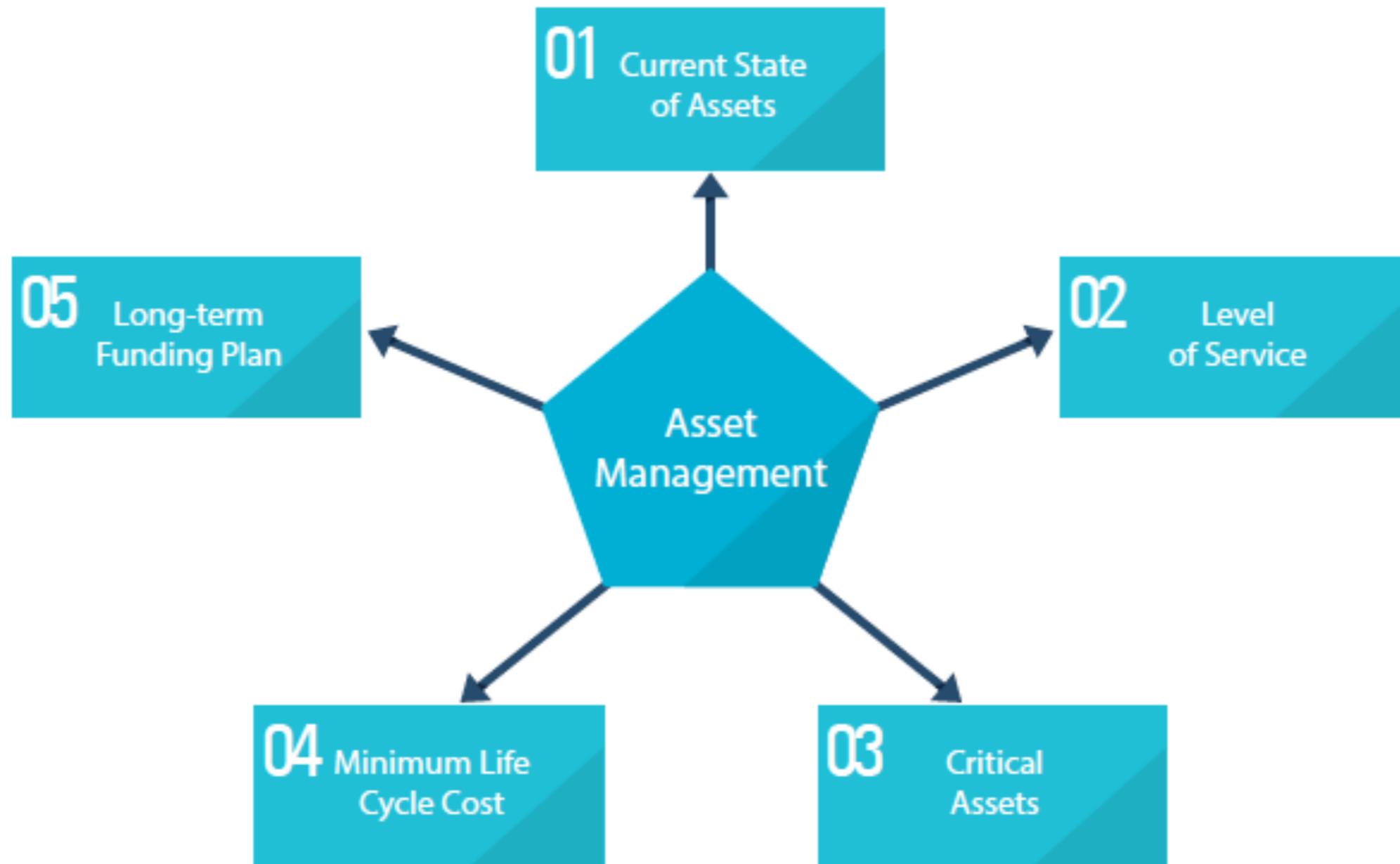
Source: GWI

Más allá del cumplimiento con las Directivas



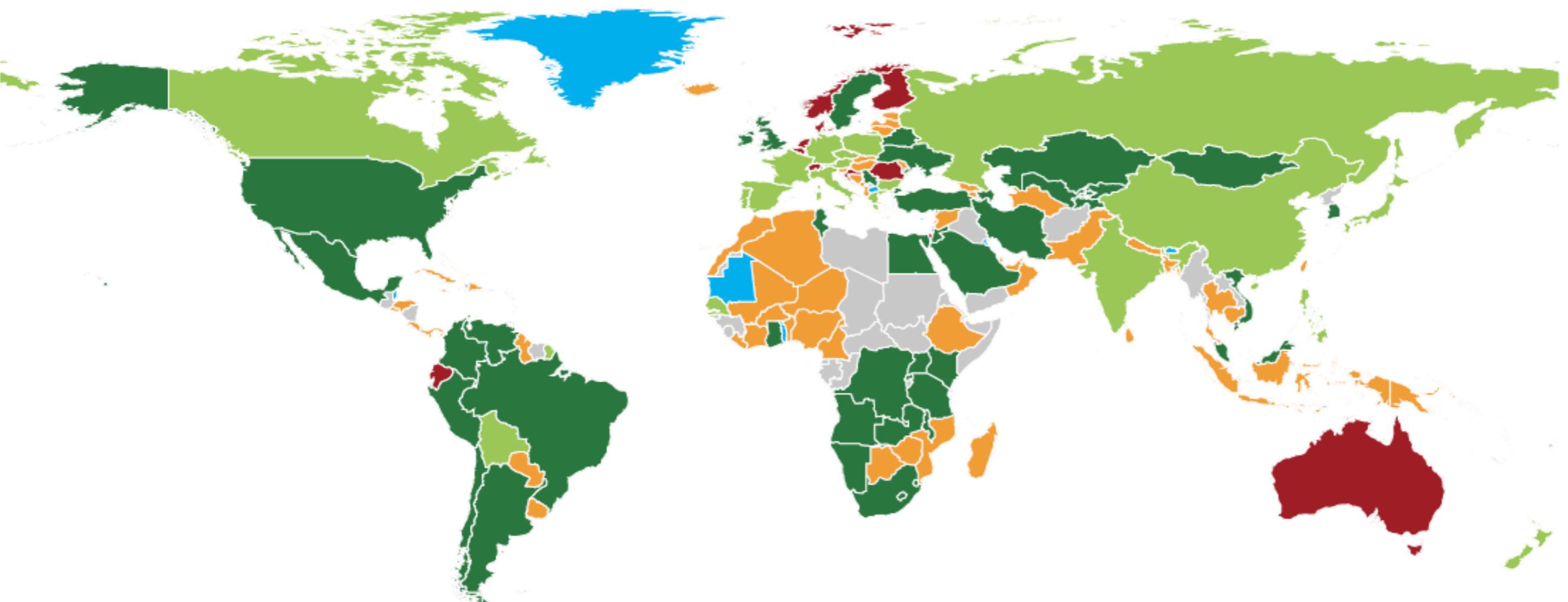


¿Quizás una asignatura pendiente?



La importancia de la recuperación de costes

Más allá de la discusión instrumental



Decrease in combined tariff



≤ 5% increase in combined tariff



Newly surveyed countries



No change in combined tariff



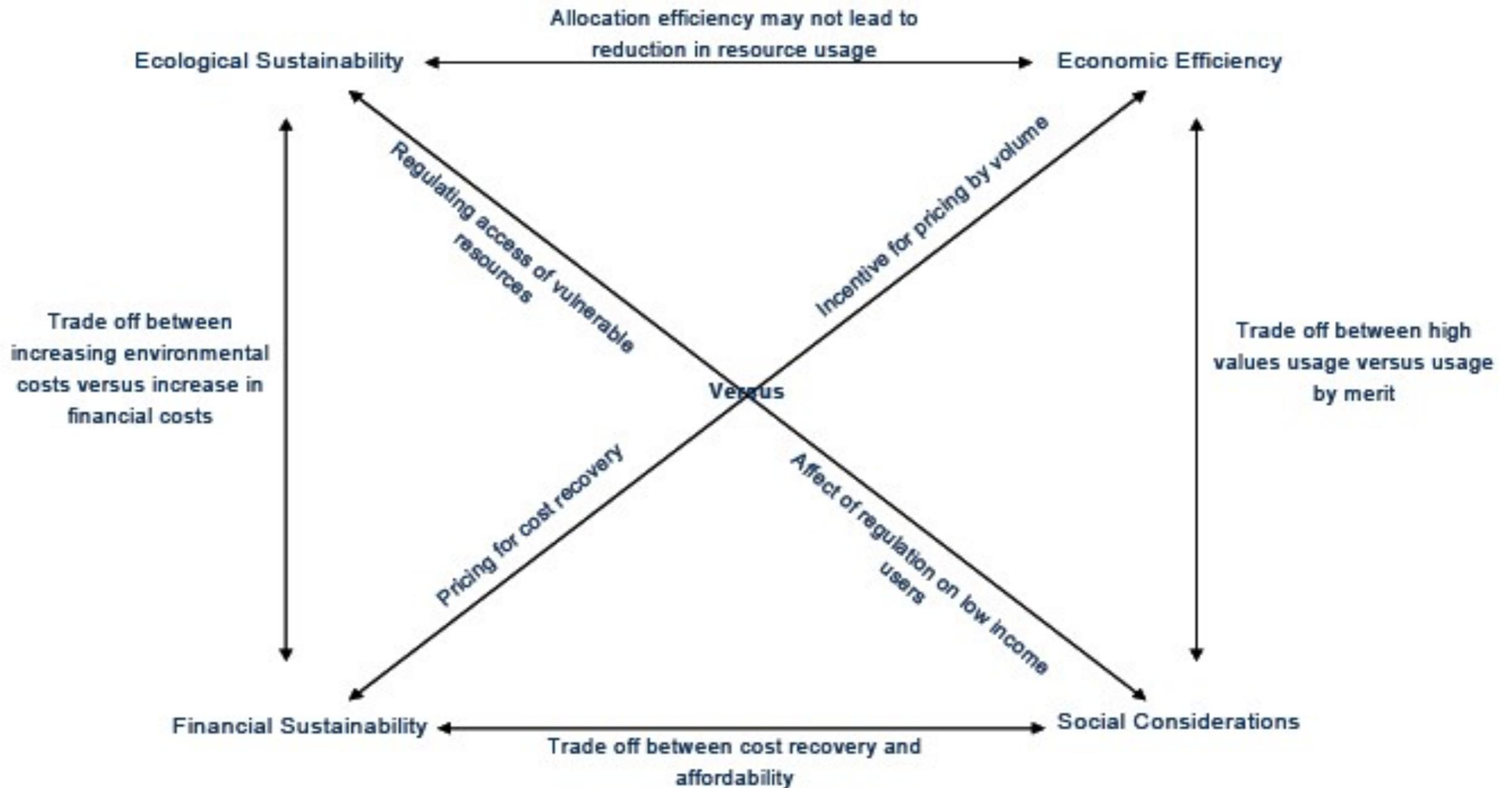
> 5% increase in combined tariff



Countries not surveyed

Source: GWI

Los sesgos no ayudan, los trade-offs importan



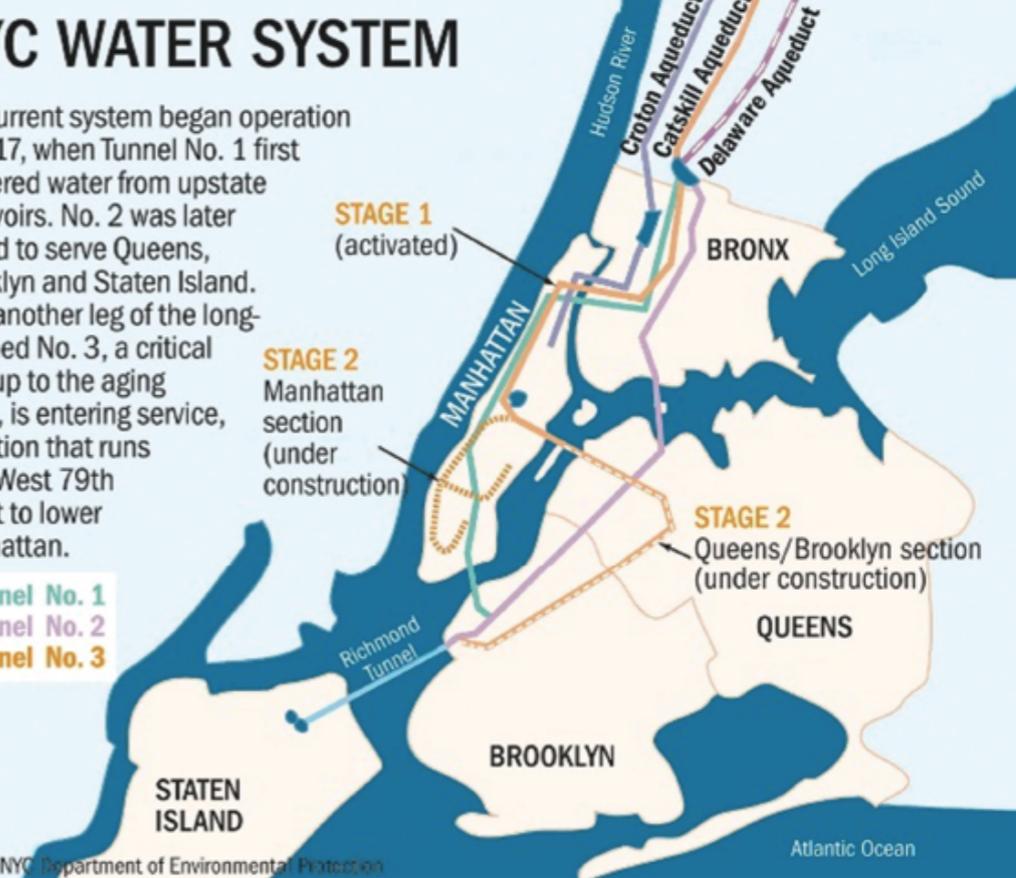
New York City's Water Supply System



NYC WATER SYSTEM

The current system began operation in 1917, when Tunnel No. 1 first delivered water from upstate reservoirs. No. 2 was later added to serve Queens, Brooklyn and Staten Island. Now another leg of the long-planned No. 3, a critical backup to the aging No. 1, is entering service, a section that runs from West 79th Street to lower Manhattan.

- Tunnel No. 1
- Tunnel No. 2
- Tunnel No. 3



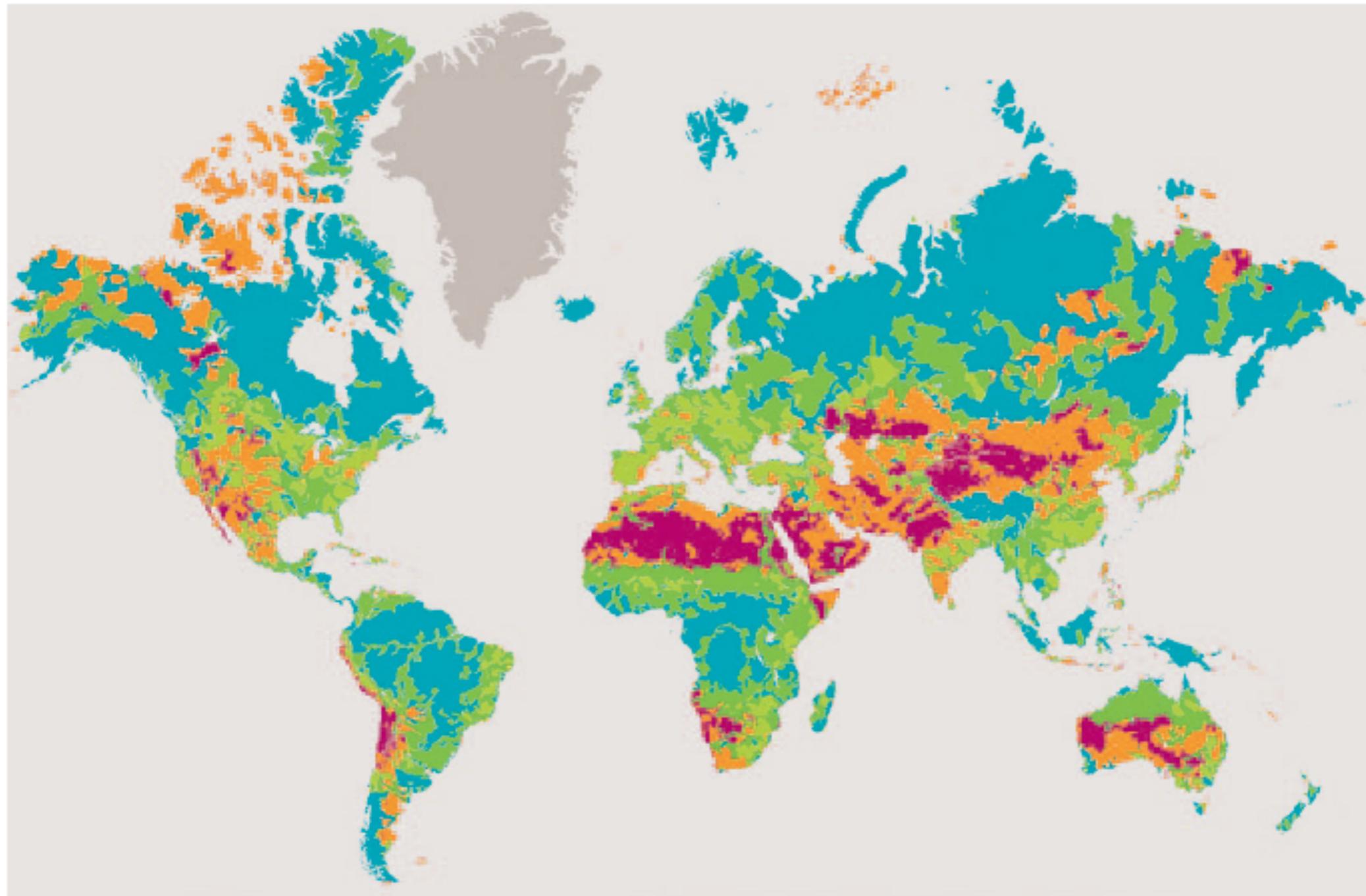
Source: NYC Department of Environmental Protection

¿Cuál es la fuente de inspiración real?



- Catskill / Delaware Watershed Area
- Croton Watershed Area
- Rivers and Reservoirs
- Catskill Aqueduct and Tunnels
- Croton Aqueduct
- Delaware Aqueduct and Tunnels
- County Borders
- State Borders

¿Factor limitante u oportunidad?



Low risk (0-1) Low to medium risk (1-2) Medium to high risk (2-3)

High risk (3-4) Extremely high risk (4-5) No data

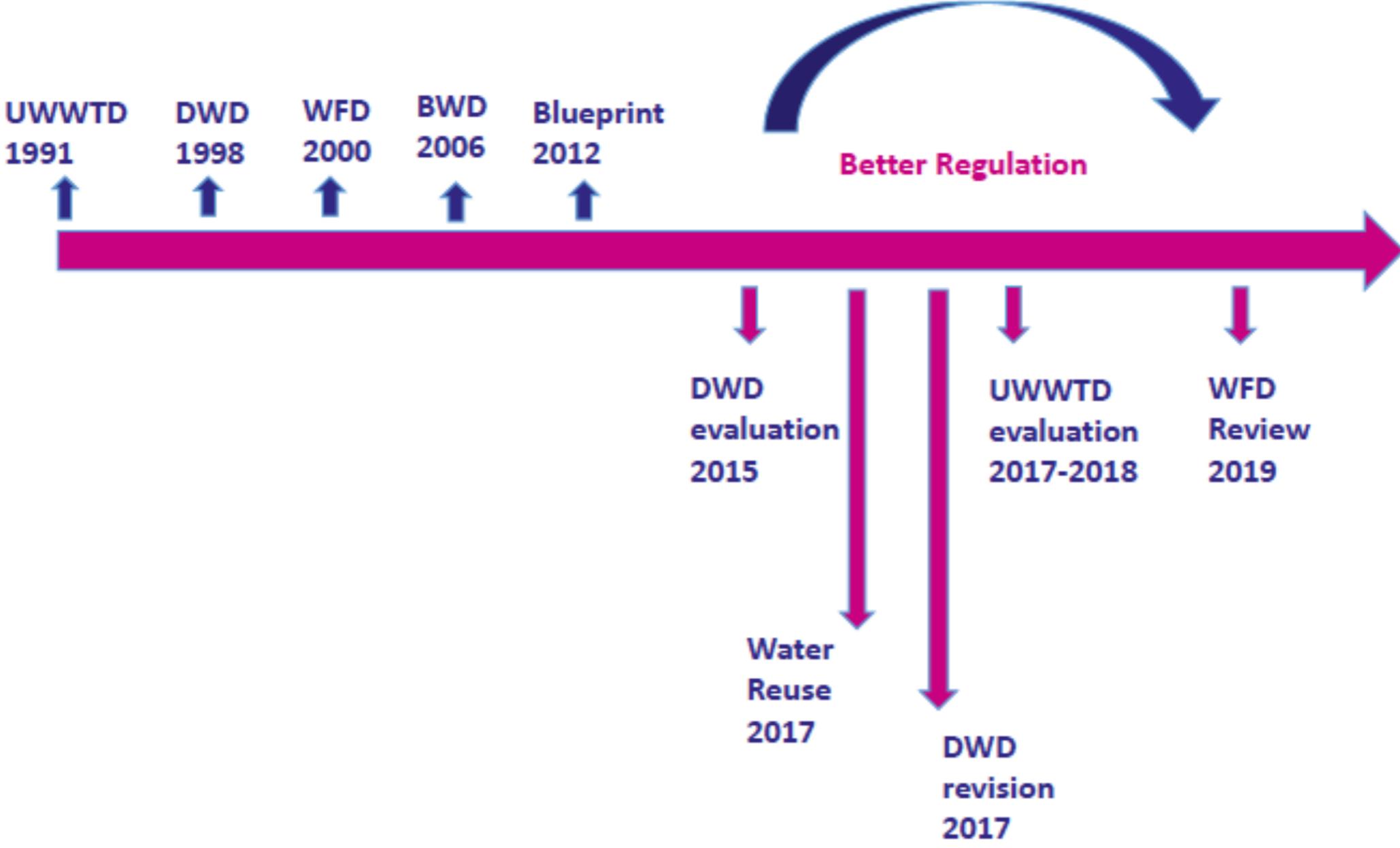
Physical risks related to quantity identify areas of concern regarding water quantity (e.g. droughts or floods) that may impact short or long term water availability.

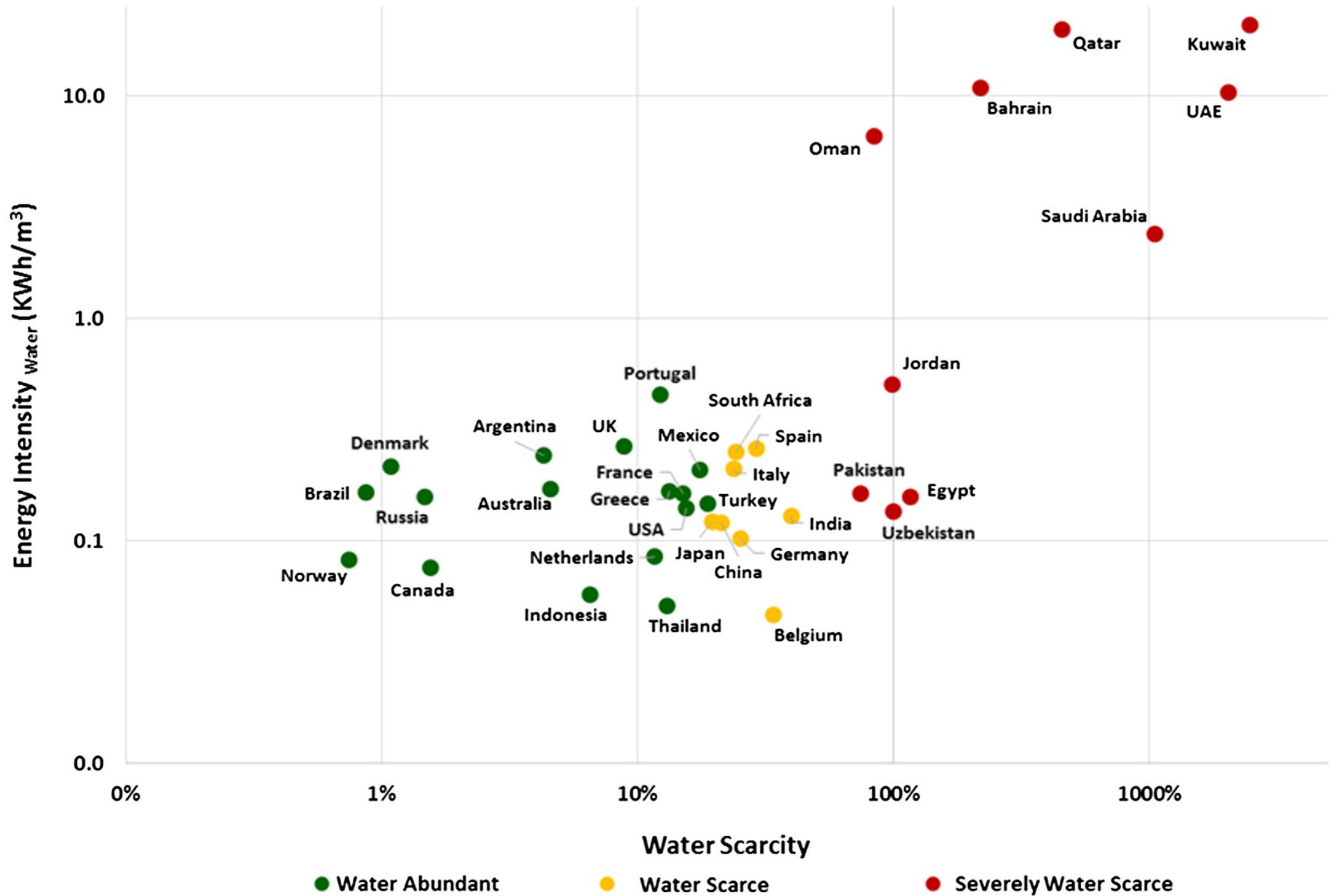
Source: World Resources Institute, Aqueduct

Conviene no esperar a la crisis para tomar decisiones



No es España o Europa; España es Europa





Muchas gracias

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