

**XIV** CONGRESSO  
NACIONAL DO  
**MILHO**  
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CNEMA | SANTARÉM



# Water Management and Irrigation in the Mediterranean

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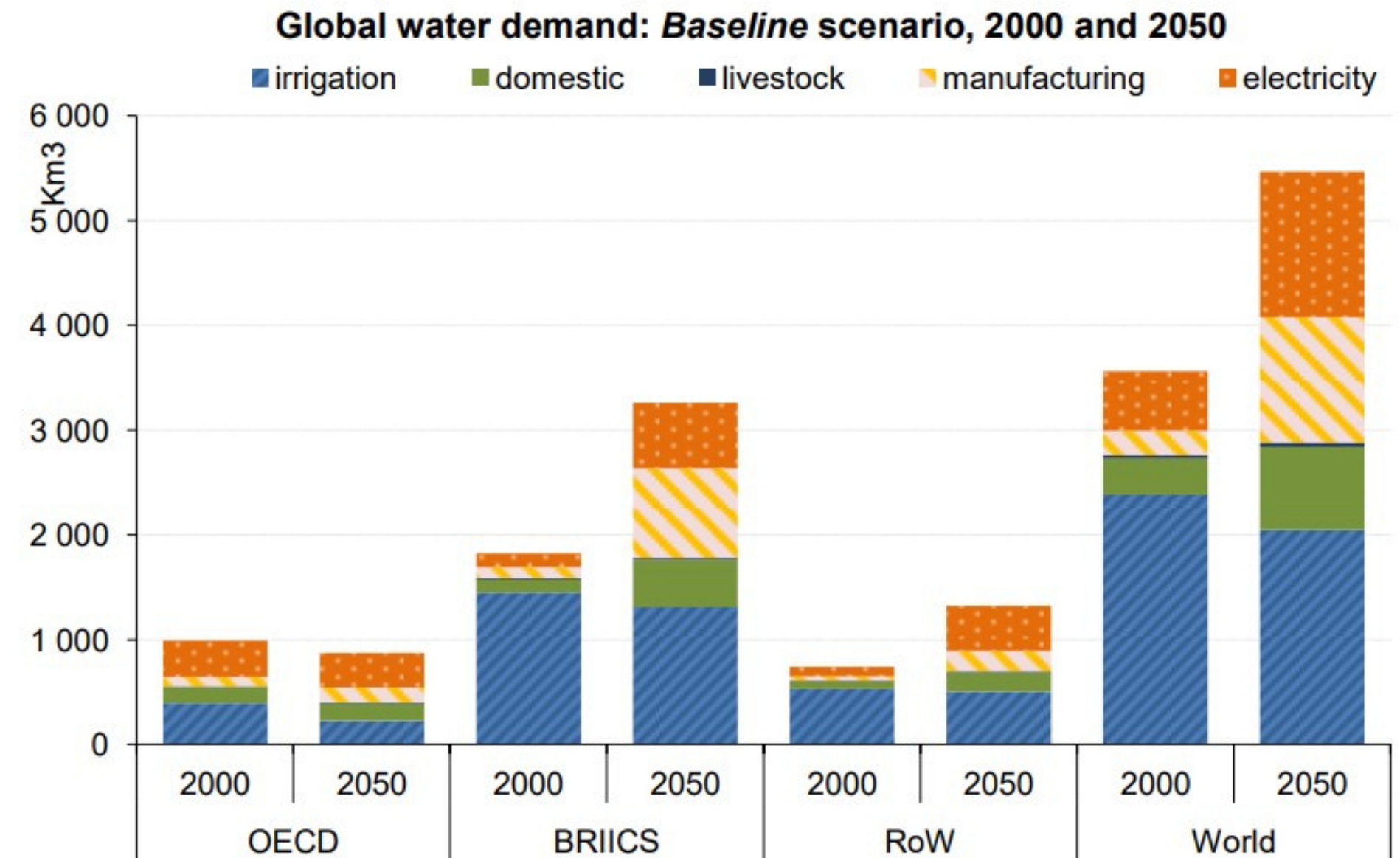
**Plácido Plaza Lopez**  
*Secretary General of the*  
**CIHEAM**





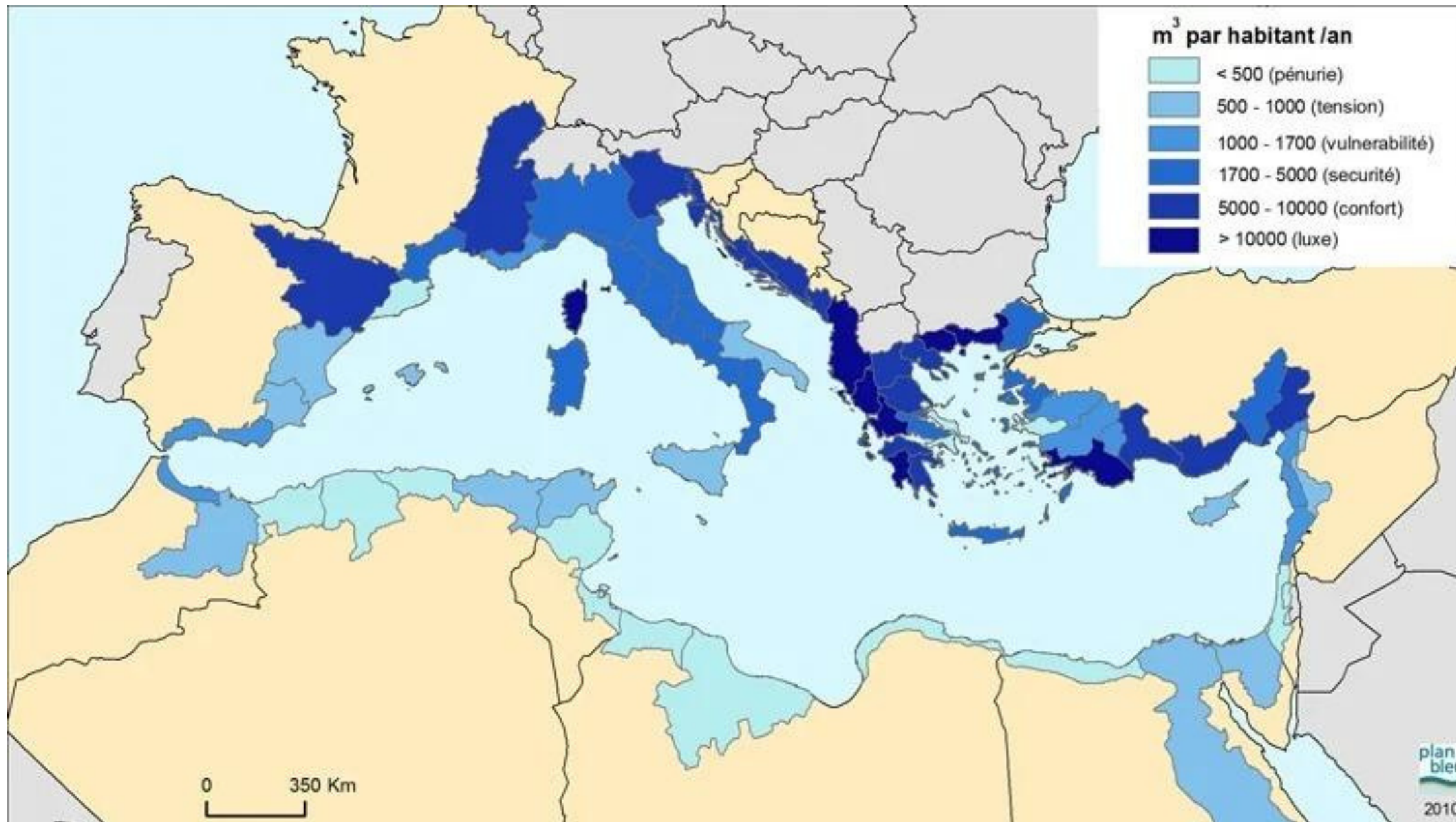
# KEY FACTS & FIGURES

- More than **510 million** people live in the Mediterranean region
- Temperatures in the region are increasing **20% faster** than the global average
- By 2050, water demand will **double**
- **Increased competition** between sector demands (manufacturing, electricity, domestic, etc.) => Water for irrigation will be under pressure



Note :BRIICS = Brazil, Russia, India, Indonesia, China and South Africa; RoW = rest of the world  
Source: *Environmental Outlook Baseline*; output from IMAGE suite of models. (OECD, 2022)

# KEY FACTS & FIGURES



Source: Plan Bleu (2010), Eau. Retrieved from : <https://planbleu.org/page-theme/eau/> [Accessed 06/02/2023]

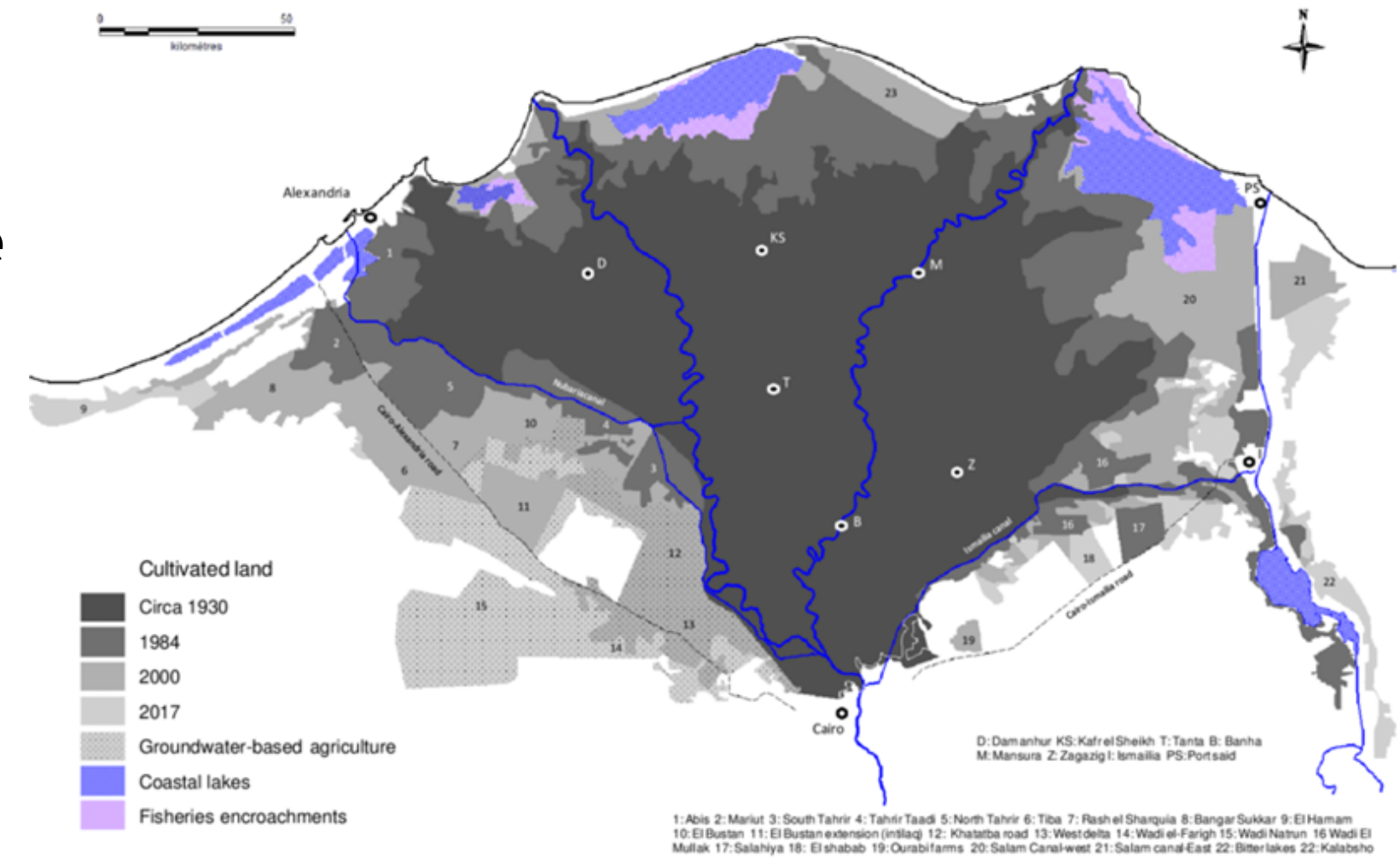
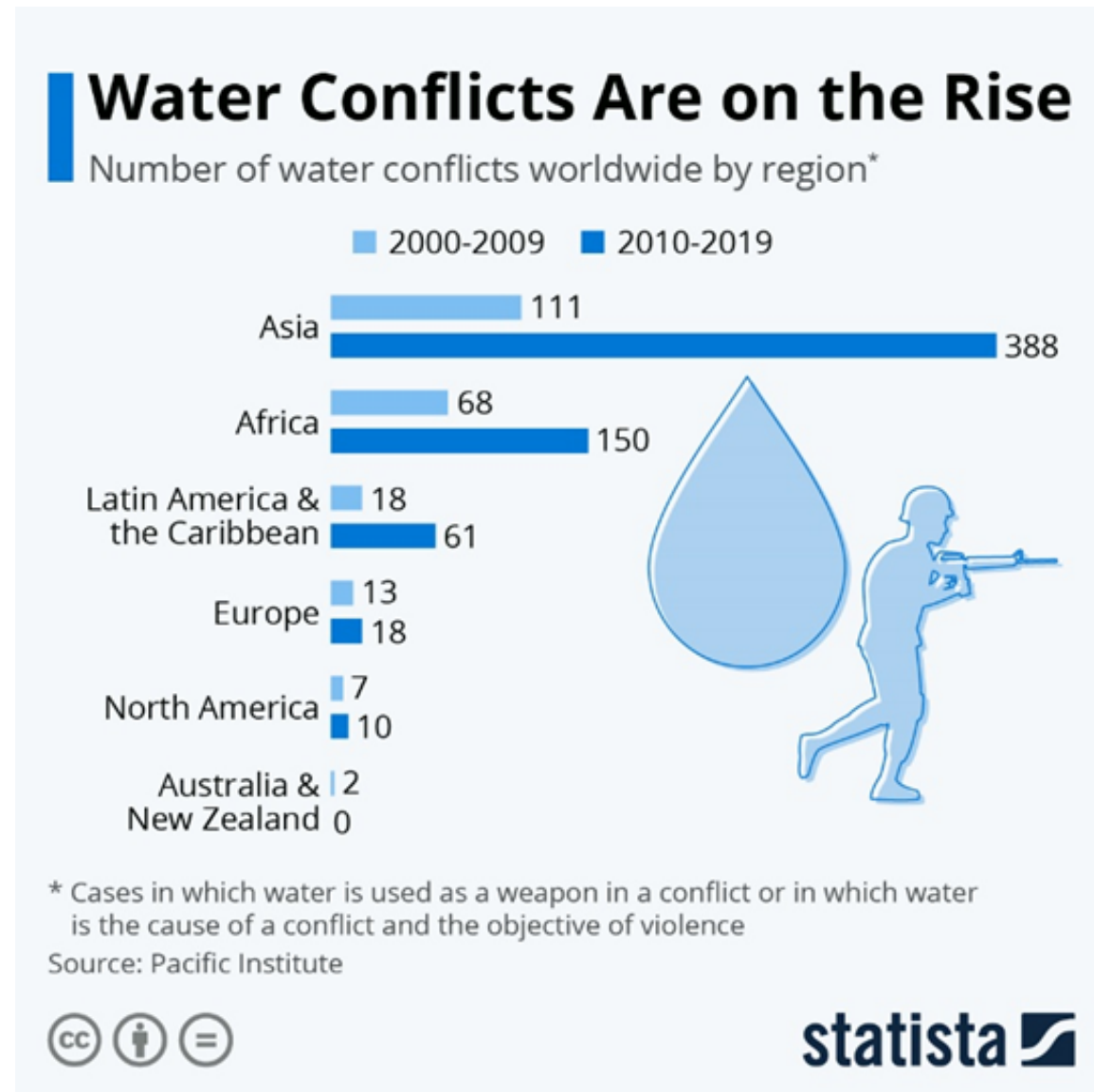
- The Mediterranean region represents **60%** of the world's so-called "water poor" population
- 20 million people do not have access to **drinking water** in the Mediterranean
- By 2025, 80 million people will suffer from water shortage in the region
- Chronic overexploitation: Southern shore countries are currently withdrawing **105% of their potential water resources**



# WATER SECURITY IS NATIONAL SECURITY

Water-food security is a fundamental element of the **stability** of States and the **good development** of societies

Water management and irrigation are tools to securitize population settlement and a **powerful land-use vector**



Historical expansion of irrigated agriculture in the Nile Delta (Molle, Francois, IRD, 2019)

Water stress leads to growing tensions and conflicts



# WATER MANAGEMENT IN AGRICULTURE

Climate change will require some **adaptation measures** in the agricultural sector:

**1** Selection of **plant varieties** with enhanced water stress tolerance

**2** **Conservation** agriculture and diversification/lengthening of rotations



**3** Constant improvement of **irrigation techniques**





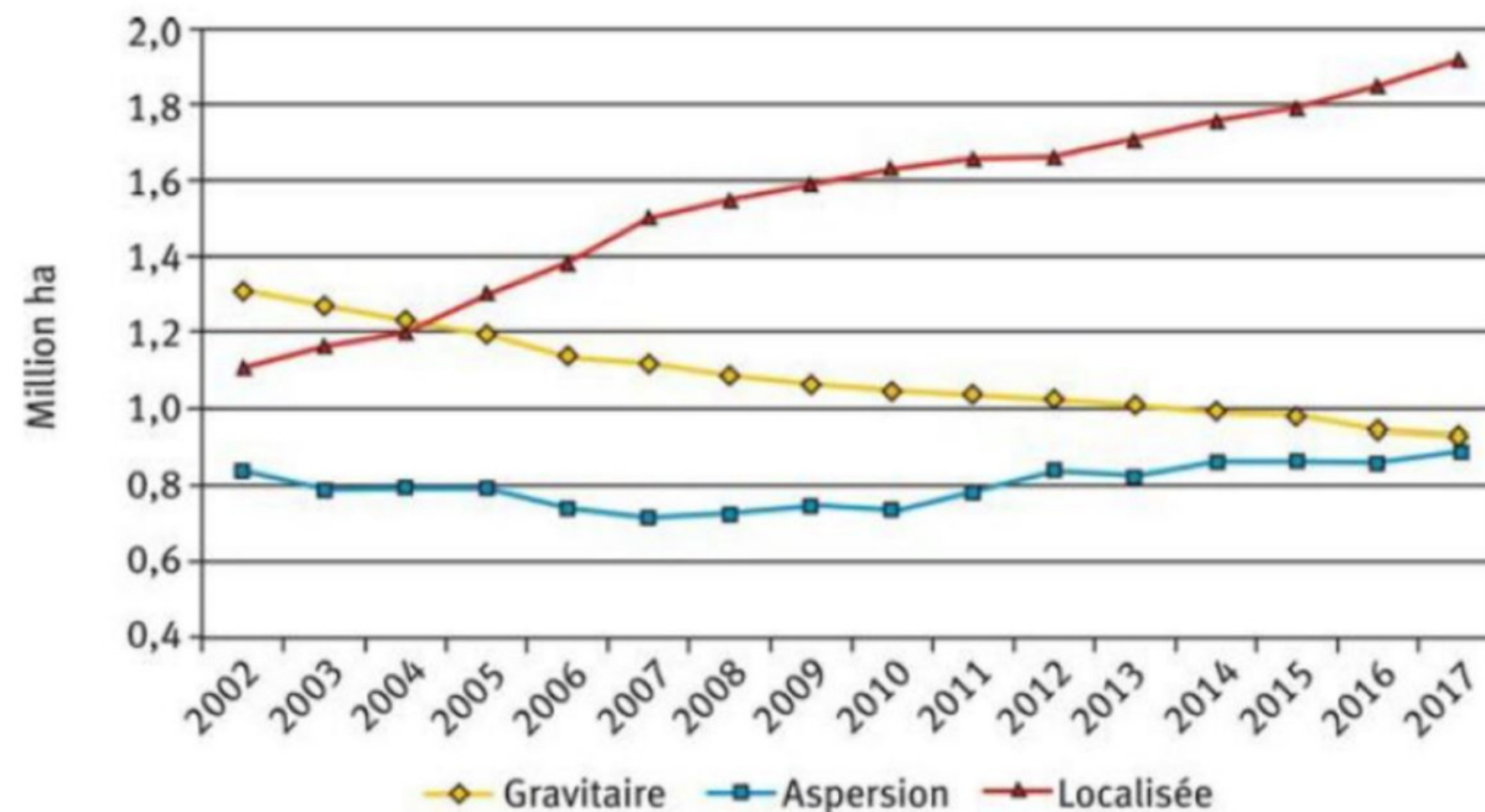
# CASES FROM THE MEDITERRANEAN

## SPAIN

- In Spain, **22%** of cultivated land is irrigated
- Since the 1990s, Spain has been innovating irrigation through infrastructural development and the application of **new technologies**
- Today, **localized irrigation** is implemented in 52% of cultivated land (vines, citrus and legume plantations, etc.)

### ⑤ Évolution des systèmes d'irrigation en Espagne.

Source : ESYRCE (enquête annuelle sur les surfaces cultivées et les rendements réalisée par le ministère espagnol de l'Agriculture, de la Pêche et de l'Alimentation).



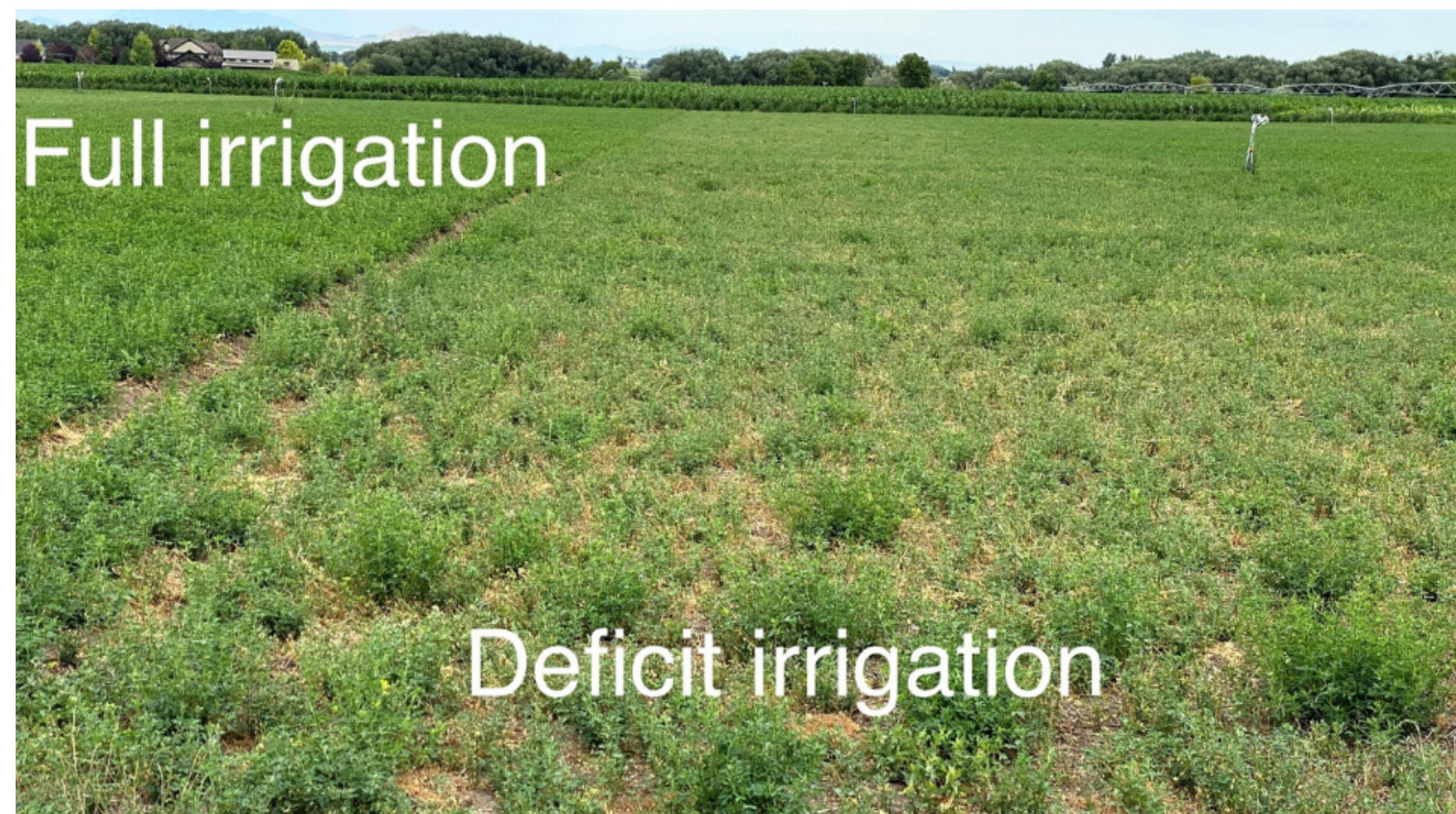
Source : Revue Sciences Eaux & Territoires N°34 – 2020.



# CASES FROM THE MEDITERRANEAN

## MAGHREB COUNTRIES

- **Deficit irrigation** is now one of the ways to manage water scarcity
- Optimizing the available irrigation water with the least possible impact on yields is one of the recommended approaches



*Full and deficit irrigation alfalfa research plots at the Utah State University, Wellsville Farm, 2020*



# ADVOCACY FOR MEDITERRANEAN SOLUTIONS

## PULSES

- **Mediterranean Diet Pillar**
- **Low water consumption**
- **No nitrogen needed**

=> Good harvest



## ORGANIC AGRICULTURE

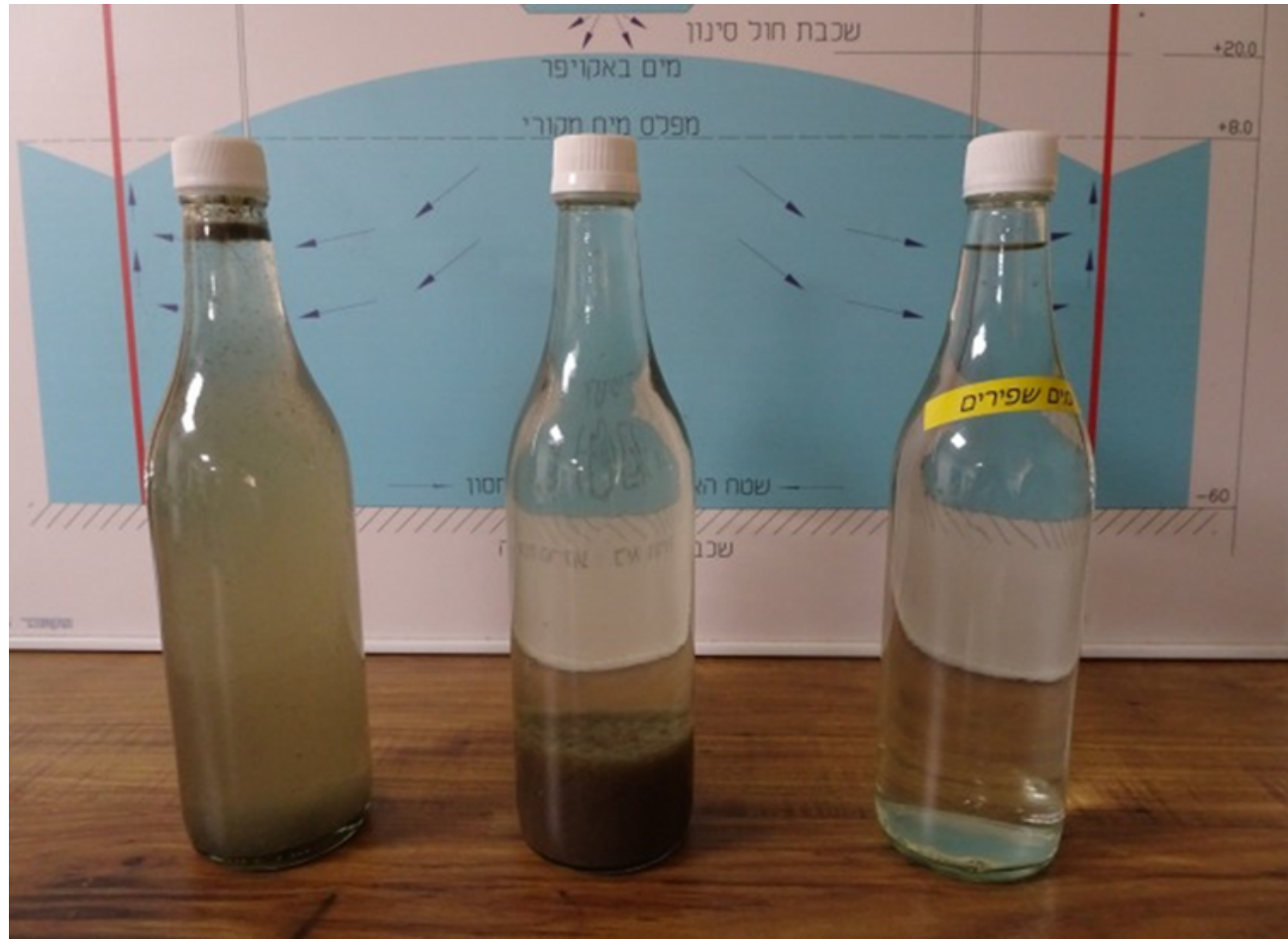
- No synthetic fertilizers
- Positive impact on the quality of **drainage water**





# ALTERNATIVE WATER RESOURCES

## REUSE OF TREATED WASTEWATER



Recovered and treated wastewater  
=> Possibility to **irrigate 40 million ha**  
of agricultural land  
( i.e. 15% of the total irrigated area,  
compared to only 2 to 7% today)

## A paradigmatic example: Israel

Wastewater reuse rate: 80%  
**71% for agricultural irrigation**

The country has embarked on a **proactive policy**:

- Pooling the cost of water treatment
- Quotas
- Progressive tariffs
- Increase in the Price of water for agricultural use (68% between 1995 and 2005) etc.



# ALTERNATIVE WATER RESOURCES

## DESALINATION OF SEAWATER

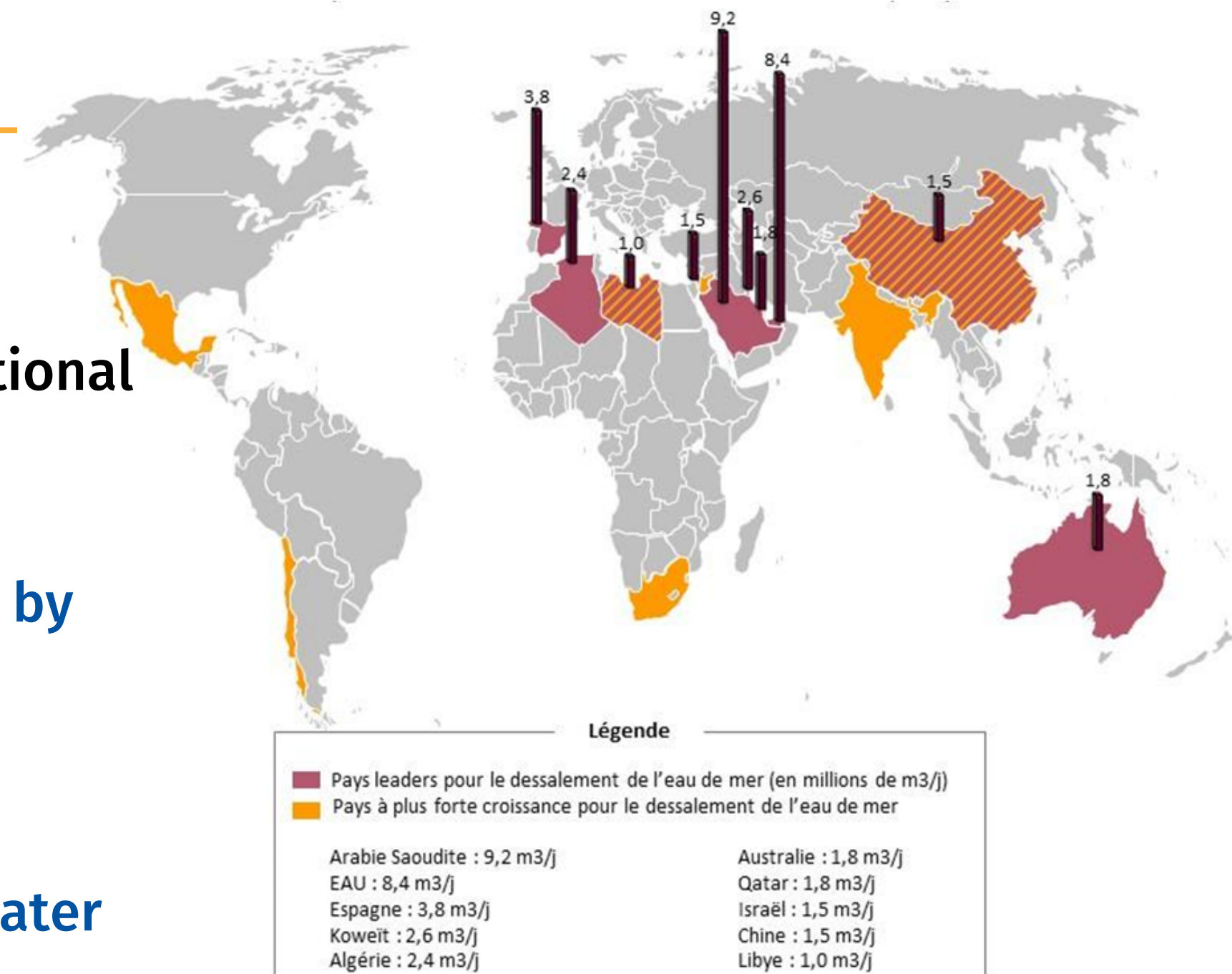
In 2022, + 21,000 seawater desalination plants were operational worldwide, almost twice as many as ten years ago

Production of desalinated water should more than double by 2030

Desalination can maintain irrigation in regions highly dependent on agriculture by helping to conserve groundwater withdrawals

**Other alternatives**

- ARTIFICIAL GROUNDWATER RECHARGE
- WATER TRANSFERS BETWEEN BASINS







# **A Necessary Mediterranean Water Revolution**

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# Necessary Transitions and Paths for Regional Cooperation



- **Deep reforms** & significant improvements in **water management** methods and techniques
- Sustainable **Policy Dialogue**
- Strong Regional **Cooperation System**

are needed to reduce uncertainty on water availability, and food security in the Mediterranean Region and to contribute to a sustainable and balanced development



# No single answer, No opposition between Actors and Solutions

- Co-construction of **Mediterranean Multi-Actor Initiatives** and Platforms
- **Scientific cooperation**, Research & Sharing knowledge (IO, Academia, Research Centers, Agri-food Systems actors...)
- Investment in **New Technologies and Social innovations**
- **Training in Mobility** in particular for the new generation
- Community **Capacity Building** & Popularization





# MARE NOSTRUM

The Mediterranean area must be thought of as a **meta-watershed** to be organized, particularly in terms of **agricultural complementarity** and **water cooperation**.

There is an urgent need to consider our **interrelationships** in terms of solutions:

- upstream/downstream,
- cities/countryside,
- water-rich/water-poor countries...



*Water scarcity gives us the **unique opportunity** to review production and consumption **paradigms** and explore the potential of **Mediterranean solidarity and complementarity** in food and water security.*



# OBRIGADO

