MALTA RESOURCES AUTHORITY

FRESHWATER AVAILABILITY IN THE MEDITERRANEAN REGION

a constraint to regional sustainable development

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Important Notice

This presentation contains slides that may cause some concerns. It is suggested that you recall such slides when using water in your daily life.

Outline

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  - Conditions
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  - Over-Exploitation
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- Impacts
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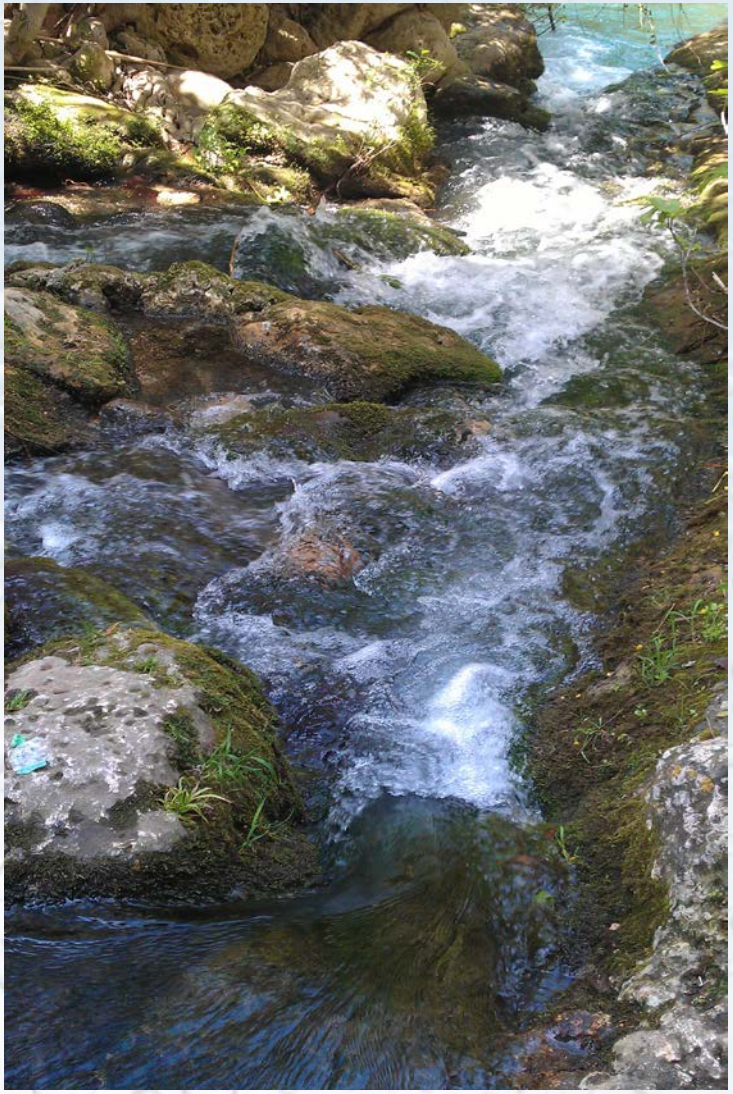
  - Conflicts
- Outlook
  - Resource Management
  - Demand Management
  - Use of Economic Instruments
- Conclusion



Background (1)

THE MEDITERRANEAN REGION

Land-area:

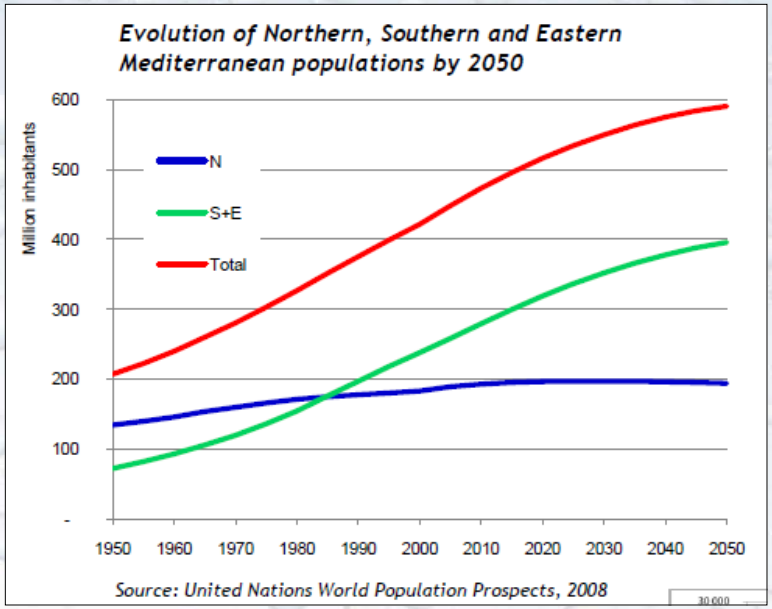
22 countries and territories bordering the Mediterranean Sea.
The Mediterranean Coastal Region comprises 12% of their surface area but includes 33% of their populations.

Demographics:

428 million inhabitants in 2000, projected to rise to 523 million by 2025.
Major increases envisaged in the South and East of the Region.

Tourism:

218 million tourists visited the region in 2000.



Background (2)

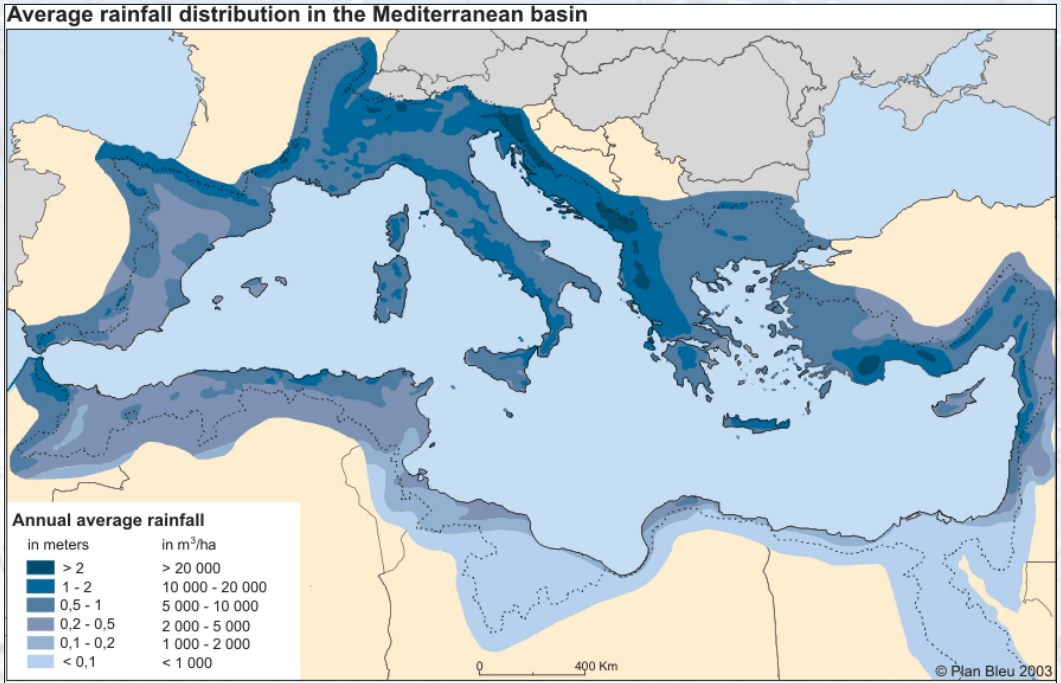
DIVERSE CONDITIONS

IRREGULAR AREAL DISTRIBUTION

Two thirds of the precipitation of the region is concentrated in one fifth of the basin's area.

IRREGULAR TEMPORAL DISTRIBUTION

High intra-annual variability, with summer droughts corresponding with the highest periods of water demand (tourism and irrigation)

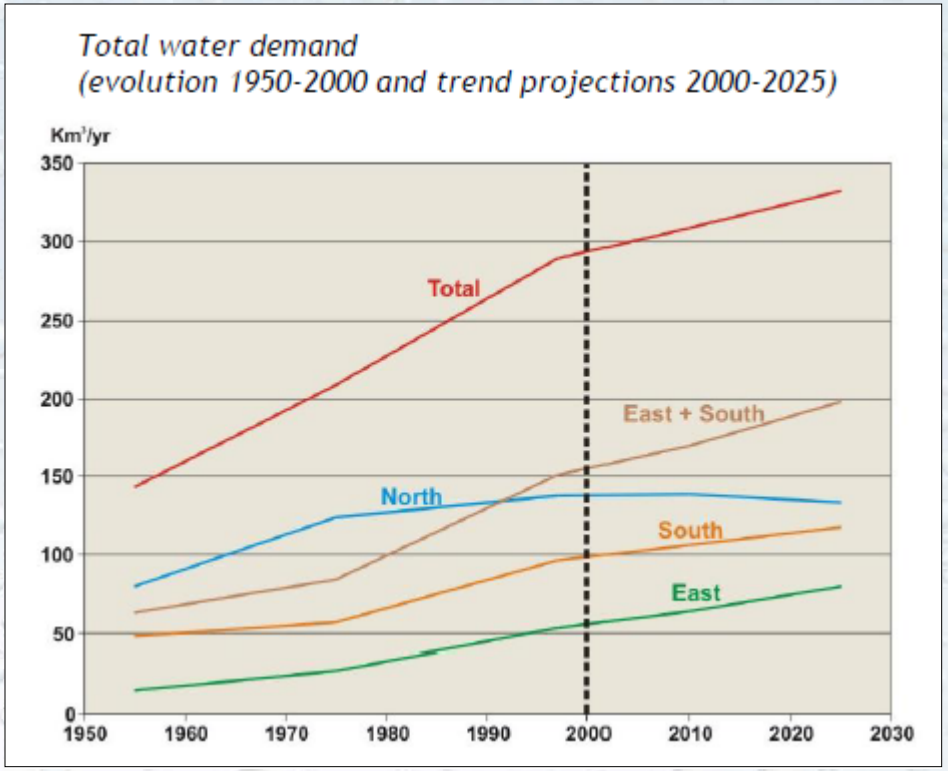


Background (3)

GROWING DEMANDS

Total water demand in the region is estimated at 300km^3/year, increasing to 340,km^3/year by 2025. Main increases are projected in the south and east of the region.

The sector with the highest demand is agriculture (65% of total demand), followed by drinking water supply and the industrial/energy sectors.



Background (4)

GROWING DEMANDS

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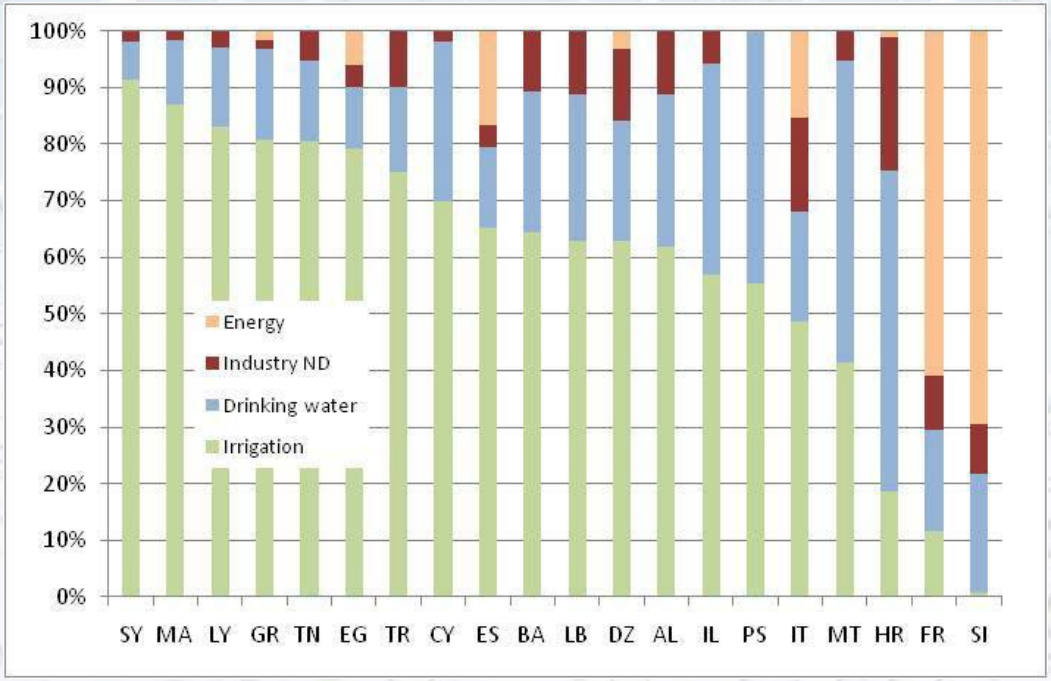
Water demand by sector (period 2005-2010)



Source: Plan Bleu from national sources

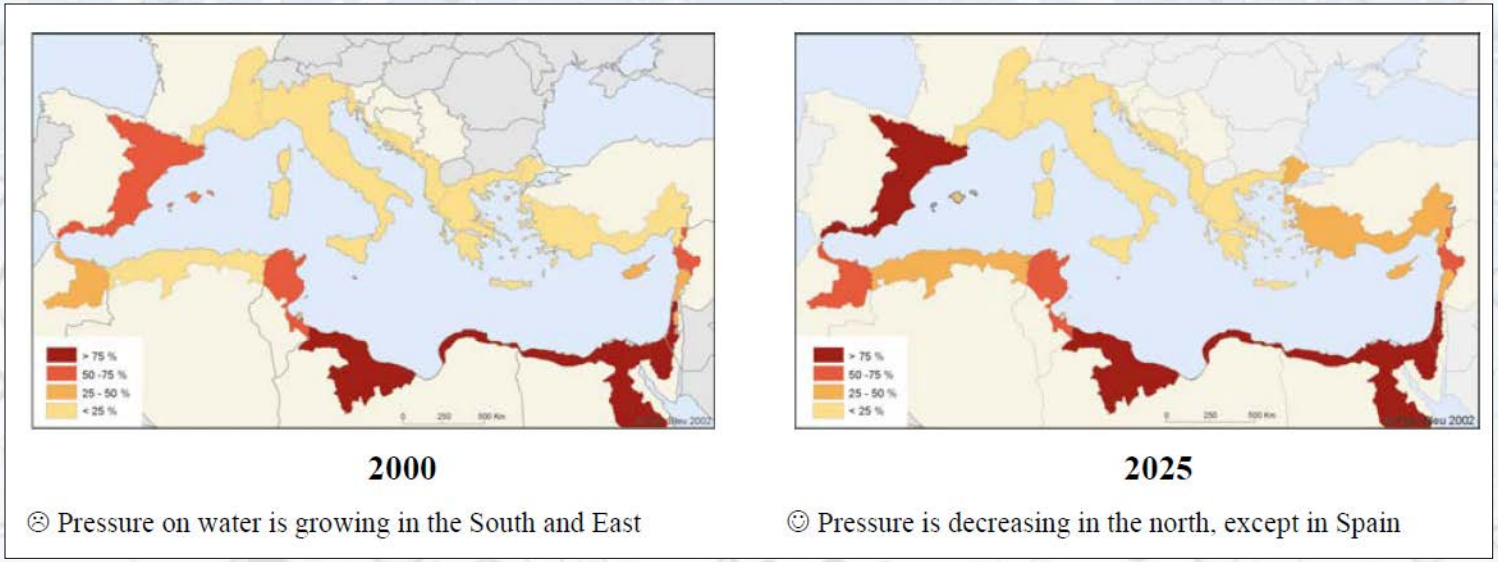
Pressures (1)

INCREASING WITHDRAWALS

The stress on natural water resources can be gauged by the 'exploitation index' of renewable water resources.

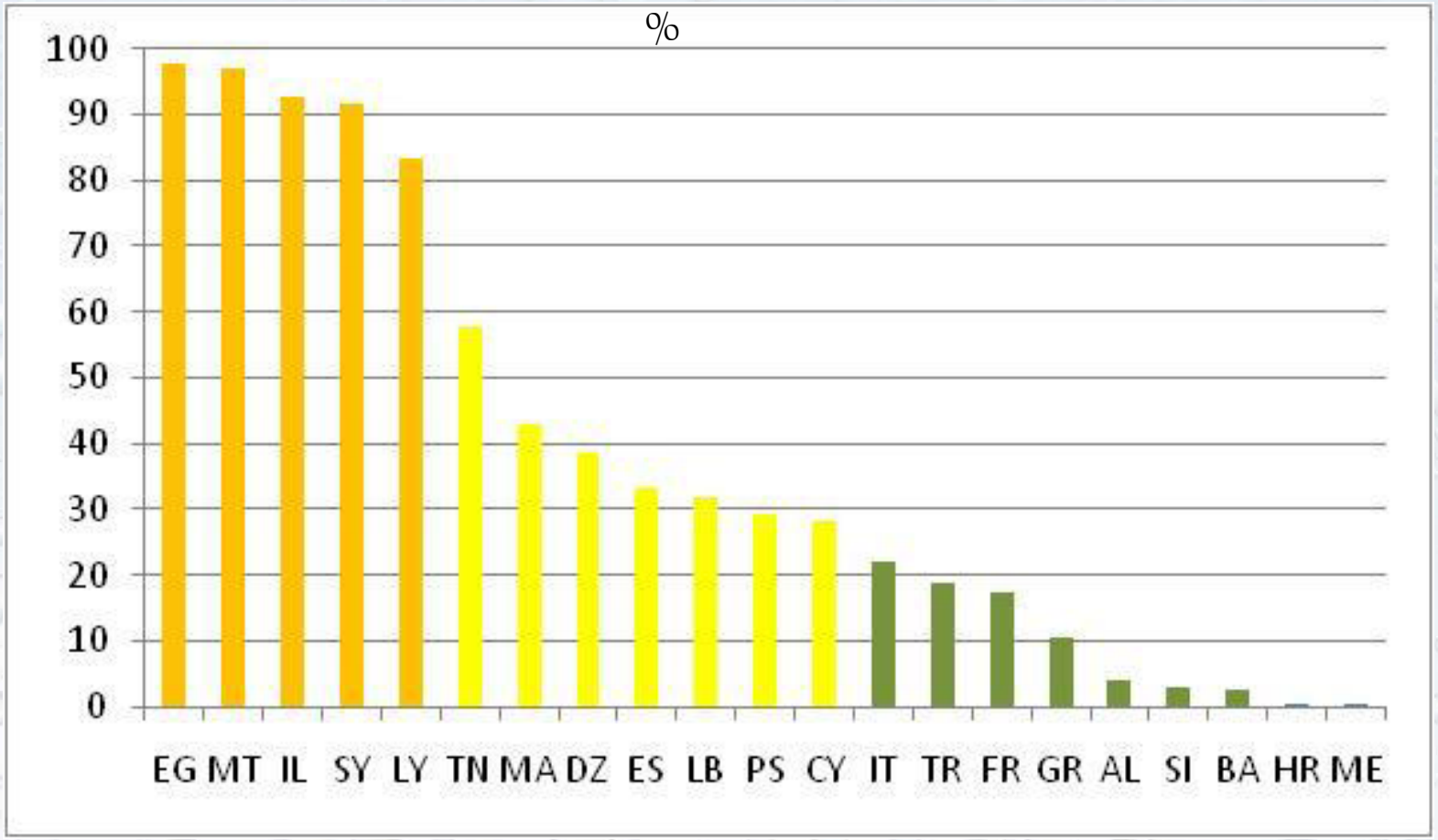
The level of pressure that human activity exerts on the natural water Resources.

WEI = (Abstraction –Returns)/Renewable Water Resources



WEI

Exploitation Index of renewable natural resources along the period 2005- 2010 in



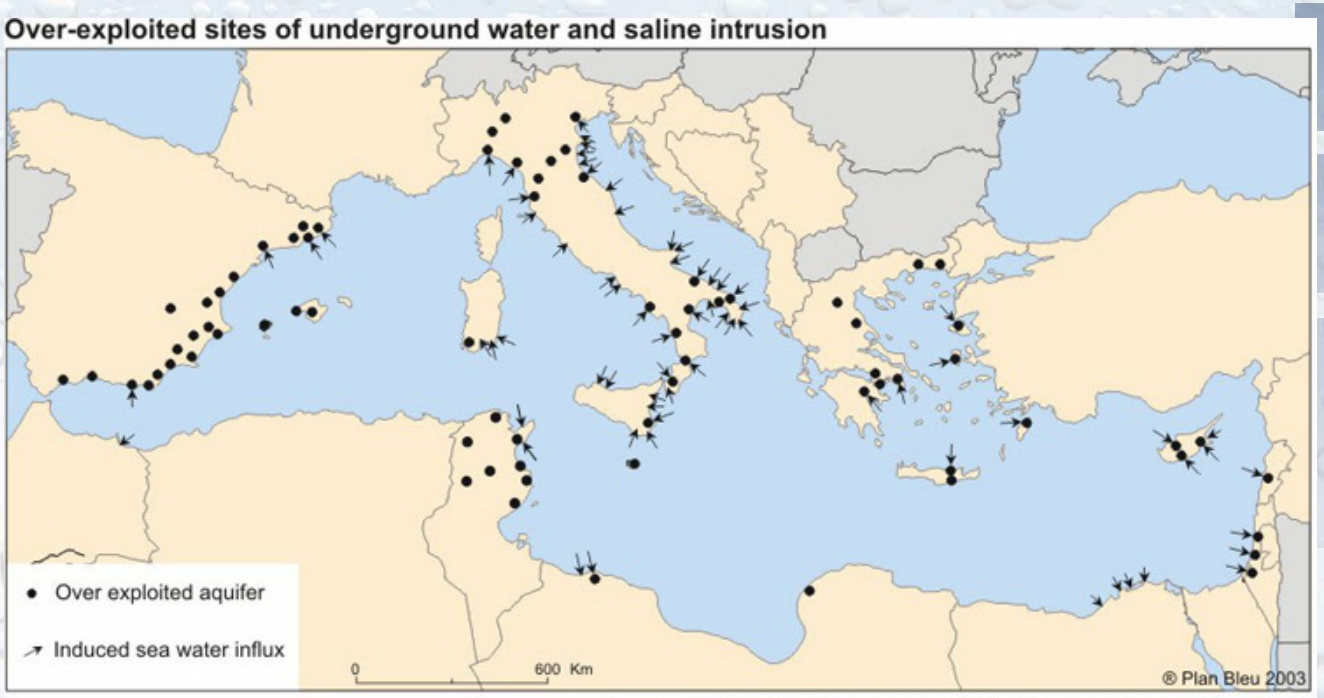
Source : Plan Bleu from national sources

Pressures (2)

UNSUSTAINABLE EXPLOITATION

Increasing water demands, generally lead to overexploitation of underground waters.

In coastal areas, falling groundwater levels lead to the intrusion of saline waters.



Source : RIVM RIZA 1991. Sources nationales compilées par le Plan Bleu.

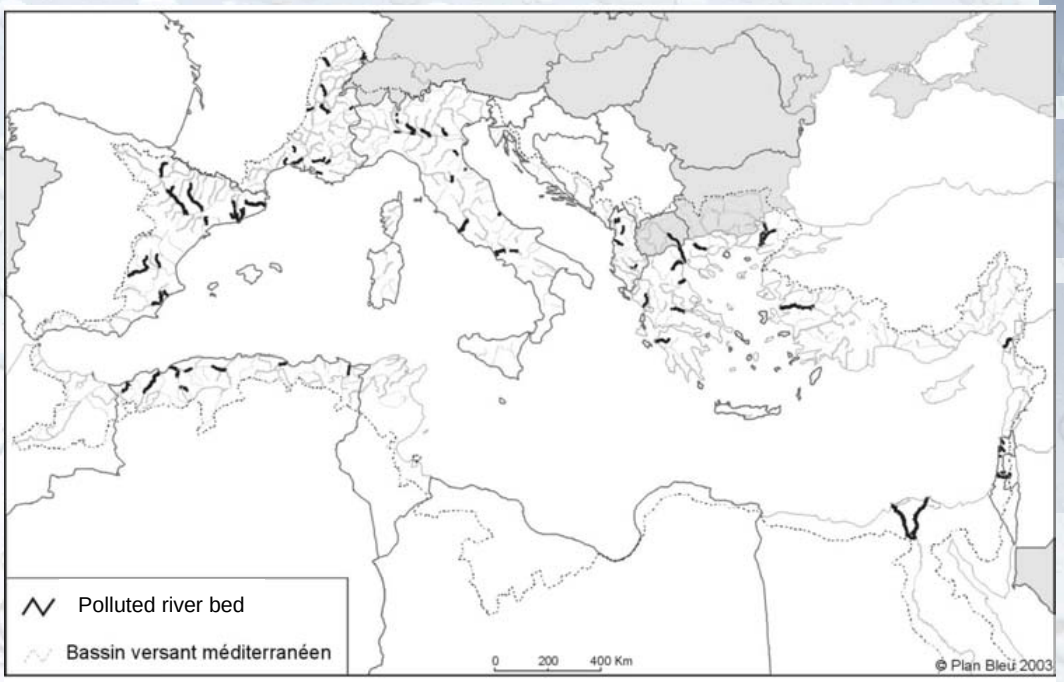
Pressures (3)

DEGRADATION IN QUALITY

Qualitative issues are also important.

Freshwater availability is further threatened by:
(i) discharges of pollutants to freshwater bodies – direct discharges (industrial and domestic wastes), and
(ii) diffuse discharges (fertilizers and pesticides for intensive agriculture).

Pollution further limits the water availability.

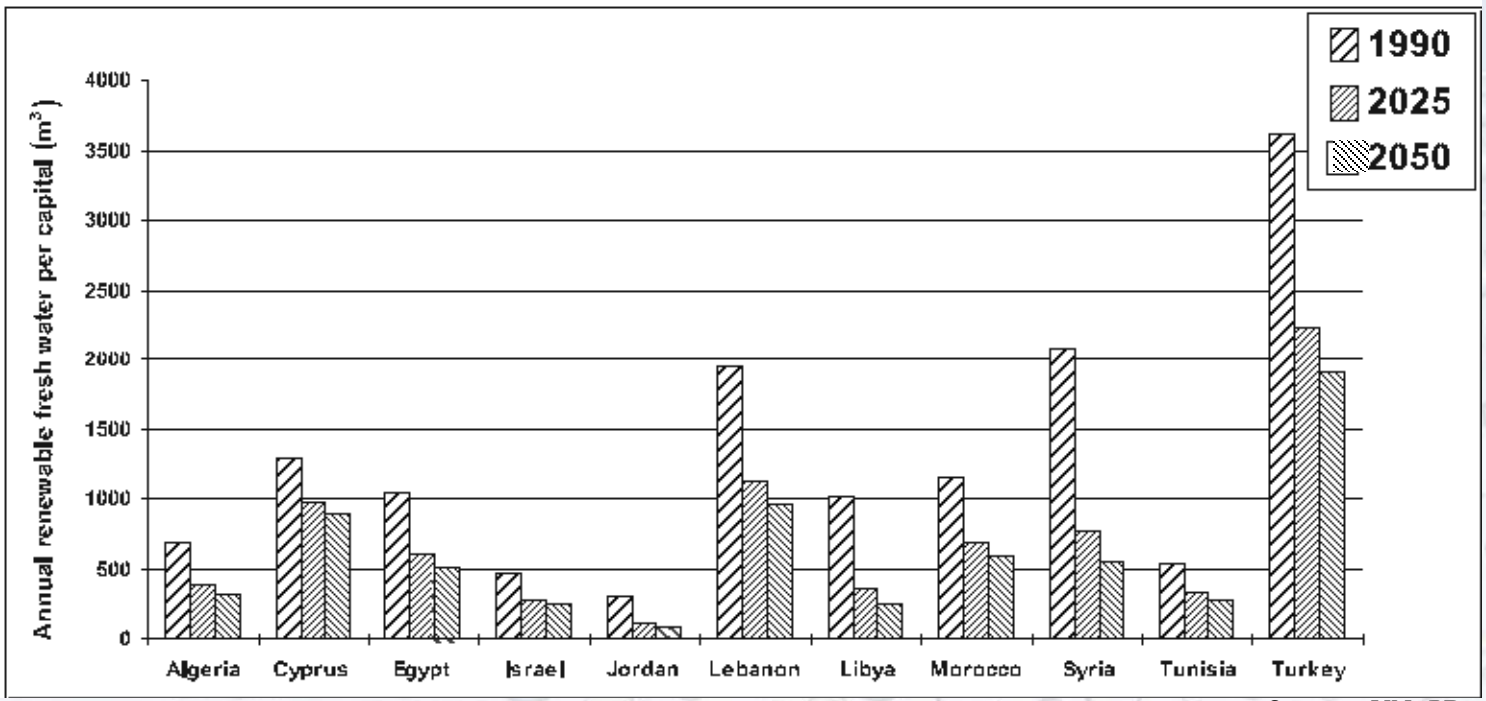


Impacts (1)

ACCESS TO WATER

Stress on natural water resources and increases in pollution limit the quantities of water physically available to meet additional increases in demand.

Increasing populations in water stressed regions will result in significant decreases in the volume of freshwater availability per capita.



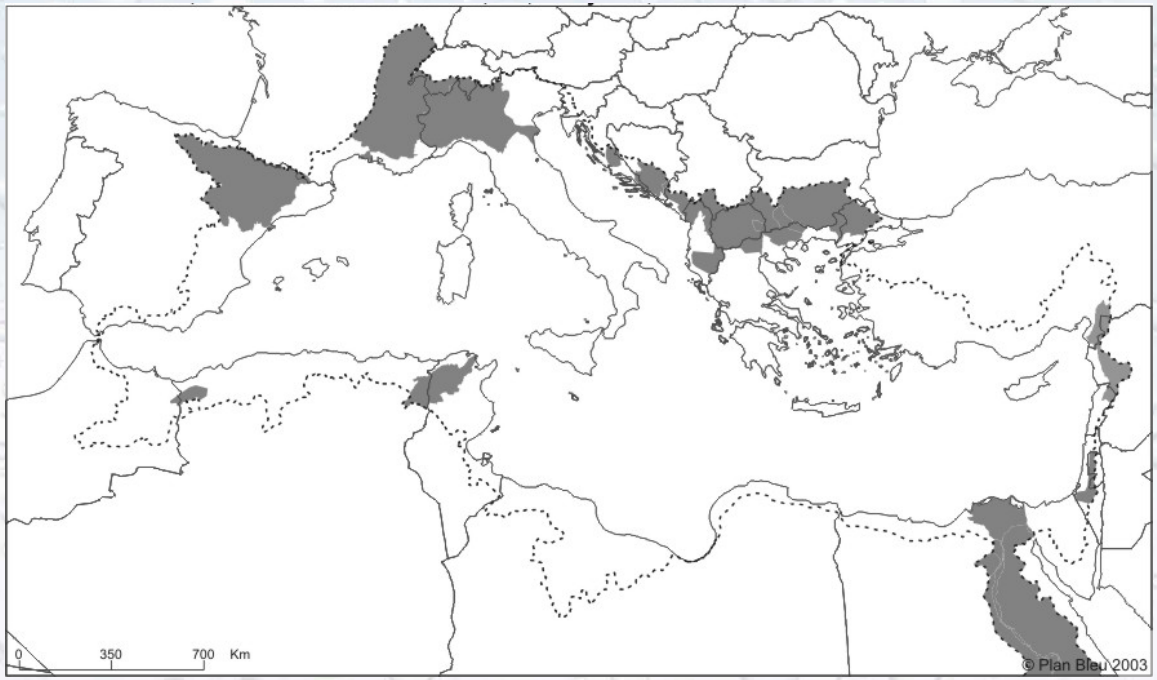
Source – UN- PD

Impacts (2)

CONFLICTS

Tensions over water resources may also increase conflicts:

- **between users of the same resource,**
- **between the main categories of water users, and**
- **between regions or even countries**



Outlook (1)

IMPROVING RESOURCE MANAGEMENT

Improved protection of freshwater resources

- **Effective monitoring and regulation of withdrawals**
- **Effective regulation of waste disposals**

Improved understanding of the 'functioning' of freshwater bodies can lead to an improved and sustainable exploitation, which whilst maximising yields will ensure the protection of the same freshwater bodies and the ecosystems which they sustain,

Such an approach is engrained in the Water Framework Directive.

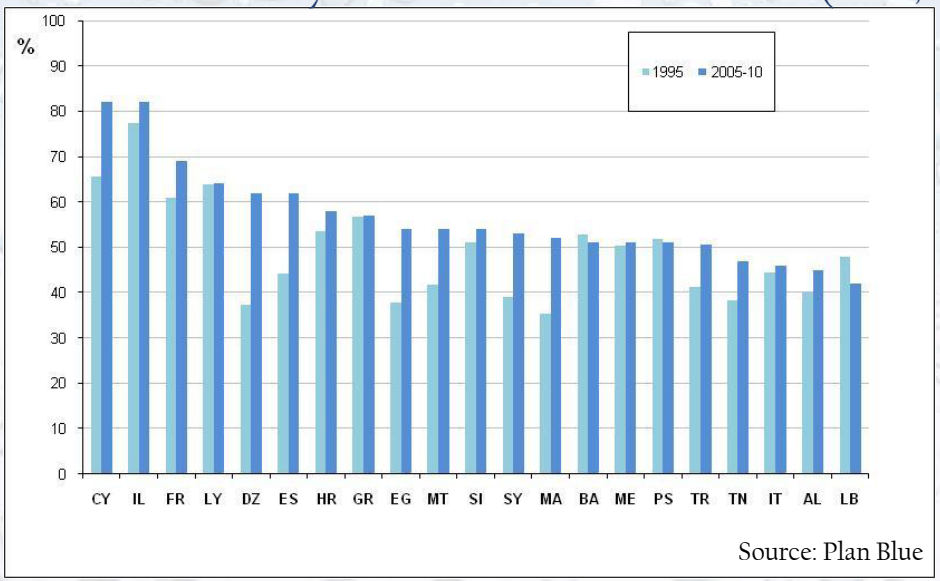
Outlook (2)

IMPROVING DEMAND MANAGEMENT

Improving efficiency in the use of water by all sectors (domestic, industry, agriculture).

In 2005 Plan Bleu estimated that water losses in the Mediterranean which could be limited by better management, represented 25% of the demand (estimated at over 280km3).

Total water use efficiency in Mediterranean countries (1995, 2005-2010)



Source: Plan Blue

Outlook (3)

IMPROVED USE OF ECONOMIC INSTRUMENTS

Economic Instruments such as pricing, quotas, subsidies and taxes are still rarely used in the Mediterranean region.

Such instruments can however be used for inducing efficient use of water resources.

The implementation of the Water Framework Directive in the EU Mediterranean countries is a step in the right direction.

Conclusion (1)

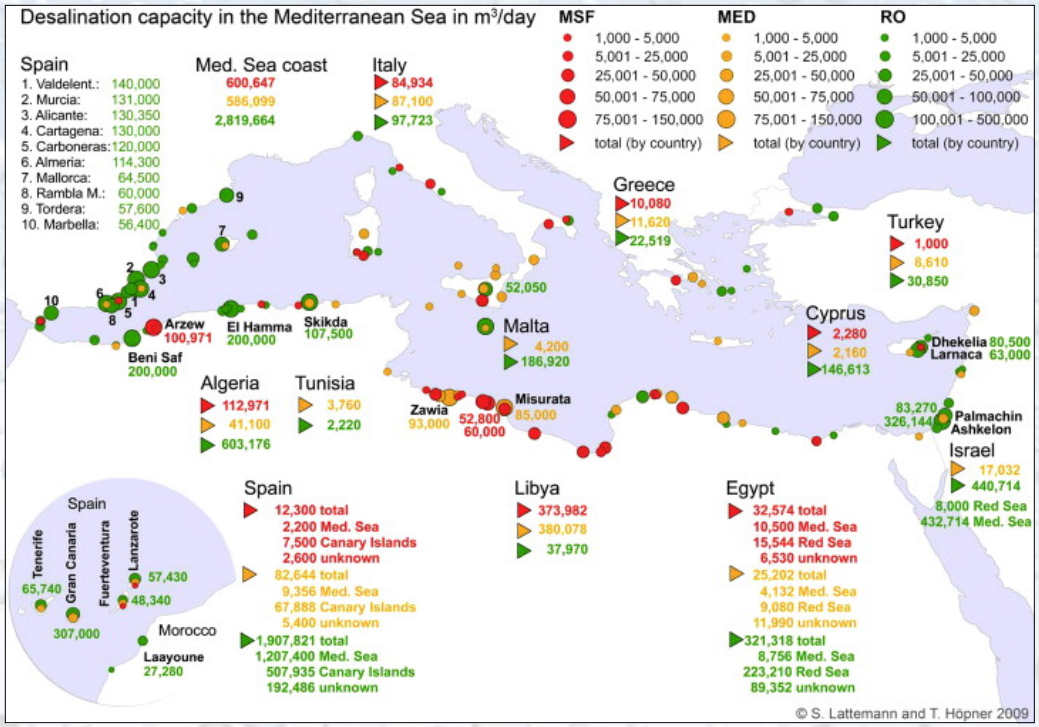
Technological advances have opened-up options for the 'production of water'.

- **Desalination**
- **Wastewater treatment and re-use**

Important to note that:

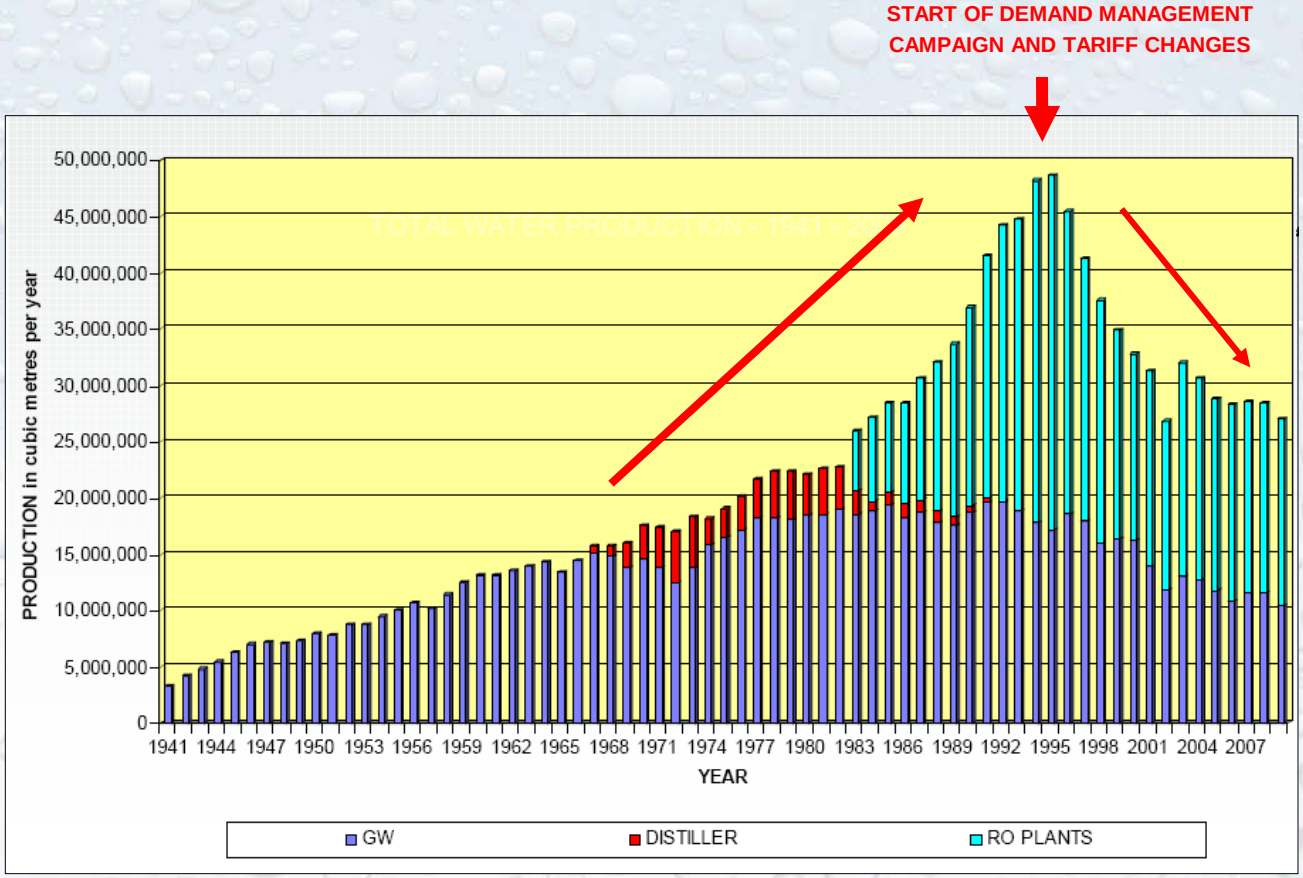
1)The use of these new resources can reduce the importance of protecting and using efficiently natural water resources.

2) The use of such technologies is energy intensive



Conclusion (2)

Improved water efficiency should thus be one of the main responses of the region for reducing the pressures on water resources.



Thank you