Conseil économique et social européen
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Unsustainable development trends and alternative scenarios for the Mediterranean Basin

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Plan Bleu

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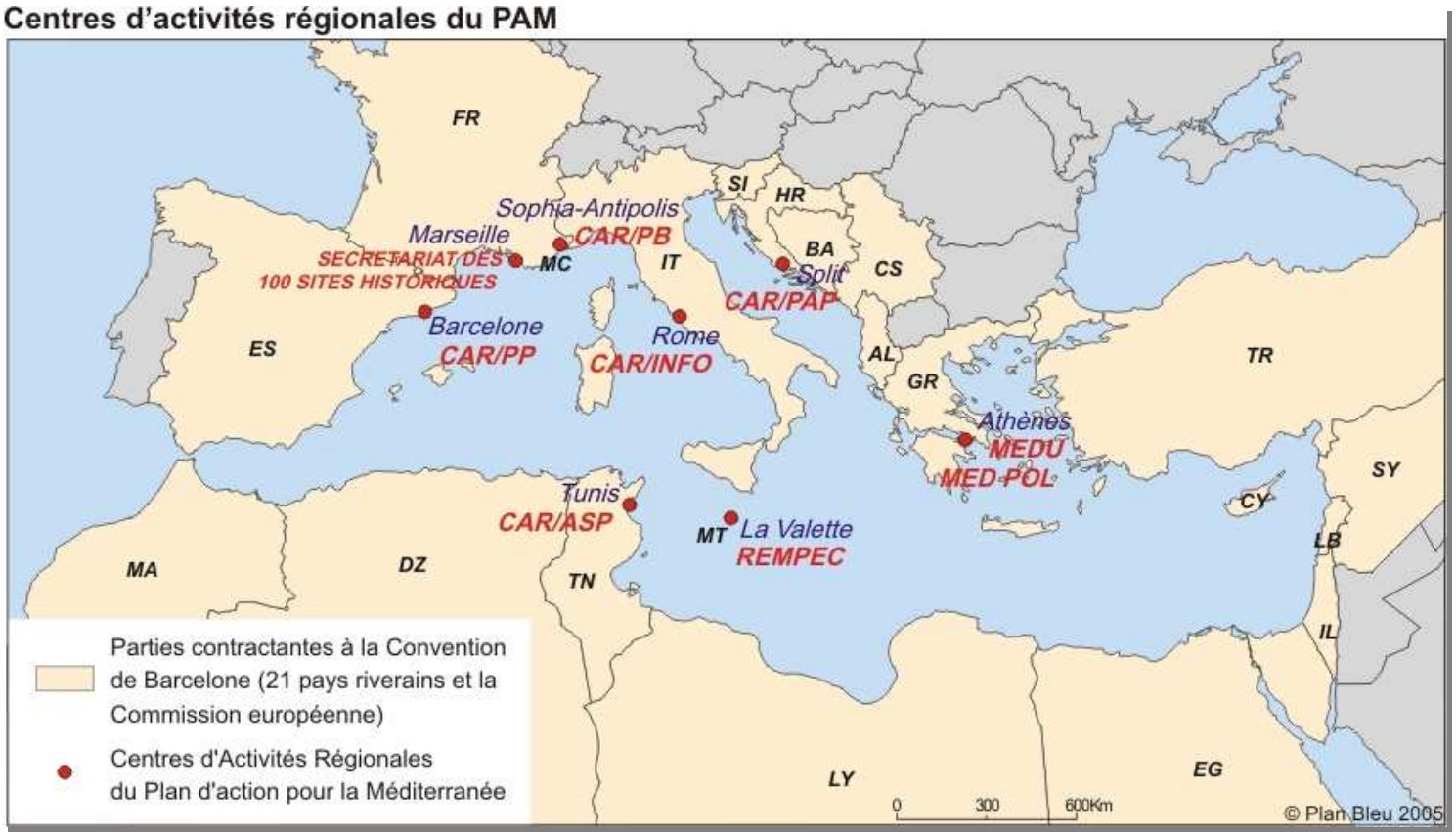

The Regional activity centers of the Mediterranean Action Plan

A Regional Activity Center of the UNEP/Mediterranean Action Plan

- Created 30 years ago as a systemic and prospective reflection centre in the Mediterranean,
- Connected to the Mediterranean Action Plan (MAP), one of the UNEP regional seas programmes
- Meant for assisting the 21 Mediterranean-rim countries, Contracting Parties to the Barcelona Convention, the MAP regulatory instrument

Alert stakeholder and decision makers for decision to be enlightened

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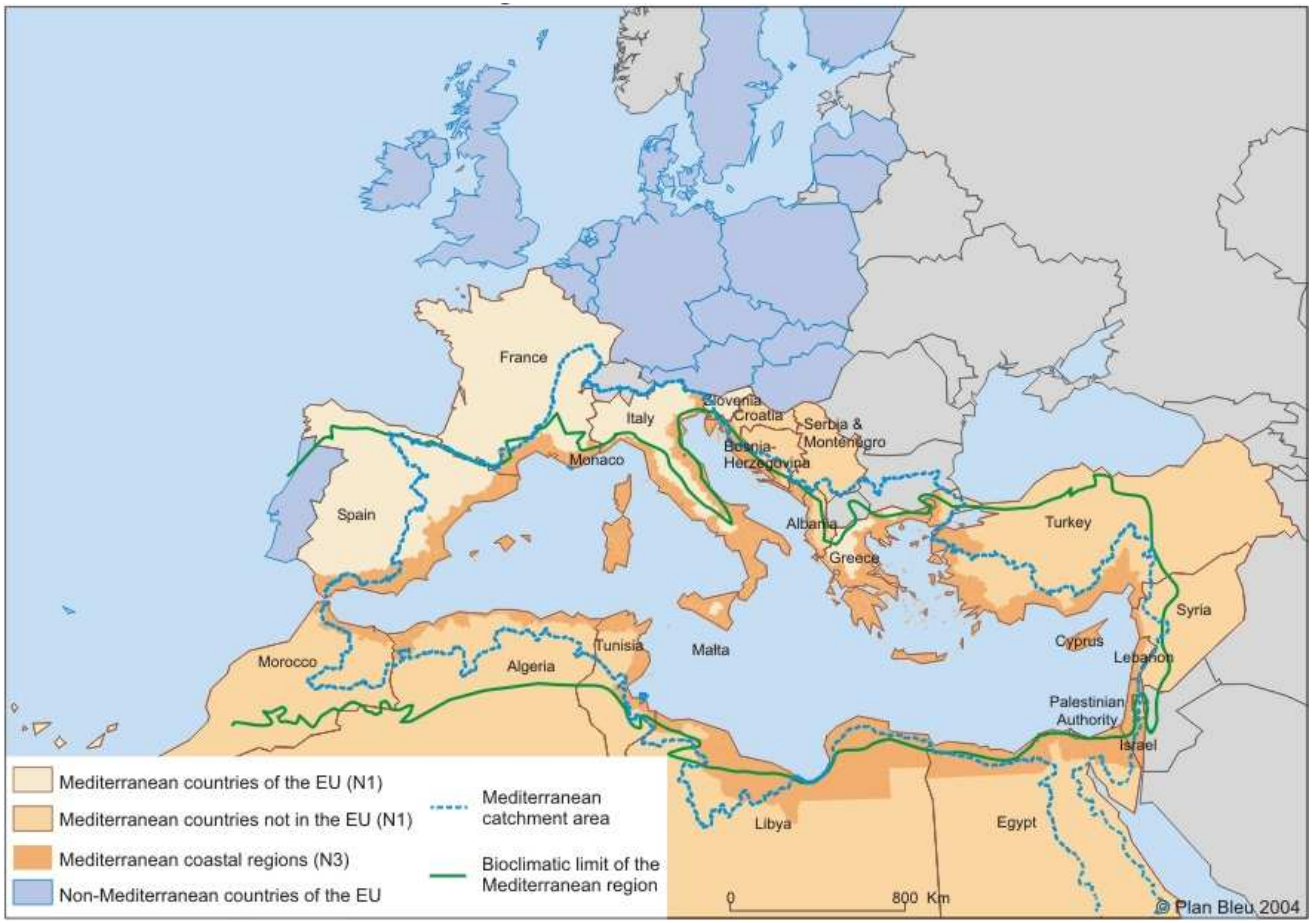
A multi-dimensional Mediterranean area



- 21 countries and the EU, Parties to the Barcelona Convention
- A shared responsibility on their common good : the sea and coastal areas

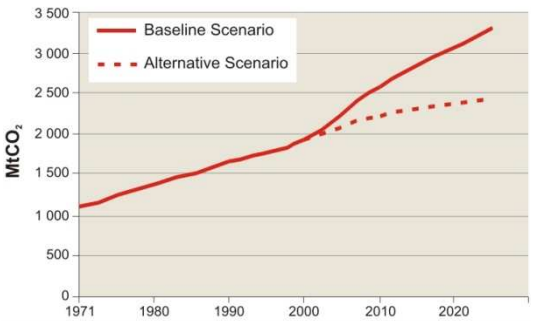
Logical framework

- Changes underway:
  What will be the Mediterranean Basin in 2025?
  - ✓ Population changes
  - ✓ North/South gap
- Focus on 6 issues: What are the risks of ongoing trends?
  Which alternatives to reconcile development with the environment?

Water

Energy

Transport



Urban Areas

Rural Areas

Coastal Areas

- Choosing another future:
  What national and regional cooperation policies for curbing trends?

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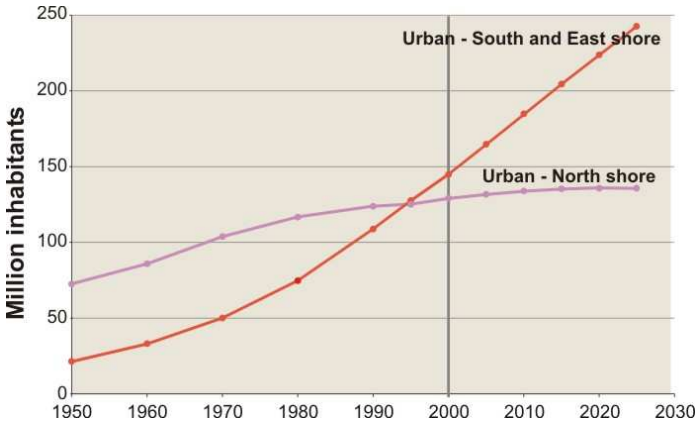
Drastic population changes

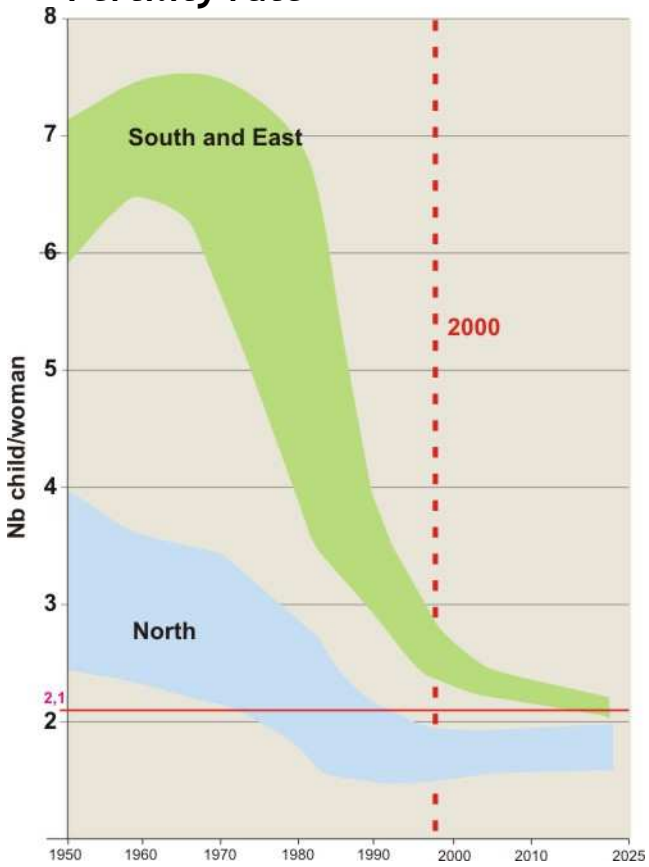
Population trends, million inhabitants

	1970	2000	2025
North rim countries	169	193	197
South and East rim countries	116	234	**327**
Total Med	285	427	524

Urban population



Fertility rate

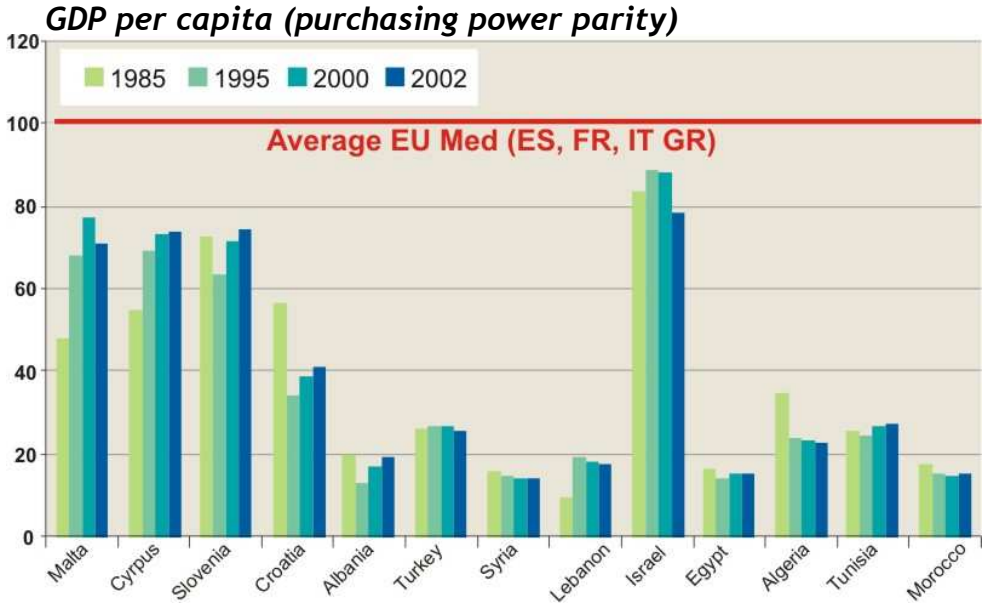


By 2025:

- ✓ 75% living in cities
- ✓ + 100 million urban in South and East

North/South gap

Per capita income gaps not reducing:



Source : WDI

High unemployment levels among the young:

- ✓ 30% in South and East, 34 million jobs needed by 2020
- ✓ 20-27% in Spain, France, Italy and Greece

By 2025, risk of accentuated North/South divide:

- ✓ North shore countries integrated in the EU
- ✓ Insufficient North-South and South-South cooperation

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Unsustainable trends and risks for the future

Four examples

of particular pressures exerted on limited/fragile natural resources in the Mediterranean:

- ✓ **Climate Change**
- ✓ **Water**
- ✓ **Energy**
- ✓ **Coastal Areas**

Which alternative paths?

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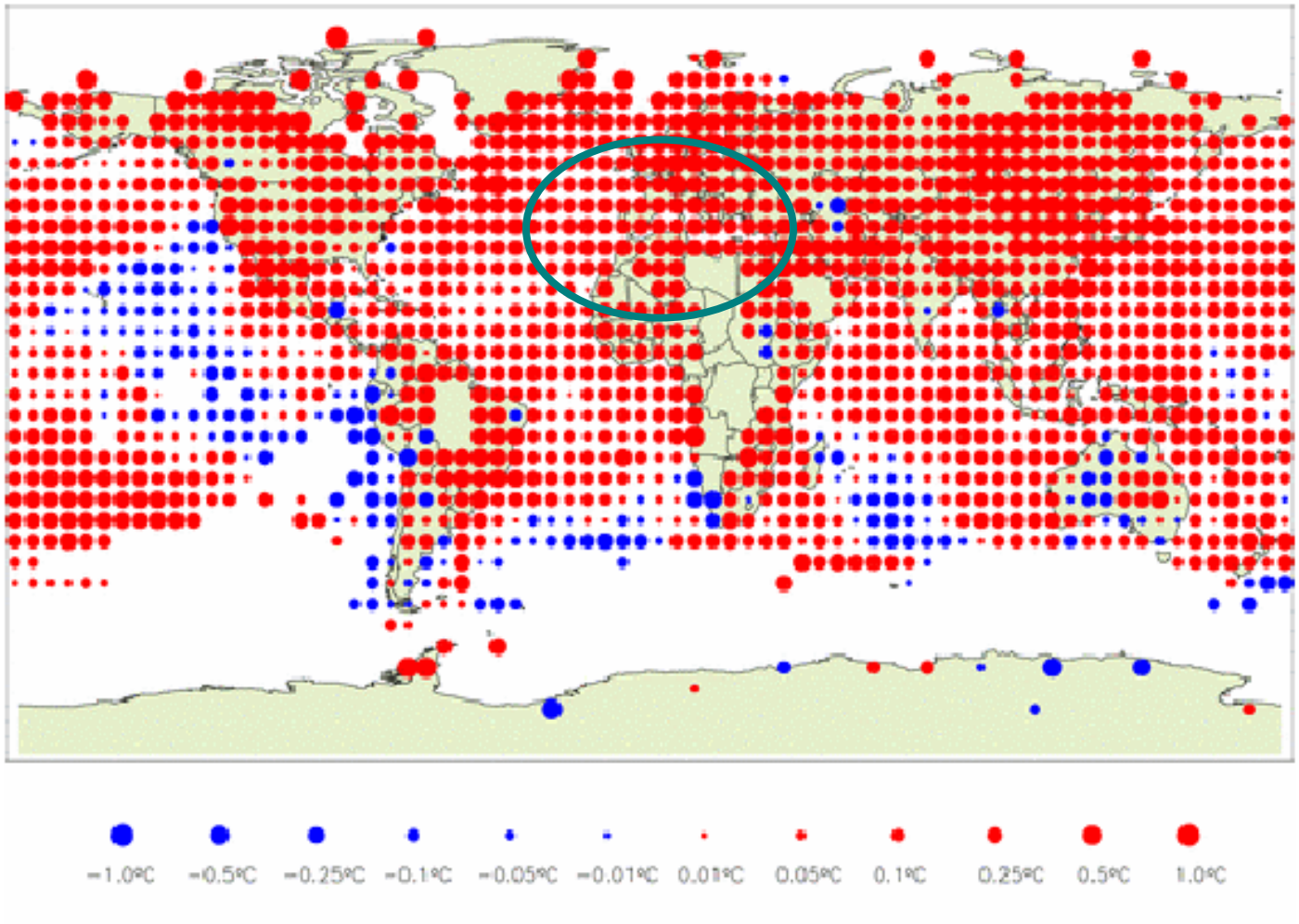
Evolution of observed temperatures : 1979 - 2003



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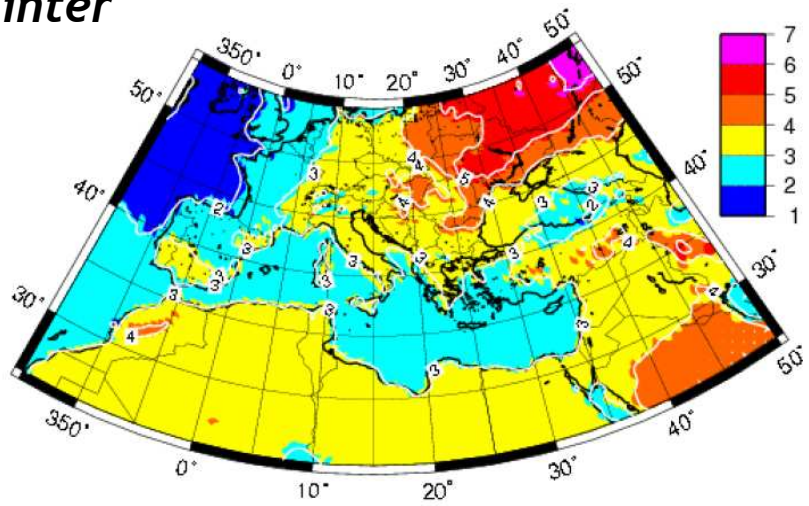
The Mediterranean: a critical area

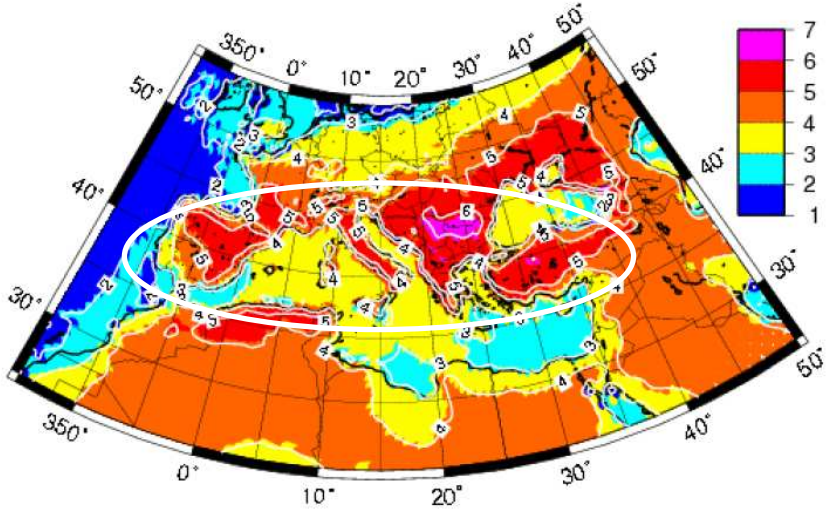
Air temperatures (°C): 2070-2099 vs. 1961-1990

On the basis of AORCM

Winter



Summer



(Somot and al., 2007)

- ✓ *The Mediterranean region is projected to warm under all scenarios in all seasons at rates higher than the global average.*
- ✓ *The warming appears particularly pronounced in the summer season, when it can exceed 5 degrees in the last decades of the 21st century for the high GHG emission scenarios.*

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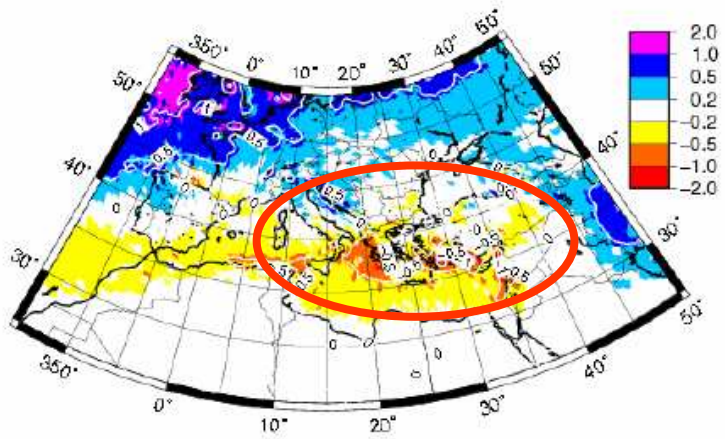
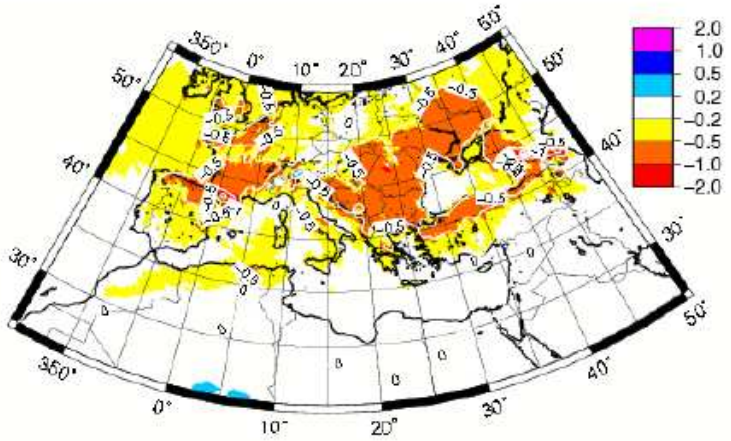
The Mediterranean: a critical area

Precipitation (mm/d): 2070-2099 vs. 1961-1990
using AORCM

Winter



Summer



(from Somot et al., 2007)

- ✓ *In winter precipitation is projected to increase in the northern Mediterranean areas (e.g. the Alps) and decrease in the southern Mediterranean.*
- ✓ *In the summer the entire Mediterranean is projected to undergo a marked decrease of precipitation, up to 30% in the high GHG emission scenarios.*
- ✓ *A decrease of precipitation is also projected for the spring and fall seasons.*

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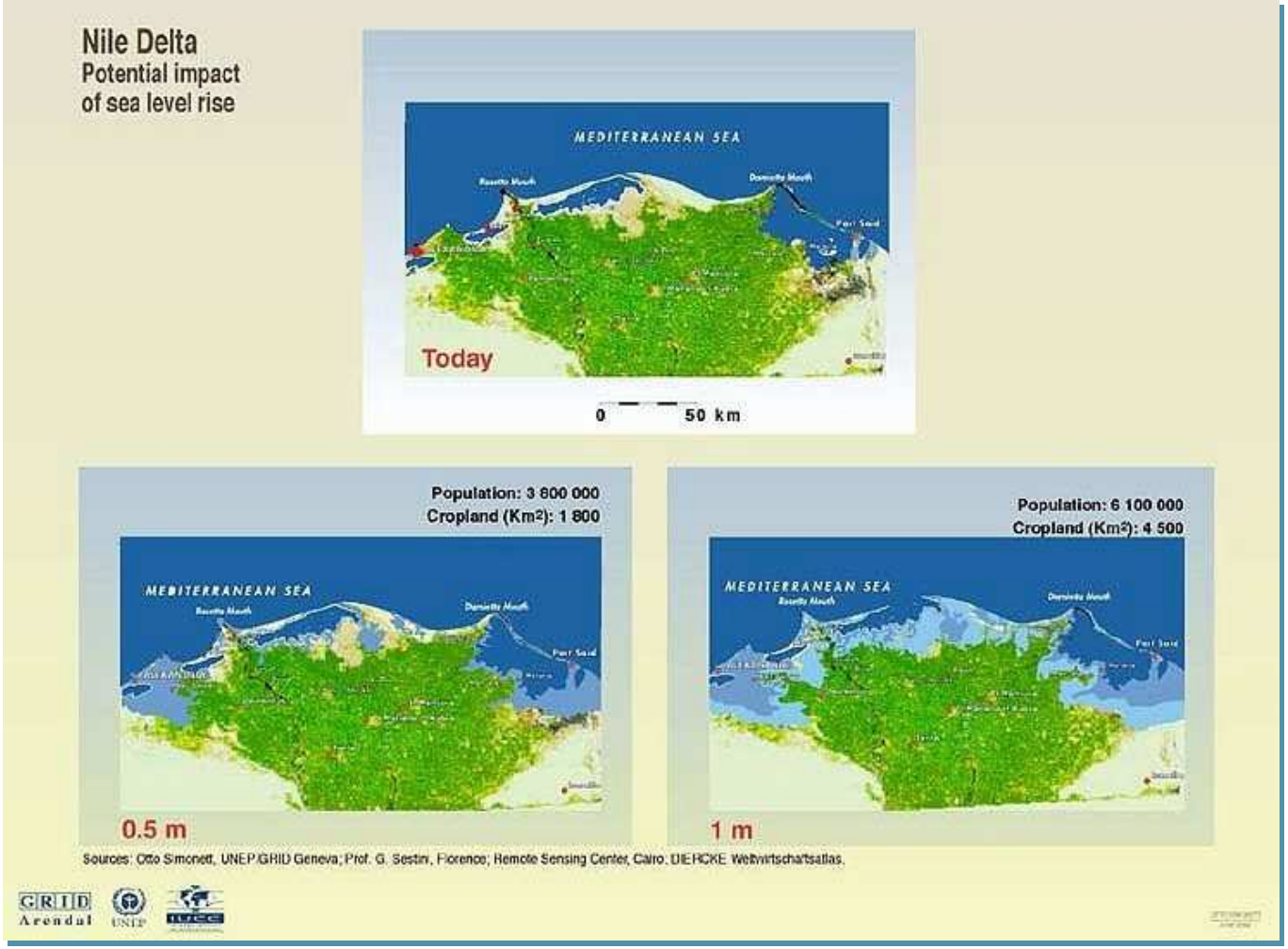
The Mediterranean: a critical area

Impacts of climate change : Sea level rise

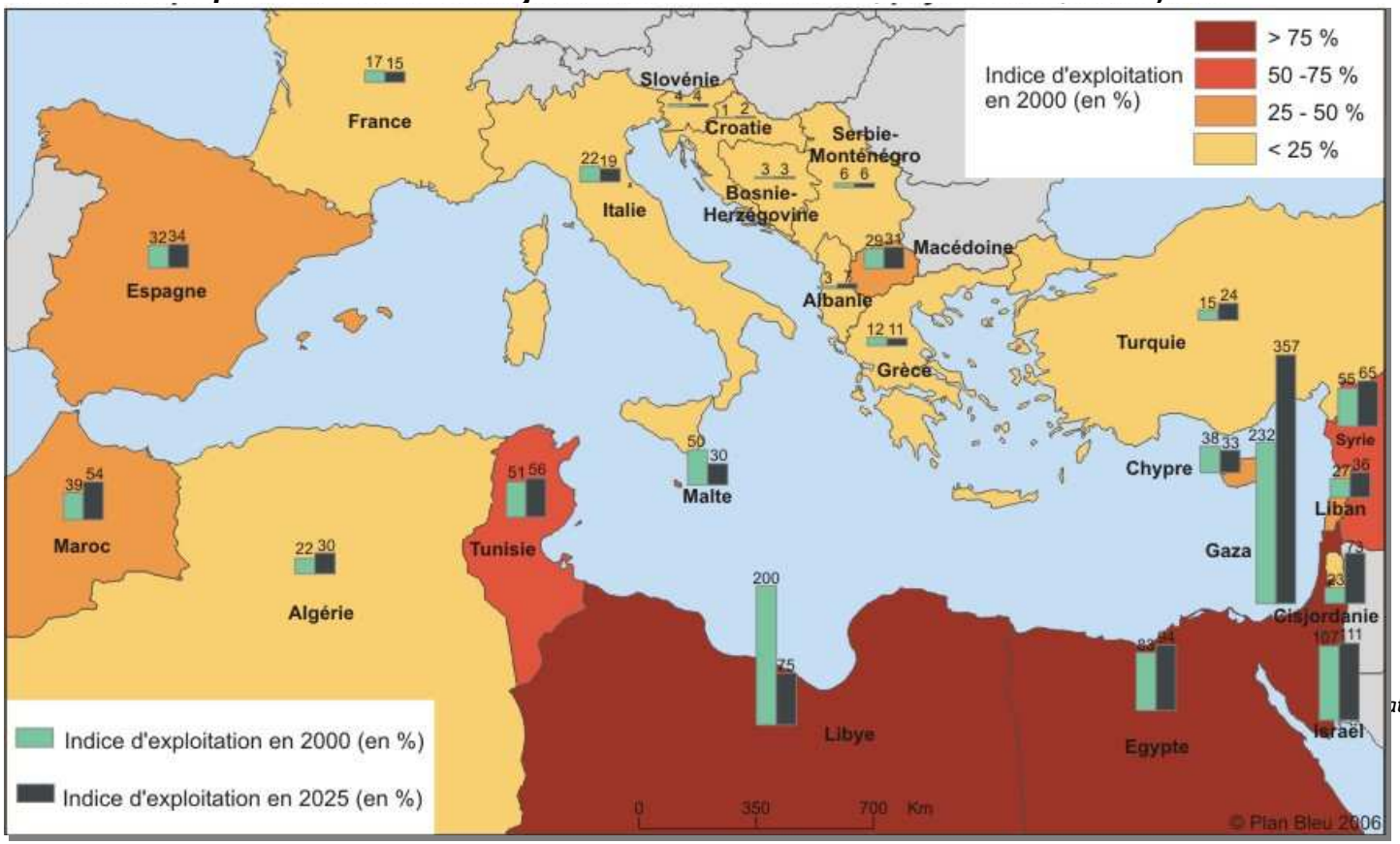


Sea level rise in line with global values (between about 20 to 60 cm by the end of the 21st century for the different scenarios) is expected.

WATER: Growing pressures on natural resources

- 30 million Mediterraneans deprived of access to drinking water
- Agriculture, main water consuming sector (63% of water demand)

Exploitation index of renewable natural water resources, 2000 and 2025

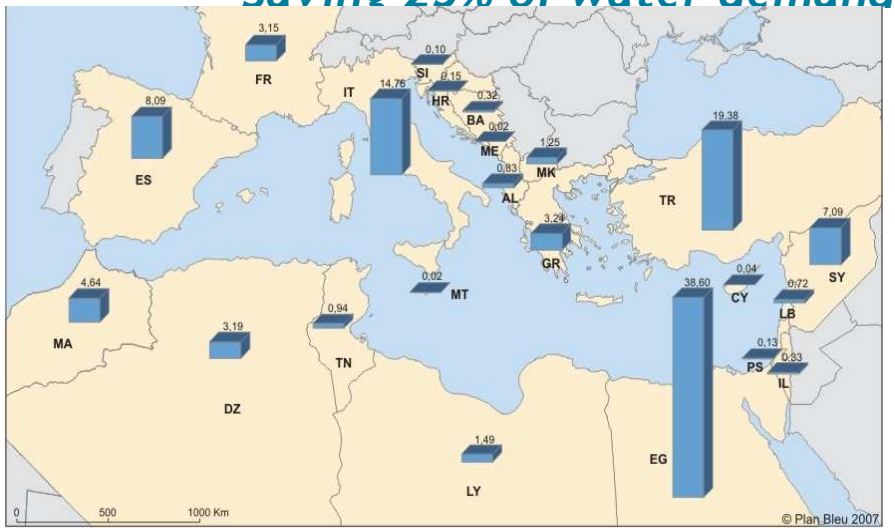


- In some countries, water withdrawals exceed the limit threshold of renewable resources

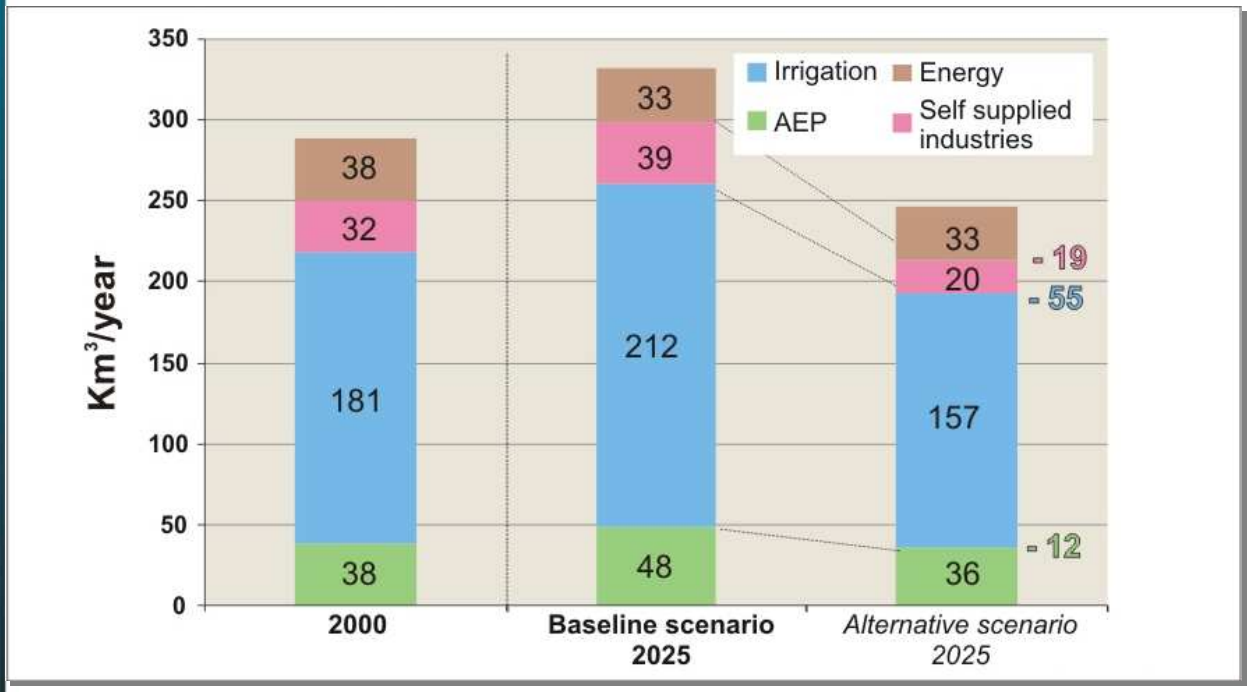
Saving 25% of water demand

Losses & misuses in 2005: ~100 km³/y

35% of total water demand



Water demand: potential savings by 2025

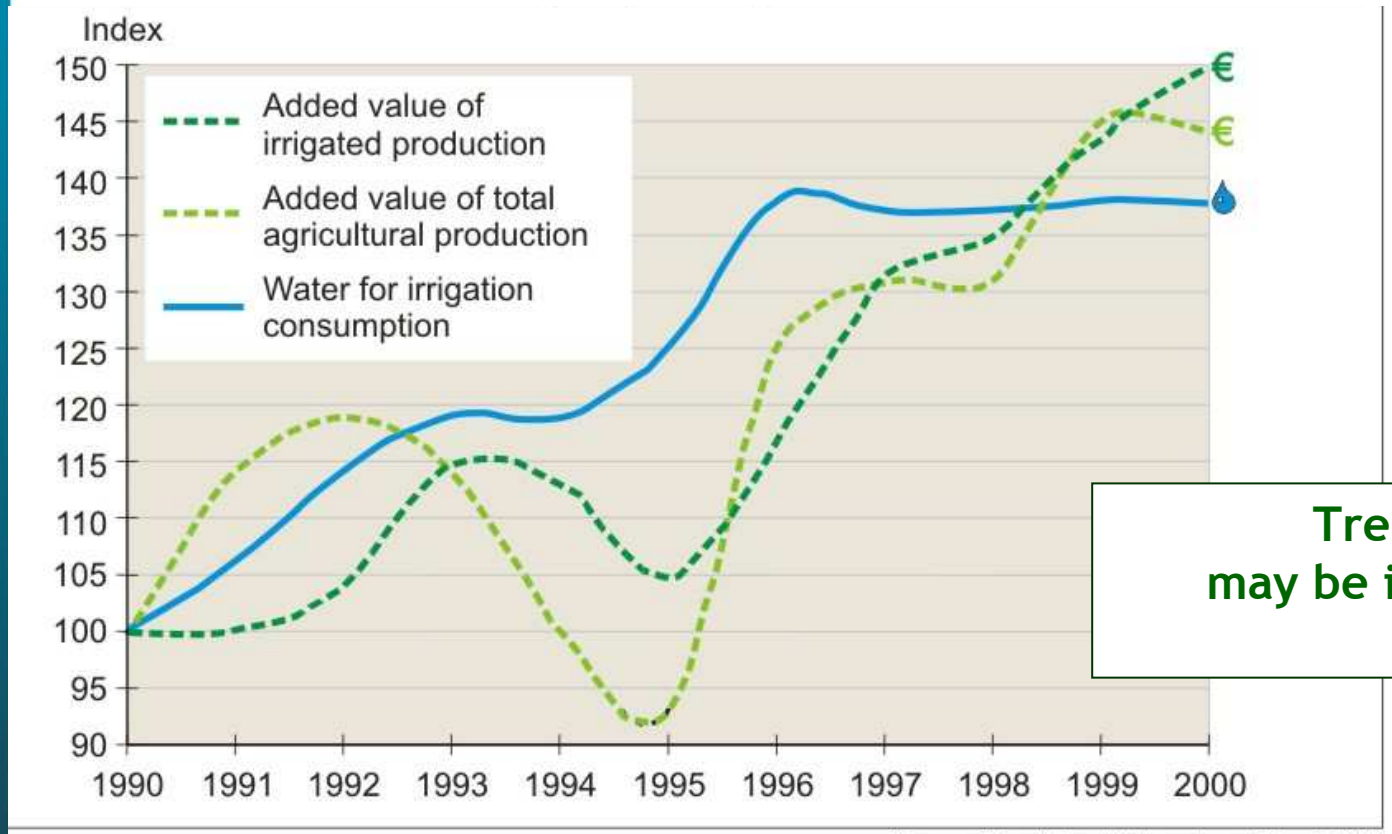


Potential water savings in 2025: 85 km³/y

25% of total water demand

Water: Curbing trends

Example: Agricultural water savings in Tunisia



Source : Plan Bleu, M. Hamdane, Fiuggi, 2002

Trends may be inverted

Water saving strategy for irrigation:

- ✓ creation of user associations
- ✓ progressive cost recovery
- ✓ incentives for water-efficient farming equipment
- ✓ support to farmer revenues

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To reduce unsustainable withdrawals

Successive water recycling

Reuse of treated wastewater for irrigation

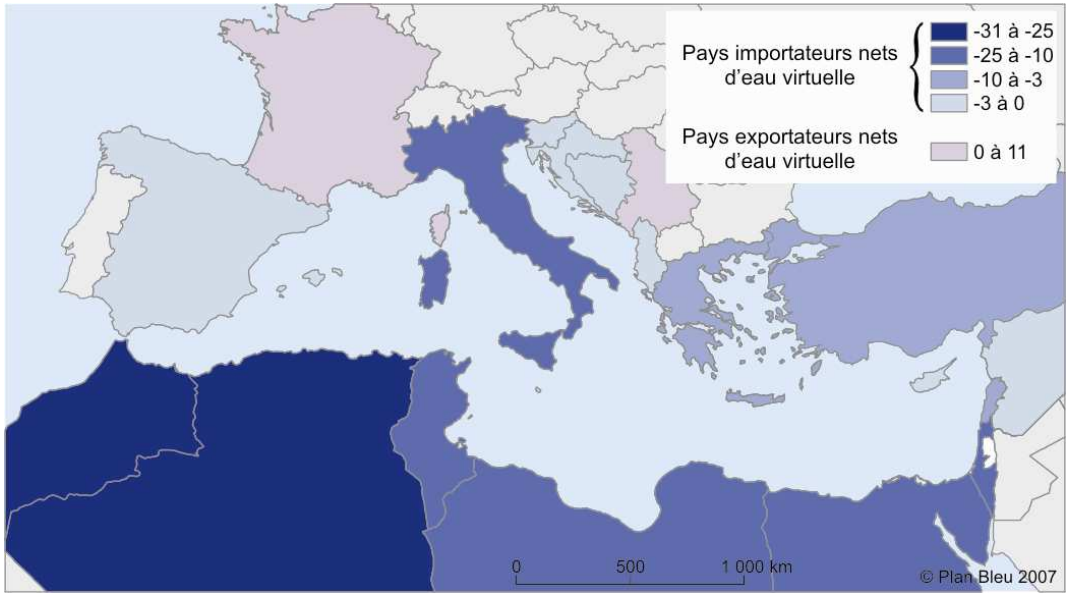
Industrial water recycling

Domestic grey water reuse…

Desalination of seawater or brackish water…

… but impacts on the environment and health

Virtual water flows, net balance per country (billion m3/year)



Virtual water

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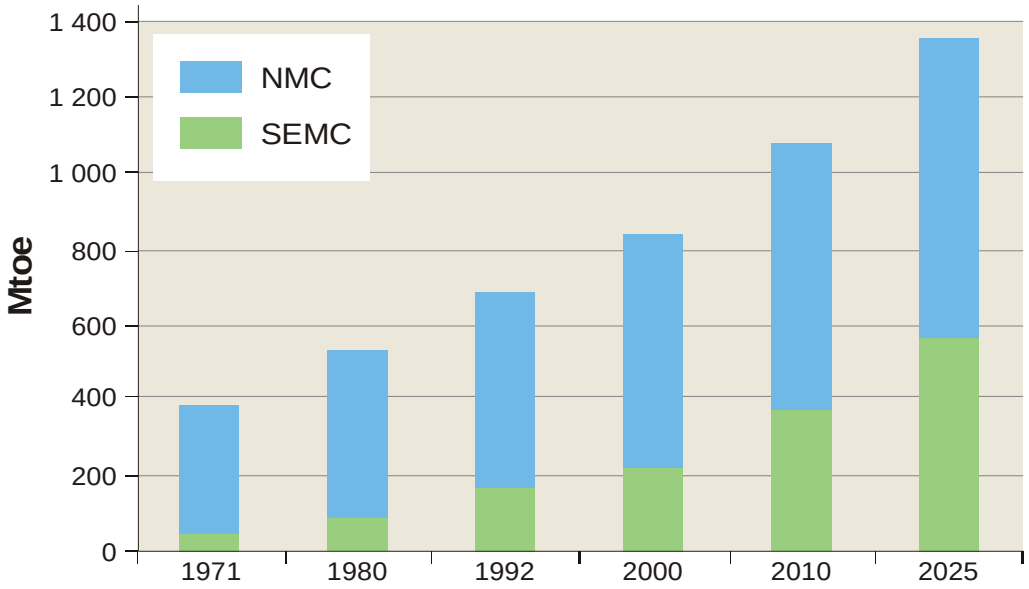
Future trends

- **Demand : total increase of 65%, in the South and East 150%**
- **Dependency on fossil energy 87%**
- **Renewable energy: 4%**

Primary energy demand: trends and forecast



The consequences of such energy development are not compatible with the objectives of sustainable development …

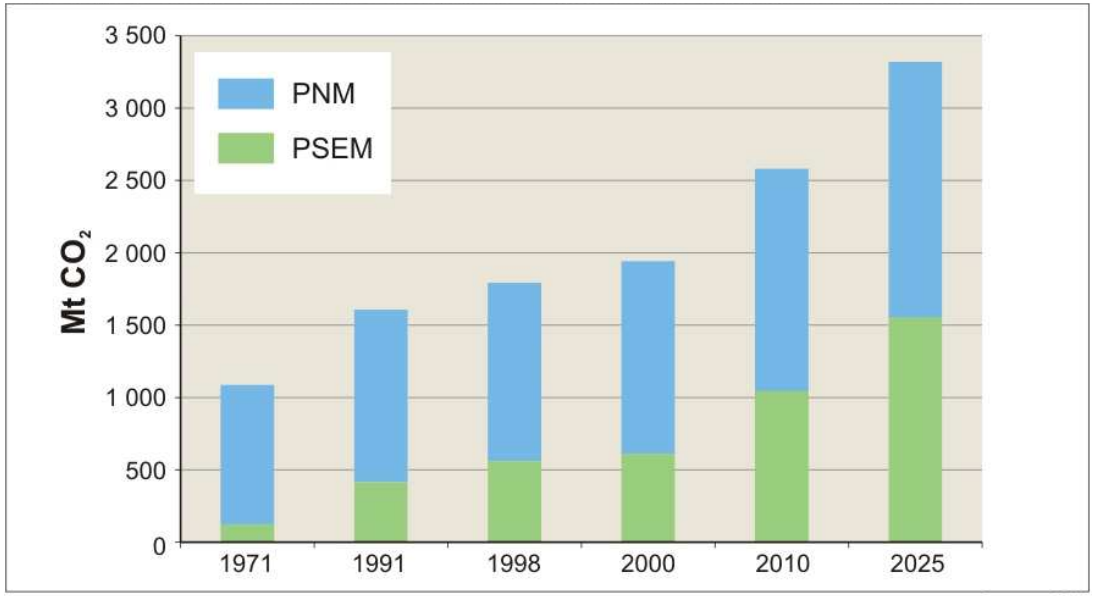
Future trends

… such energy development would increase the unbalances of the Mediterranean energy system:

- **Vulnerability towards prices and supply**
- **Diverse situations in terms of resources, access and consumption**
- **Impact on the environment (climate change) and human health**

CO_2 emissions from energy activities

NMC-SEMC, trend scenario, 1971-2025

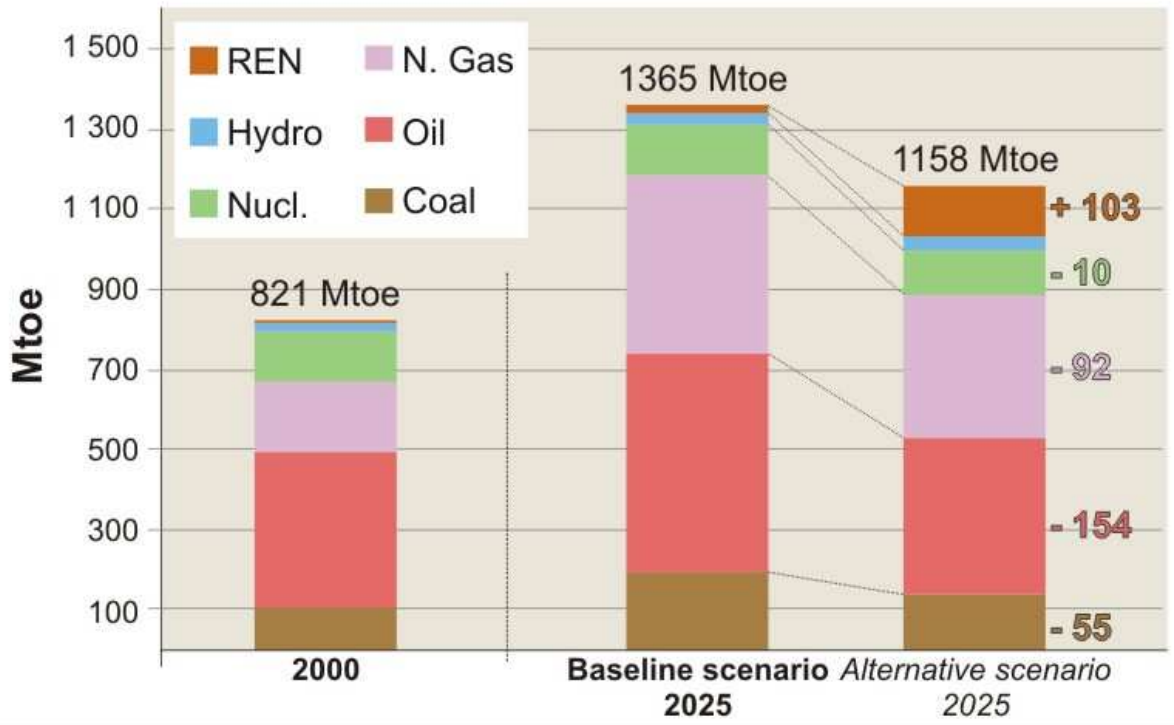


Source : OME

=> CO_2 emissions due to energy consumption in the region are, thus, likely to double if no effort is undertaken to reverse the trend

Alternatives

Primary energy demand in the Mediterranean



- By 2025, up to 11% of renewable energy
  - ✓ Considerable energy savings
- Energy savings of 208 Mtoe
- Stabilization of oil demand

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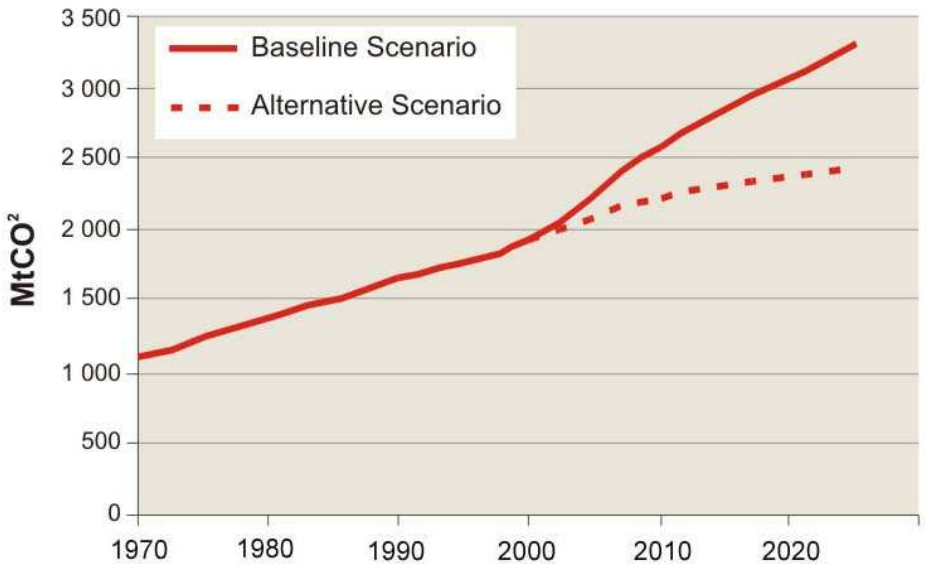
Alternatives

CO_2 emission from energy in the Mediterranean



- **Advantages vis-à-vis climate change**
  - ✓ Decrease in GHG emissions: Less 858 million tonnes CO_2 emissions (from 9 to 7% of world emission in 2025)
  - ✓ Decreased vulnerability to climate change: Less infrastucture: 154 power plants (500MW) to be constructed and more decentralised RE system
- **Considerable co-benefits**
  - ✓ 208 million Toe saved = 1092 billion$ (60$ per barrel)
  - ✓ Export capacity / reserves for future generations
  - ✓ Reduction in energy dependency (18% instead of 38%)
  - ✓ Job creation in post-oil innovative sectors

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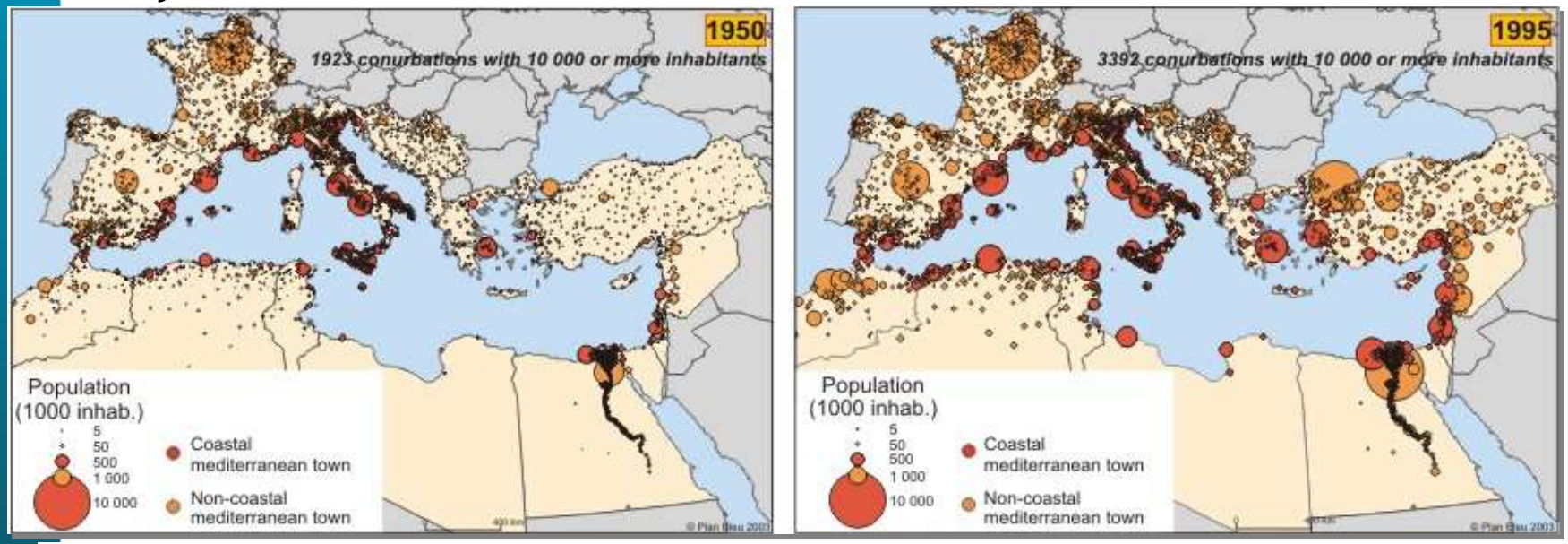
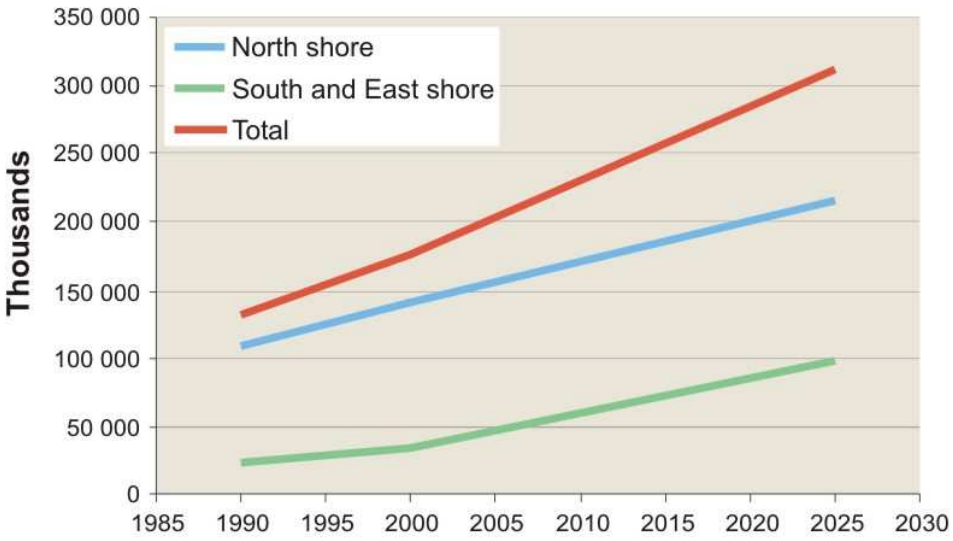
Coastal overdevelopment

Steady urbanization



Domestic and international tourists in coastal regions

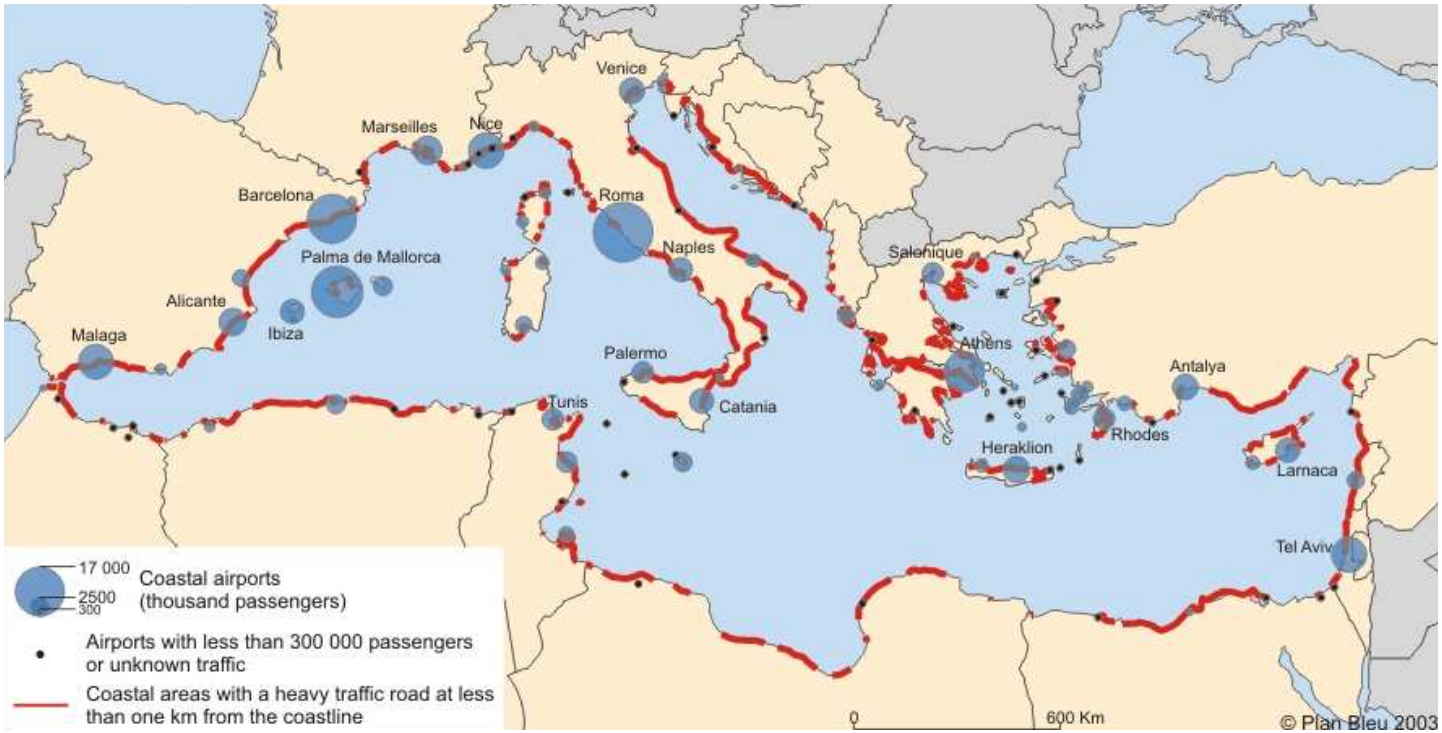


By 2025:

- ✓ 90 million permanent inhab in 600 coastal towns (70 million in 2000)
- ✓ + 137 million international and domestic tourists
- ✓ density of 3,300 people/coastal km during peak periods ?

Coastal overdevelopment

Coastal road and airport infrastructures



By 2025:

- ✓ Road transports multiplied by 2,5
- ✓ + 160 power stations
- ✓ + 175 desalination plants

Coastal areas: Curbing trends

- Regulatory / institutional instruments for coastal protection
  - ✓ Coastal laws : Spain, France, Greece, Algeria, Lebanon
  - ✓ Rules for limiting contruction and roads along the coasts: Spain, France, Slovenia, Algeria
  - ✓ Coastal protection agencies: France, Tunisia, Algeria
- Financial instruments
  - ✓ Making tourism contribute to protection of natural and cultural heritage: ecotaxes
- Regional cooperation
  - ✓ Mediterranean Protocol for integrated coastal management

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Conclusion: It is possible to choose another future

Trends can be curbed

One principle for curbing trends:

- ✓ Decoupling (economic, urban, traffic…) development from pressures on the environment at all levels, in all activities
  - Saving significant parts of water demand
  - Favouring rail and maritime transport instead of road transport
  - Combating marine pollution from ships in spite of growing maritime traffic
  - Reducing household waste at source
  - Clean production technologies, etc.

Conditions for changing scenario:

- ✓ Changes in the countries
- ✓ A strengthened regional cooperation (Euro-Mediterranean, bilateral…)
- ✓ Intervene at local level

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A political response

The mediterranean strategy for sustainable development

7 Priority issues: water, energy, transport, tourism, rural area, urban area, costal area

34 Priority indicators

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The Union for the Mediterranean

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