The challenges to agricultural water management in the Mediterranean

Henri-Luc THIBAULT, Director of Plan Bleu
Plan Bleu and the Mediterranean

Limited water resources, impacted by climate change

Growing demand for irrigation, the main water consumer

Paths to more sustainable agricultural water management
A Regional Activity Centre of the Mediterranean Action Plan

- Created 30 years ago as a systemic and prospective analysis centre
- Connected to the MAP, one of the UNEP regional seas programmes
- Meant for assisting the 21 Mediterranean-rim countries and the EC (Barcelona Convention)
2. Water resources in the Mediterranean

Limited and very unevenly distributed water resources

- 3% of the world’s water resources for 7% of the world’s population
- 60% of the world water poor population (<1000 m³/cap/yr)
2. Water resources in the Mediterranean

Water poverty & scarcity, Pressures on water resources...

From 50 (Gaza) to... 25 000 (Montenegro) m³/capita/year

Mediterranean average: 2400 m³/capita/year

Exploitation index of renewable natural water resource in 2005

Source: Plan Bleu, 2008
IPCC Projections for the Mediterranean
1980-1999 vs 2080-2099, A1B scenario

- Increase in temperature from 2.2 to 5.1°C
- Decrease in average rainfall from 4 to 27%
- Increase in extreme events (droughts, floods)

Somot & al., 2007
3. Irrigation: the main water consumer

Irrigated areas: 24 million ha 
20% of total arable land and permanent crops

Plot irrigation efficiency: from 45 to 90%

Irrigation water demand: from 1500 to more than 15 000 m³/ha/year
3. Irrigation: the main water consumer

65% of Med. total water demand

Irrigation: 81% of total water demand in the South & East

Source: Plan Bleu, 2008

Water demand for irrigation: from 180 to 210 km³/yr by 2025

Alternative scenario: water savings ~25%
4. Paths to more sustainable agricultural water management

Combination of instruments for water demand management

Institutional framework
Coherent strategic framework

Technics
- Improved irrigation systems,
- Adequate cropping patterns,
- Supplementary irrigation,
- Irrigation planning tools...

Economics
- Pricing, quotas,
- Targeted subsidies and taxes,
- Decoupling & cross-compliance,
- Agro-environmental measures...

Planning & participation
- Management at catchment level,
- Water users associations,
- New information technologies...

Laws
- Water rationing,
- Compulsory water metering,
- Withdrawals control...

Training & awareness-raising
- Awareness-raising campaigns (farmers, public)
- Farmers & technicians training...
4. Paths to more sustainable agricultural water management

**Tunisian national strategy for managing water demand**

- PISEAU (2001): water savings, pricing, participative approach
- Long term: maintenance & modernisation of infrastructures, water demand management, unconventional resources

**Water consumption and added value of irrigation, 1990-2000**

*Source: Hamdane, Plan Bleu, 2002*
4. Paths to more sustainable agricultural water management

Virtual water: which perspective for water management?

Virtual water = evapo-transpirated water

Net balance of virtual water exchanges related to international trade in grain, soya bean, olives, specific crop products and bovine meat, average over 2000-2004

Net balance per country (billion m³/year)

Net balance per capita (m³/capita/year)

Sources of data: FAO, Hoekstra & al
4. Paths to more sustainable agricultural water management

Virtual water: which perspective for water management?

Green, blue and virtual water in the Med. countries water demand for agriculture and food in 2005

Green & virtual water: ~80% of water demand for agriculture and food in the Mediterranean

Sources: FAO, Hoekstra & al
Managing water demand... and not only the supply

- Water in the Mediterranean: an agricultural and food security-related issue... and vice versa,

- Towards a comprehensive vision for water including blue water, but also green and virtual water,

- Water demand management: a major political stake in the Mediterranean,

- Taking into account the development potential of non conventional water resources,

- A need for adapting water and agricultural policies to face the increasing water resource scarcity.
For more information

www.planbleu.org