

The Mediterranean Water Heritage

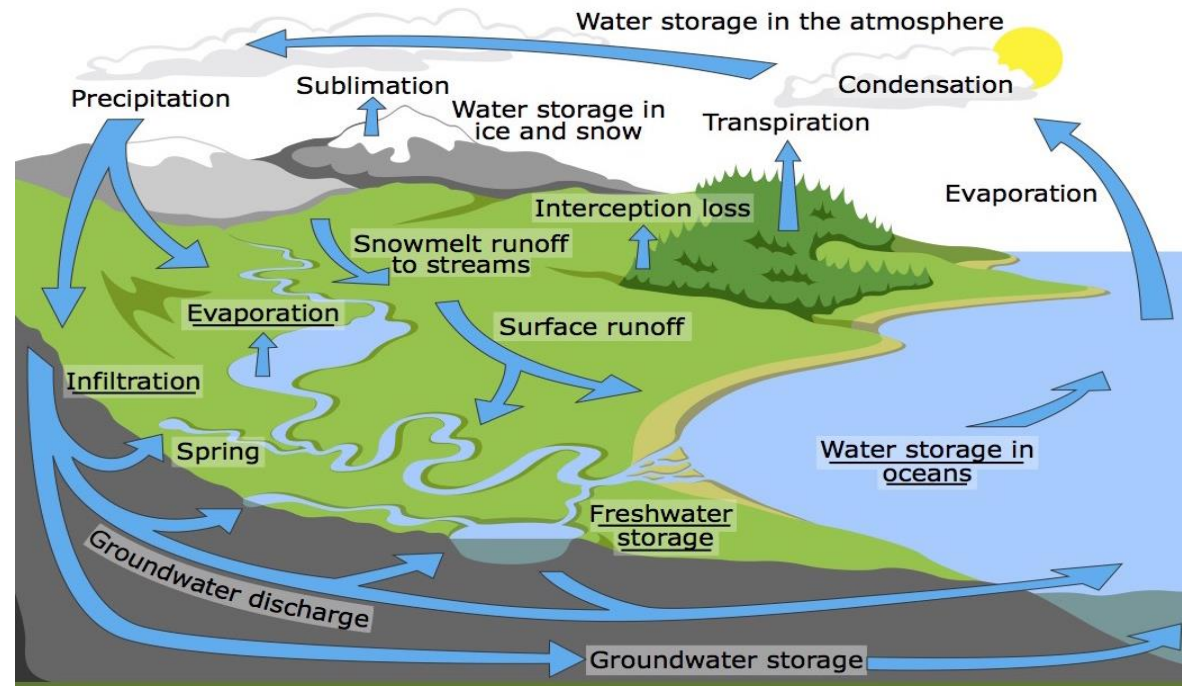
Prof Michael Scoullos

MIO-ECSDE & GWP-Med Chairperson, MEdIES/HYDRRIA Coordinator

Director, UNESCO Chair & Network on Sustainable Development Management and Education in the Mediterranean /National and Kapodistrian University of Athens

Water, a valuable, vulnerable resource

- Water through the water cycle regulates the global climate but also the regional and even the local microclimate, both of which are fundamental components of social conventions habits and culture.



Water, a valuable, vulnerable resource

- The most widespread substance on earth's surface, a symbol of life, regeneration, purity and hope.
- In all civilizations it is strongly linked with the sacred, with nature, with religion, and various aspects of culture and social status, being an integral part of our heritage.
- Past civilizations around the region have adapted to the water scarcity in the region and developed effective technologies in order to “capture” it and use it.

Water heritage in the Mediterranean region

- Since antiquity, all sources of water -rivers, lakes, springs, underground water and rainwater- were exploited through sophisticated systems, being always relevant to and in proportion with the geomorphology, the topography, and the local hydrological and climatic conditions.
- Over millennia, the water management know-how and technology were transferred between neighboring and/ or subsequent civilizations .
- Remnants of this invaluable collective cultural heritage, such as cisterns, wells, canals, small dams, pipelines, aqueducts, reservoirs for flood protection etc. are found today scattered around the basin, forming a unique, interlinked mosaic.



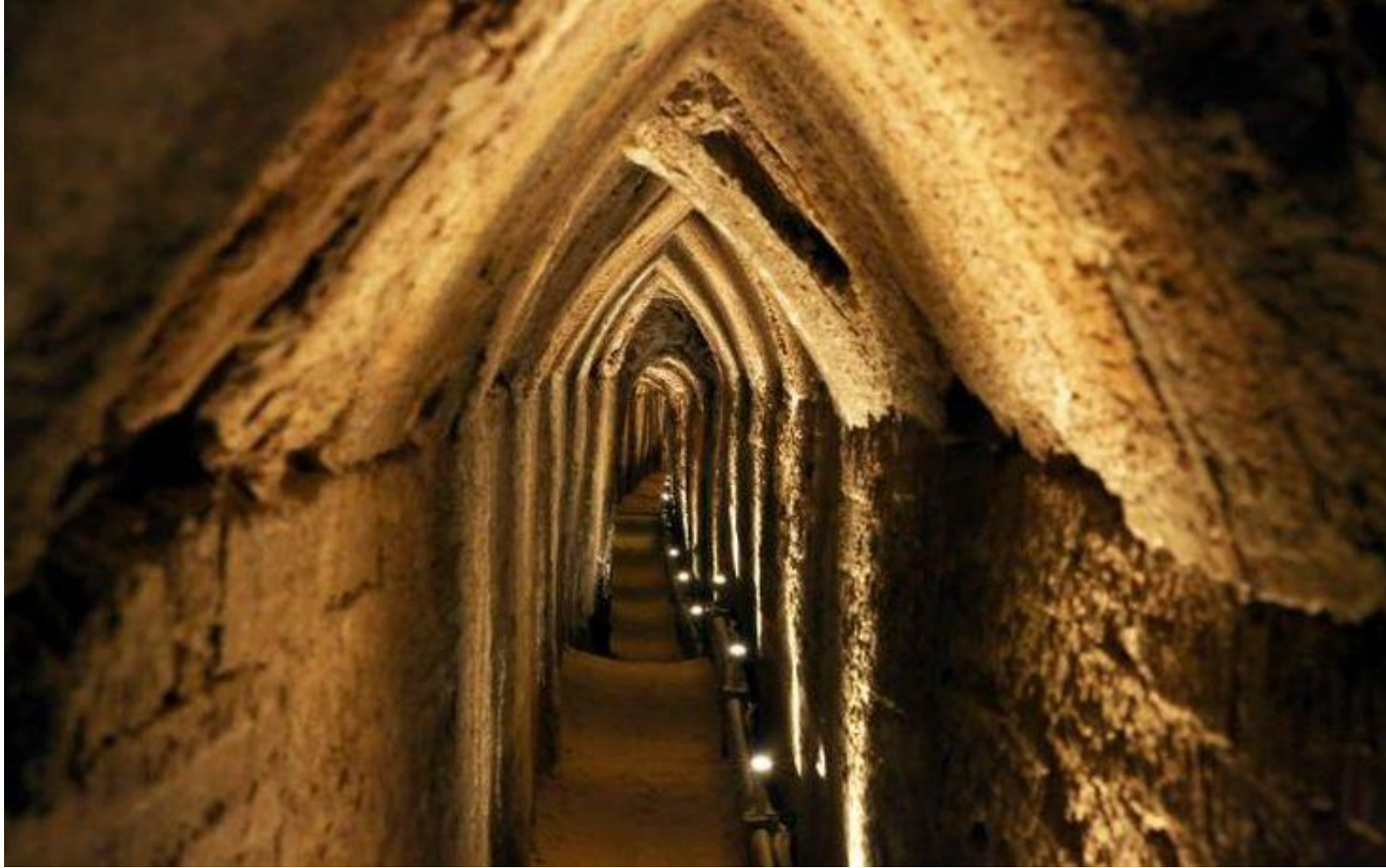
Aqueduct Sta Venera, Malta (17th cent.)



Ancient aqueduct Larnaca, Cyprus



restoration of Timimoun oasis foggaras, Algeria (11 AD)



Aqueduct of Eupalinos Samos Island, Greece (560BC)



Ancient water system parts, Athens, Greece

Roman thermal baths
(Naples)





The Eagle Fountain in San Anton Palace Gardens, Attard, Malta (18th cent)



Morozini's Fountain in Heraklion, Crete Greece (17th cent)



Bembo Fountain in Heraklion, Greece (16th cent)



Traditional rainwater harvesting cisterns
in Greek islands



Ghajn Tuta Kercem (Gozo, Malta) fresh water spring for clothes washing



Traditional stone bridge in Greece (Voidomatis River Epirus)

Water culture may help addressing the water challenges of our days

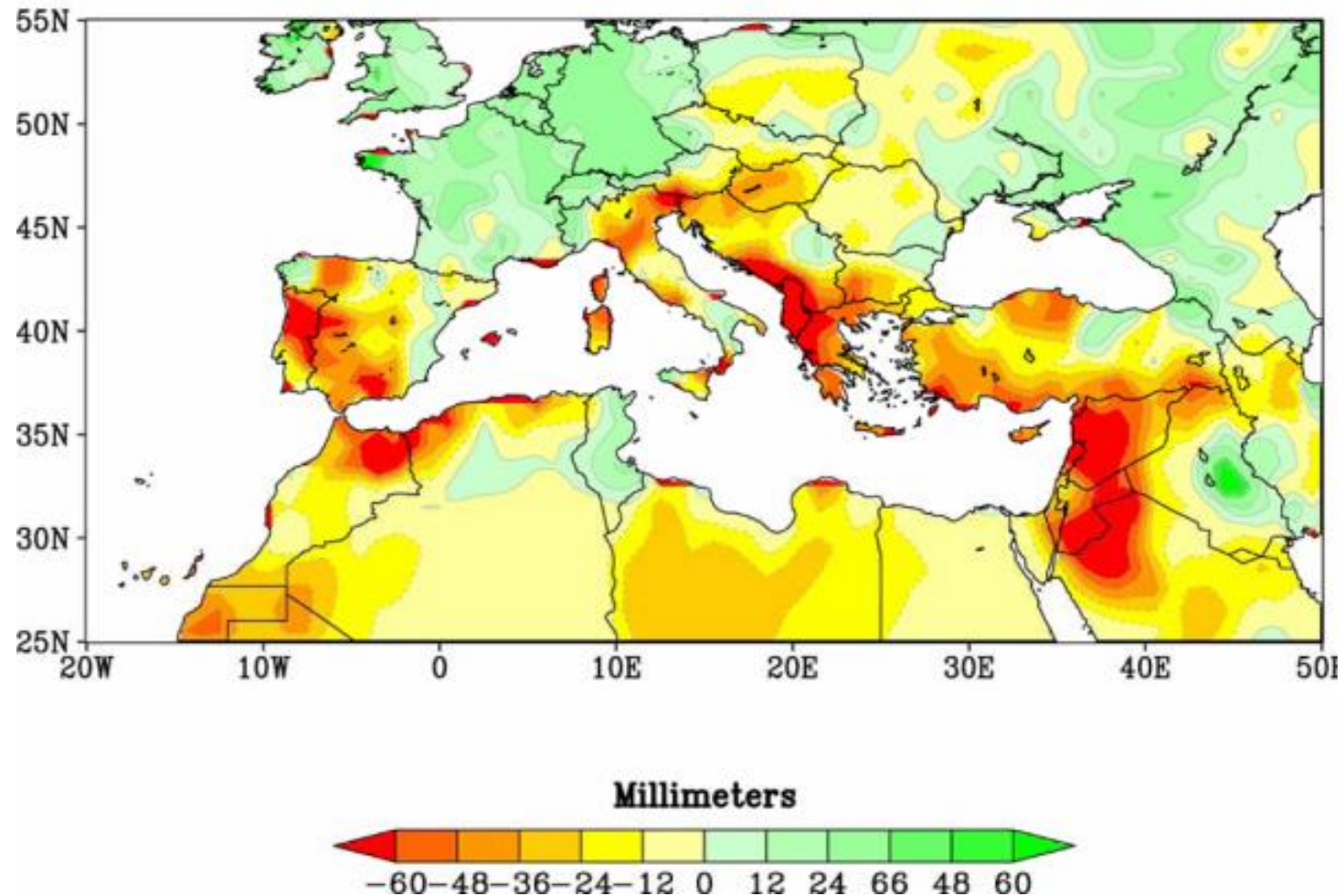
- Studying and protecting our water heritage is important component in facing the current challenges related to water.
- Water heritage conceals fascinating possibilities of abandoned techniques offering an inexhaustible source of inspiration and new discoveries.
- In this way heritage can point today's scientists and engineers to both conventional and uncontroversial research pathways and smart solutions, ideally combined with renewable energy resources.

Water challenges of our days

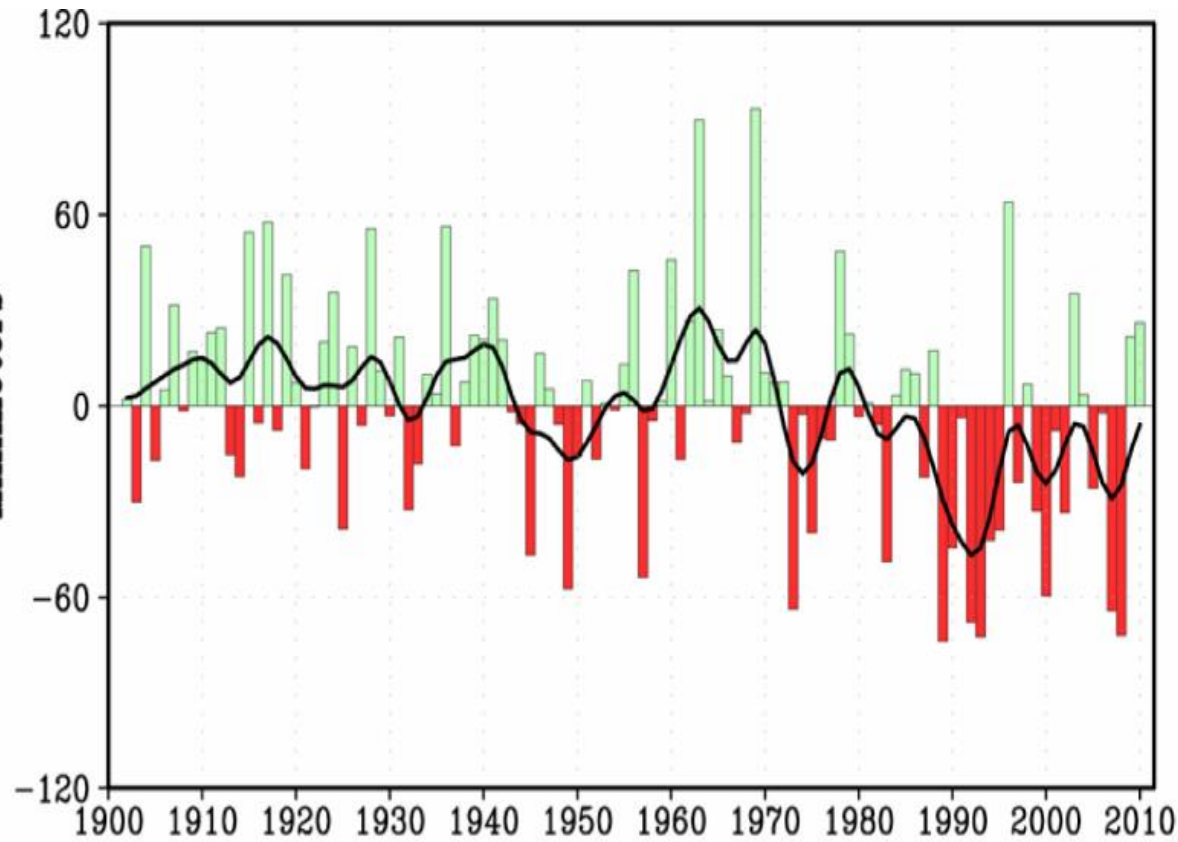
- Water scarcity
- Non-homogeneous distribution of water
- Increasing population and water demand (e.g. in Europe agriculture ~80%)
- Climate change
- Consumption per capita in the developed world is increasing to irrational levels
- Water for 2 billion people is unsafe while no access to sanitation is creating major social and health problems.



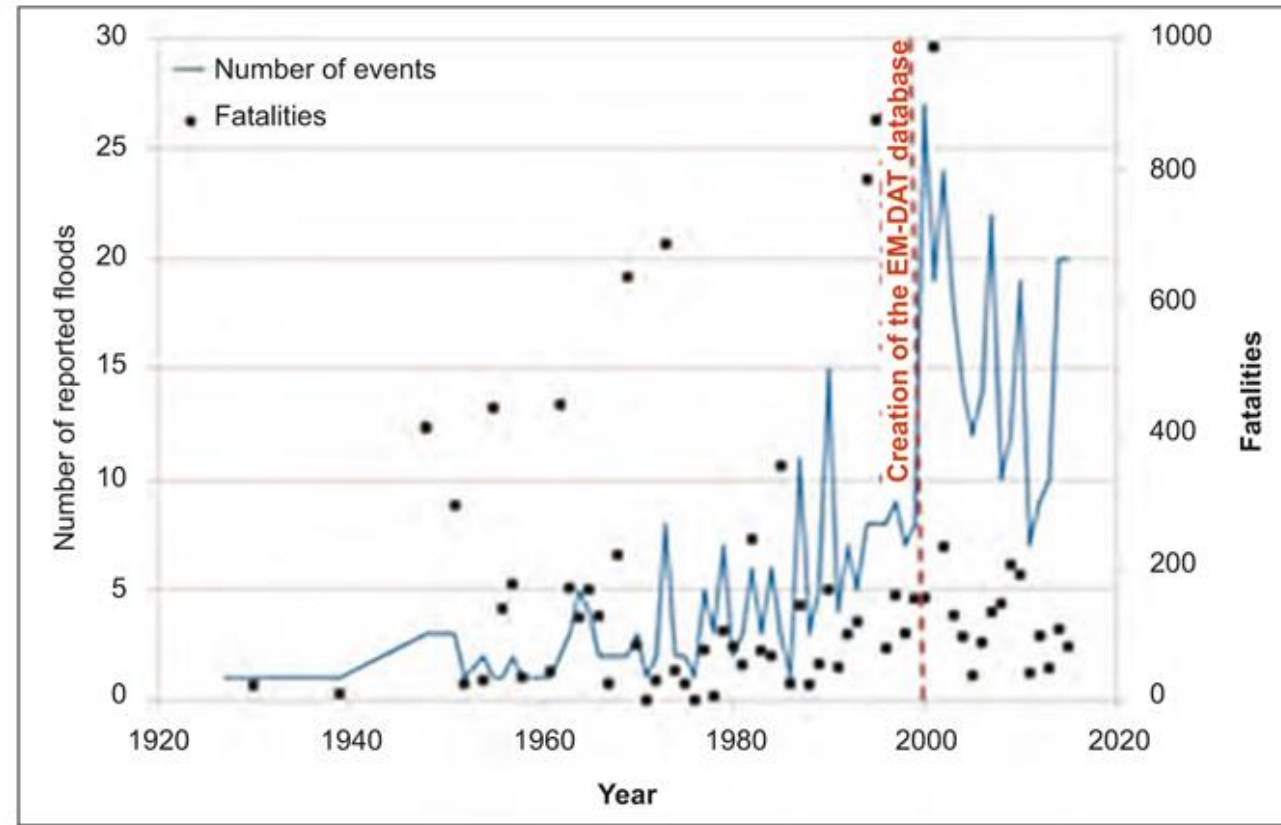
The red areas are the ones most affected by water scarcity recently due to a reduced precipitation in winter periods



More frequent periods of reduced precipitation during winter, contributing to water scarcity. (NOAA, 2011)



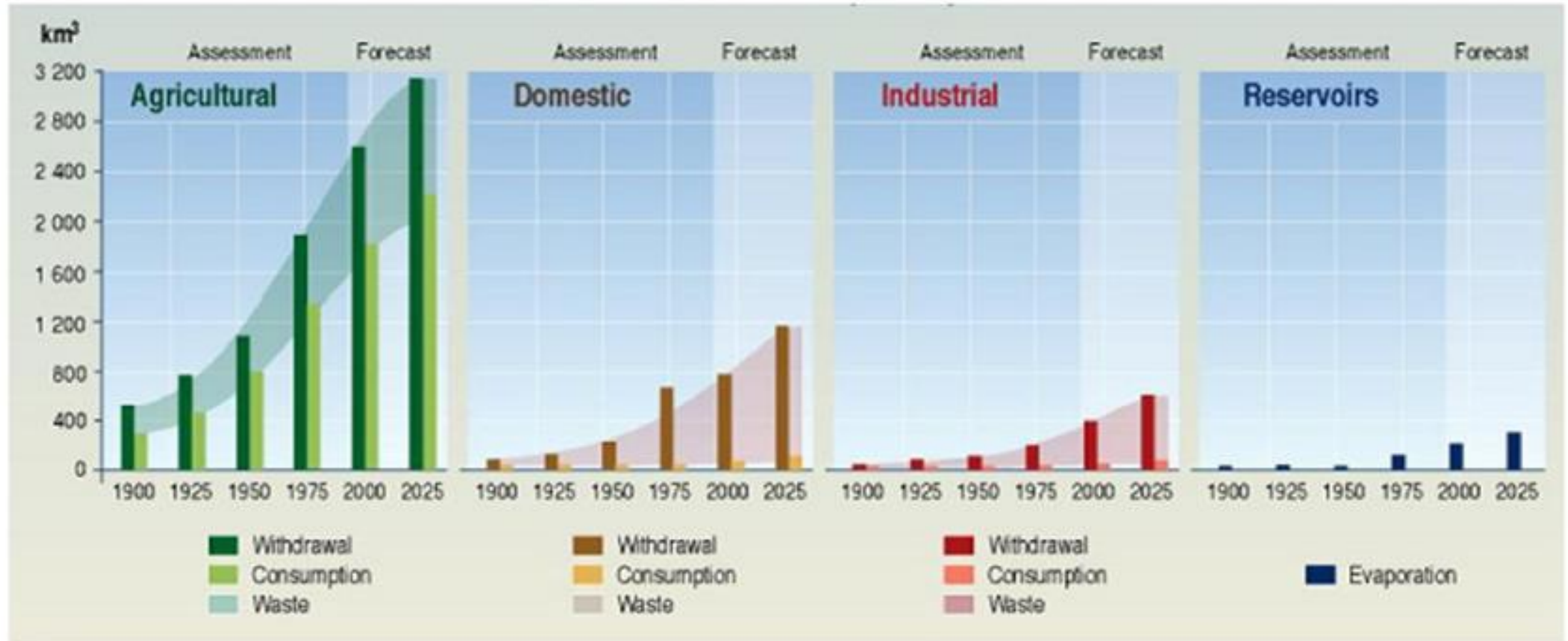
Changes in the number of damaging floods in the countries surrounding the Mediterranean Sea in the EM-DAT database. Source: emdat.be (2020)



Water Scarcity & Desertification in the Mediterranean



Evolution of global water consumption, withdrawal and waste



Source: Bijani 2011

We need a new water culture



to a New Culture of Water

Shaping Water Culture

- Historically, we consider “Water Culture” as part of the so-called **cultural universals**, found in all human societies and all eras, including both material and immaterial aspects related to water.
- Under the **material** (*tangible*) aspects we have the physical expressions of culture such as technologies, architecture -including water monuments- arts and crafts, including water vessels and jars, etc.
- Many modern techniques are extrapolations of ancient ones. Others are based on technological innovations, while emerging **digital tools** will add some new powerful tools.

Shaping Water Culture

- The **immaterial** aspects include principles of social organization and institutions as well as mythology, literature, a variety of scientific, domestic, agricultural, etc. practices involving water, all of which comprise the **intangible water heritage** of a society.
- The aforementioned are guided by actual needs but also by perceptions and values that at the end shape the behaviours and attitudes towards water.

All the above are closely related to both Development and Education and in particular Education for Sustainable Development (ESD) recognized as a major facilitator of the implementation of all SDGs

SUSTAINABLE DEVELOPMENT GOALS





HYDRIA Virtual Museum

Linking Ancient Wisdom to Modern Needs



Closing words

- The awareness and the appreciation of both the intrinsic and functional value of **heritage** calls for a new paradigm, which, on the one hand, strengthens the sense of Mediterranean water heritage and promotes intercultural dialogue and cooperation, and, on the other, ensures that the past best practices are well known, while the past mistakes are not repeated in modern day water management.
- Our better understanding of past water practices and related wisdom can provide precious lessons and inspiration in creatively resolving modern challenges and accelerate the transition towards a much-needed **sustainable new water culture**.

Thank you

Prof Michael Scoullos D.Sc, PhD
Team Leader EU Water Environment Support-Mediterranean
Director, UNESCO Chair & Network on Sustainable Development Management and
Education in the Mediterranean / National and Kapodistrian University of Athens
Chairman MIO-ECSDE , GWP-Mediterranean, Chairman Hellenic National
Committee MAB/UNESCO
scoullos@chem.uoa.gr