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**"Towards a new water culture for the Mediterranean.  
Addressing the challenges of the future,  
using the lessons from the past".**

*Prof. Michael Scoullos, University of Athens, Chairman of GWP-Med, Chairman of MIO-ECSDE, Coordinator of MEDIES*

*Water in the Mediterranean: Lessons from the past*

Water is one of the most valuable and vulnerable natural resources anywhere on earth, but this is especially true for the Mediterranean. Water shortage is inherent in the Mediterranean. All ancient civilisations of the region have "venerated" water and developed practices and social attitudes promoting, in general, efficient harvesting and wise use of water. **The wisdom of century old traditions related to water need to be utilised and adapted in view of our current and future water challenges including those linked with climate change.**

The lessons from mistakes are also valuable. Mistakes of the past related to water resources were linked with large scale deforestations, overgrazing, soil erosion, pollution, contamination, as well as with gigantic water infrastructures without adequate planning and concern about their long term impacts. All these interventions lead to major destruction of aquatic ecosystems throughout the Mediterranean region.

*Drawing on ancient wisdom to address the needs of today (the case of water harvesting)*

In Greece, until the middle of the twentieth century, one third of the houses in villages and most of remote farmhouses were equipped with underground water storage tanks (cisterns).

In recent decades this practice was gradually abandoned and it was replaced by connections to municipal water supply systems.

Based on this tradition and trying to revitalise it a Rainwater Harvesting multi-stakeholder Project was planned for the Islands of Cyclades.

The pilot project aimed at **reintroducing traditional rainwater harvesting** combined and improved with innovative techniques and methods in Greek islands.

The project (which is in fact a “cluster” of complementary projects) was initiated by the Global Water Partnership-Mediterranean (GWP-Med) in cooperation with the Municipal Authorities in the Cyclades islands of Naxos, Tinos, Syros, the Mediterranean Information Office for Environment Culture and Sustainable Development (MIO-ECSDE) and the “Mission Water” corporate responsibility program of Coca-Cola HBC Greece & Coca-Cola, which was also the key financial supporter.

These projects are essentially “demonstration cases” aiming at educating people of all ages towards a “new” (eventually not so new) “water culture” necessary for addressing the current and future water scarcity challenges and included the following Municipalities:

### 1. Municipality of Exombourgo, Tinos

The Neoclassic Town Hall of Xinara and a primary school of Skalados: use of **modern aluminium water tanks** and very strong resistant plastic membranes. These are easily transferred and installed within few hours separately in ways not affecting the aesthetics of the building (figure 1).



*Figure 1. Aluminum water tank at the primary school of Skalados (Tinos) during its installation.*

### 2. Municipality of Poseidonia, Syros

(a) **Kindergarten:** repair of an old underground storage tank having a “porcelain mortar” with the use of **modern resin based insulation materials** (figure 2).

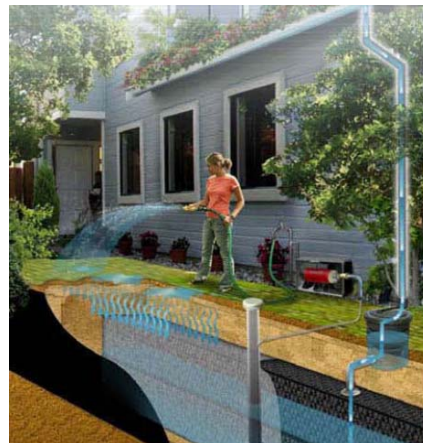
(b) **Primary school:** repair of a very large existing tank suited in the place of an old fountain-head in a central square of an old neighbourhood which was used for centuries to provide potable water. The project attempts to revive it by making the harvested rainwater potable by employing a small **reverse-osmosis unit**. **The inhabitants will have the chance to “buy” with very low cost, good quality water.** The fees will be collected by the municipality for the maintenance and eventual revolving fund.



*Figure 2. Kindergarden underground storage tank and reverse-osmosis unit at the Municipality of Poseidonia, Syros*

### 3. Municipality of Naxos, Naxos

High school of Vivlos: installation of underground modern hard plastic rain tank modules manufactured using recycled materials and resistant membrane.



*Figure 3. Modern hard plastic rain tank modules used in the High School of Vivlos, Naxos.*

#### *In the pipeline:*

A relatively large scale intervention for the creation and watering of a large scale municipal garden in Ano Syros with public toilets, etc. using the underground innovative hard plastic tank modules and collecting the waters of an entire complex of community buildings and the central square of the municipality.

The aforementioned and many similar initiatives that are currently undertaken by MIO-ECSDE, GWP-Med and many other stakeholders all around the Mediterranean region will not have any significant impact if they are carried out separately and in sporadic, uncoordinated way. They may have a multiplier effect if undertaken within the framework of a campaign for a “New Mediterranean Water Culture”.

### *Water in the Mediterranean: Culture vs the current and future challenges*

The increased demand associated to overpopulation, uncontrolled development, urbanization and littoralisation, intensive agriculture, mass tourism and overconsumption result in a complexity of interrelated problems affecting social, economic and natural aspects of everyday life. **The climate change is expected to exacerbate the difficulties and further complicates old problems.** It is clear that apart from technical approaches our water culture should be renewed, enhanced and reshaped.

To promote such a new water culture, one should start by studying the principles and concept of human attitude vis-à-vis water as part of nature and the environment:

There are three levels of relevant approaches:

- A. **Individual egocentric/utilitarian** adequate quantity, good quality: under this approach water is considered as prerequisite of good health, personal pleasure and comfort; Also under the same approach water is viewed as a means for prosperity (use in agriculture, energy generation, manufacturing, etc.)
- B. **Sociocentric/utilitarian**: Under this approach, water is considered as a social good and as part of the commons needed for social welfare and economic sustainability; more recently, access to safe water is considered as human right.
- C. **Ecocentric/idealistic**: Under this approach, water is considered as nature’s indispensable part having intrinsic value; Water is furthermore considered as perpetual source of inspiration and creativity.

All of us approach water, in our Mediterranean cultures, with a mixture of all the above mentioned approaches, sometimes even without realising it. Furthermore, water in all our cultures has several connections also with our religions and customs.

### *Water Culture: Principles*

At the level of modern principles, water should be understood as central in Sustainable Development and therefore as an economic, social and environmental good.

Although culture may be considered as inherently included in the social pillar/component of Sustainable Development, culture, together with “institutions” and “technologies”, is one of the most important areas where reformation and

strengthening is needed, leading to the enhancement of good, effective and efficient water governance.

### *A closer look to the educational approach of water culture*

The “famous” model of Sustainable Development is based on three pillars: Environment - Ecology, Economy and Society (UN Conference on Environment and Development, Rio de Janeiro, 1992). Neither “education” nor “culture” appear in this model.

The Thessaloniki 1997 International Conference “Environment and Society Education and Public Awareness Sustainability” attempted to demonstrate the position of education as a “basis” for the three pillars.

The above scheme (fig. 4a) still does not present the interdependence and interrelationships between the three pillars of SD while it recognizes appropriate Education as the cross-cutting basis of it. To this end the representation of figure 4b for sustainable development was proposed by the author in which the SD model takes the three-dimensional shape of a pyramid as much closer to the reality. This pyramid has as facets Environment, Society and Economy and is based on Education that is the Education for Sustainable Development (ESD), an education which should combine specific components and characteristics in order to enhance the learning about Environment, Society and Economy while it should permeate and change the entire Education for All (EfA) towards sustainability.

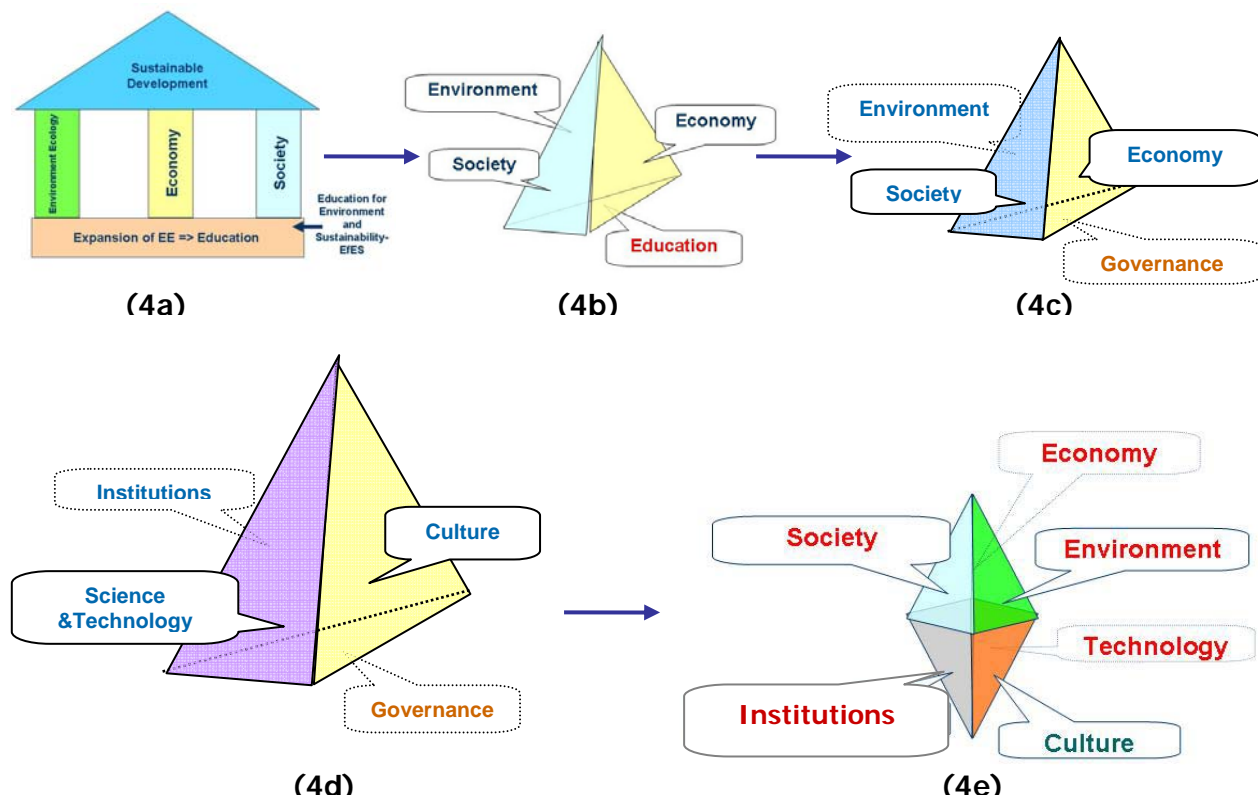
Though for simplicity reasons the representation of 4b could be sufficient for most educators a further elaboration is needed in order to attribute to Education its true dimensions and responsibilities in approaching SD. This is necessary because, unfortunately, it is obvious that with Education alone it is impossible to transform the current development patterns into sustainable development. In fact in Thessaloniki we attempted to address this problem by proposing other three components together with Education, namely Legislation, Economy and Science/Technology. In other words, Education is one of the components of the overall “Governance” needed.

To this end, the basis of the SD pyramid has become now Governance instead of Education (figure 4c).

On the other hand the so-called “Delor’s Commission” of UNESCO in its Report (1996) proposed “culture” as the fourth pillar of SD, a proposal rejected by many countries out of principle but also on the ground of scientific and mostly political reasons. The way out that the author has proposed and has been accepted widely (see in the UNECE 2005 Strategy on ESD) is to see which aspects of Governance need to be included in ESD as prerequisites and tools to obtain - facilitate implementation of SD and these are: Institutions, Science/Technology, and Culture.

The combination gives the content of ESD where culture is clearly included (figure 4e).

So, an education suitable for sustainable water development should include moral and cultural dimensions. However within the cultural dimension of ESD one should understand that while old water practices and major traditions should be strengthened and maintained, others should be changed and radically altered.



*Figure 4. Visual representations of educational concepts of ESD and the position of culture within it.*

***Water Culture: Water’s values & people’s attitudes; Educational perspectives***

Some of the most important points to be promoted through education in view of the new water culture are the following:

- Realistic approach towards “water valuing”; the economic value of water being one of the important aspects among others.
- Full understanding and implementation of IWRM.
- Rational water use, including demand management.
- Future perspectives to meet the demand with wise combinations of conventional and non-conventional water resources.

It is important that the aforementioned elements should be integrated in all types of Education and more appropriately to Education for Sustainable Development (ESD).

-formal, non formal, informal, lifelong learning & adult/vocational, etc.

-involving all related stakeholders, educational community, administrators, technocrats, civil society, media- to stimulate and develop the necessary water culture in order to reach consensus, in particular in view of the emerging climate change.

Water is already a basic topic within EE and ESD. However, culture is not always included there.

-Sustainable management of water is a key priority among the issues related to ESD.

-Water as a cross-cutting topic serves as the appropriate “vehicle” to introduce the students to the entire cluster of sustainability concepts, principles & practices.

-Relevant researches reveal that water issues are placed very high in the lists of environmental and sustainability concerns of young people.

-Water issues are of common concern in the entire Mediterranean region, a fact also reflected in the majority of curricula of EE/ESD Programmes of all Mediterranean countries.

### *Two relevant MIO-ECSDE and GWP-Med programmes: Medies and Hydria*

#### *Mediterranean Educational Initiative for Environment and Sustainability (MEDIES)*

Fields of Activity:

- Facilitates the communication and cooperation among schools, non - governmental (NGOs) and governmental organisations, institutions and educators (2500 individual e- members).
- Promotes ICTs (Information & Communication Technologies) through its interactive webpage [www.medies.net](http://www.medies.net)
- Supports the educational community by means of Training Seminars, Workshops & Educational Materials. One of the first produced was the educational package “Water in the Mediterranean”, launched in Johannesburg in 2002 under the patronage of HSH Prince Albert II (picture 1).



*Picture 1.*

### *HYDRIA: Linking Ancient Wisdom to Modern Needs*

- e-awareness & sensitisation material for youth & educators
- 6 Mediterranean partner countries: Greece Cyprus, Italy, Morocco, Egypt, Jordan
- A webpage will be developed, depicting 1-2 characteristic case studies of water management (collection, storage & distribution) in antiquity through short texts, photos & animation.
- Languages of the site: English & Arabic
  
- The case studies will be connected in terms of space (geographical map) and time (historic timeline), as to reveal the water-wisdom of the past, and how this was passed from one civilization to an other...
- in the long run the site may be enriched with many more case studies, interlinked with each other

### *Water Culture in the Mediterranean Policies*

Water Culture is becoming central in the new “Strategy for Water in the Mediterranean” decided by the Ministers during the Euro-Mediterranean Ministerial Conference on Water, held at the Dead Sea, Jordan on 22 December 2008.



## Elements of the Water Strategy in the Mediterranean

- i. Tackle problems that go beyond the means of any one country, organization or initiative, in particular those related to the impact of climate change and environmental needs, that call for a co-ordinated approach and increased cooperation;
- ii. Build on integrated approaches, taking into consideration every kind of water, the needs of different users, by means of integrated management at basin level, as a tool to allow countries in the Mediterranean to respond to these challenges collectively and individually;
- iii. Include two main goals: conservation of water quality including the prevention of further deterioration of water resources and the balances between the quality of water used and the quality of water available including mitigating and preventing the consequences of droughts and water scarcity;
- iv. Include both measurable qualitative and quantitative objectives, as part of a voluntary commitment to achieve these goals;
- v. Consider the most appropriate instruments to reach the objectives of the Strategy, with a view to achieve economic growth, social prosperity, equitable access and adequate supplies of water, and environmental protection, notably through improved efficiency of all water uses, appropriate governance arrangements, legislation and institutional arrangements, effective national and local planning, innovative financial mechanisms, tariff policies, standards, labels, alternative solutions, keeping in mind the differences in national situations and the need to increase the citizen's awareness by promoting the wide participation of civil society aiming at building the culture of water;
- vi. Develop and exploit for the benefit of all, scientific, technical and technological tools in these fields;

## Conclusions

"Water Culture" is central in addressing the current and future challenges in the Mediterranean. This needs to be recognized and supported widely through:

- Revisiting, adapting and "renewing" century old practices, useful today and tomorrow
- Enhancing the respect and restoration of old water "works" as learning devices and sources of creative inspiration
- Changing the "mindset" -mostly through well articulated educational programmes with emphasis on ESD- about water supply and demand in the Mediterranean region
- Promoting the application of technologies and practices which use and reuse water more efficiently and wisely.