Water Management in the Mediterranean Countries of the European Union

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This article will analyse the institutional framework for water management in the EU Member States of the Mediterranean region. Due to the climatic conditions they are exposed to, water is a scarce commodity required for the social and economic development of their societies. Nevertheless, this development must be sustainable and hence respect the environment and natural resources making it up. The article also looks at the European Union's regulatory framework (in which the integrative function of the Water Framework Directive plays a particularly important role), national legislation (with special reference to the integrative function of the Directive) and the features of European water resource management-related regulations. User communities and their time-honoured participation in water management receive special consideration. All this on the basis of an underlying conviction of the reality of a Mediterranean culture of water.

Water Resources in Mediterranean Europe

The Mediterranean part of the European Union – the subject of this study – is made up of the following Member States: Cyprus, Greece, Malta, Italy, France and Spain. Additionally, due to its sharing the common water culture of these countries, Portugal can be considered as a member of this group. In total, the region thus defined has an approximate surface area of 1.6 million km^2 that are home to some 185 million people.

The total volume of renewable water resources stands at 650.26 km^3 per year. Except in the two island states (Cyprus and Malta), the use of these resources is below this volume. Table 11 provides information on the annual volume of renewable water resources and the proportion thereof used in each of these countries in the year 2000.

All the countries in the region have set up desalination plants for sea and brackish water, which provides an indication of the lack of water in specific places in this territory. The installed water desalination capacity stands at 1.37 km^3, or around 2% of renewable water resources. Table 12 contains data on the desalinated water production capacity of the Mediterranean countries of the European Union.

Table 13 contains information on the groundwater resources in each of these countries, as well as the proportion thereof used annually. In general, the extraction and use of groundwater is below the existing volume, except in the case of the two island states (Cyprus and Malta) where it is used almost to exhaustion point.

Finally, Table 14 provides information on the theoretical demand from different usages in the Mediterranean countries of the EU. There, as in many other places on the planet, water demand for agricultural uses (irrigation) stands at around 75% of total usage requirements.

Europe's Water-Related Regulations

Currently, the legal basis for water management in the territories studied is constituted by regulations stemming, in the main, from public law: however, this does not invalidate the applicability of private water law in some of these territories.

European Union water law is made up, principally, of the regulations issued by EU bodies and by those be-

TABLE 11	Renewable Water Resources in European Mediterranean Countries (km^3 per year) (2000)		
Country	**Renewable water resources**	**Water resources used**	**Difference**
Greece	74.00	8.70	65.30
Cyprus	0.21	0.21	0.00
Malta	0.05	0.05	0.00
Italy	191.00	56.60	134.40
France	204.00	37.70	166.60
Spain	112.00	44.10	67.90
Portugal	69.00	8.30	60.70
TOTAL	**650.26**	**155.26**	**495.00**

Source: Canovas Cuenca & del Campo García, 2007; p. 69

TABLE 12	Desalinated Water Production Capacity in European Mediterranean Countries (km^3 per year) (2007)
Country	**Desalinated water production capacity**
Greece	0.022
Cyprus	0.040
Malta	0.036
Italy	0.198
France	0.083
Spain	0.987
Portugal	0.004
TOTAL	**1.370**

Source: Cánovas Cuenca & Juan y Martinez Vicente, 2007; p.61

TABLE 13	Groundwater Resources in European Mediterranean Countries (km^3 per year) (2000)		
Country	**Groundwater resources [1]**	**Groundwater resources extracted [2]**	**[2]/[1]**
Greece	10.30	2.00	0.19
Cyprus	0.28	0.20	0.71
Malta	0.03	0.03	1.00
Italy	43.00	13.90	0.32
France	100.00	6.00	0.06
Spain	29.90	5.50	0.18
Portugal	4.00	Not available	Not available
TOTAL	**187.51**	**-**	**-**

Source: Margat and Valle, 2000, in *Plan Bleu*.

TABLE 14	Theoretical Demand for Water in European Mediterranean Countries (km^3 per year) (2000)		
Country	**Urban**	**Agricultural**	**Industrial**
Greece	1.20	9.26	0.10
Cyprus	0.08	0.24	0.007
Malta	0.04	0.005	0.003
Italy	6.32	19.21	0.51
France	6.49	8.65	0.52
Spain	4.45	23.71	0.36
Portugal	1.11	4.63	0.09
TOTAL	**19.69**	**65.71**	**1.59**
% of total	**22.63%**	**75.54%**	**1.83%**

Source: Canovas Cuenca & del Campo García, 2007; p. 79

longing to the national law of each of the Member States.

EU Water-Related Regulations

The Treaty establishing the European Community (EC) provides the basis for the regulations governing water within its territory. Title XIX thereto, on the environment, refers to natural resources, one of which is water, and is made up of three articles of a markedly protective nature. Article 175.2.b) grants the Council the power to adopt, on a proposal from the Commission and acting unanimously, measures affecting the quantitative management of water resources, after consulting the European Parliament, the Economic and Social Committee and the Committee of the Regions.

Article 6 of the Treaty states that environmental protection requirements must be integrated into the definition and implementation of the policies and activities of the EC, with a view to promoting sustainable development. When these policies are related to the use of natural resources, such as water, one cannot act as if they were unlimited, but instead one must comply with the requirement for prudent and rational utilisation set forth in Article 174.1of the Treaty.

The fact that the EU places the source of water law within the field of environmental protection shows the goal of protecting resources that lies behind the Union's constitutional treaty and which is clear in all the regulations deriving therefrom. Thus it is that Point 1 of the preamble to Directive 60/2000/EC of the European Parliament and of the European Council, establishing a framework for Community action in the field of water policy, the Water Framework Directive, states that "Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such". Consequently, Article 1 states that its object is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater. Without doubt this duty of protection must be one of the goals to be achieved by water resource management.

The European Water Framework Directive is the first large-scale regulatory outcome of the Treaty establishing the European Community covering water resources. This regulation codifies and unifies other Community Directives related to this resource. Its background is to be found in the declaration of the Ministerial Seminar on groundwater held in the Hague in 1991, which called for the implementation of a programme of measures to achieve the sustainable management and protection of freshwater resources. Preamble Point 15 of the Water Framework Directive defines the supply of water as a service of general interest for the purposes of Article 16 of the EC Treaty, and requires a special effort on the part of Community institutions and Member State to ensure that this service is provided with sufficient guarantees. No pronouncement has been found which establishes, on a general basis, the meaning of the term "supply", and this could therefore include the supply of water (surface or groundwater) of a quality that is sufficient for each type of demand from social and economic players, as required by a sustainable, balanced and fair use of water resources.

The Water Framework Directive contemplates each Member State defining each of its river basin districts, territorial units that include one or more neighbouring river basins and the groundwater and coastal waters associated therewith. These are the main units for the management of water resources, which must be based on the forecasts contained in the relevant basin management plans, defined in Article 13 of the Water Framework Directive. These management tools must be initially formulated in 2008 and definitively published in 2009.

The Directive also provides a regulatory umbrella for all the other Community rules which govern different aspects of the management and use of water in the European Union. These include, but are not limited to, the following:

- Directive 75/440/EEC, concerning the quality required of surface water intended for the abstraction of drinking water in the Member States.
- Council Directive 79/869/EEC, of 9 October 1979, concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States.
- Council Directive 80/68/EEC, of 17 December 1979, on the protection of groundwater against pollution caused by certain dangerous substances. It was modified on 23 December 1991. According to Article 22, Section 2 of the European Water Framework Directive, this will be repealed on 22 December 2013.
- Directive 91/271/EEC, concerning urban wastewater treatment.
- Directive 91/676/EEC, concerning the protection

of waters against pollution caused by nitrates from agricultural sources.

- Directive 96/61/EC, concerning integrated pollution prevention and control.
- Directive 98/83/EC of the Council on the quality of water intended for human consumption.
- Directive 2006/7/EC of the European Parliament and of the Council, concerning the management of bathing water quality.
- Directive 2006/11/EC of the European Parliament and of the Council on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.
- Directive 2006/44/EC of the European Parliament and of the Council on the quality of fresh waters needing protection or improvement in order to support fish life.
- Directive 2006/113/EC of the European Parliament and of the Council, of 12 December 2006, on the quality required of shellfish waters.
- Directive 2006/118/EC of the European Parliament and of the Council, of 12 December 2006, on the protection of groundwater against pollution and deterioration developed in response to the requirements of Article 17 of the Water Framework Directive with regard to the adoption of specific measures to prevent and control groundwater contamination. It has been given the function of ensuring the continuity of the protection provided by Directive 80/68/EEC and modifications thereto, incorporating transitional measures that will govern the application of said system until its expiration, due to repeal, on 22 December 2013. These measures affect, in the main, authorisation procedures for the disposal of substances in Lists I and II, from 16 January 2009 to 22 December 2013.
- Directive 2007/60/EC of the European Parliament and of the Council, of 23 October 2007, on the assessment and management of flood risks.

All these Directives, the modifications thereto and the decisions of the European Court of Justice, together with Water Framework Directive, constitute the corpus of European water law, which forms the basis for the management of water resources in the territory of the Union and whose full coming into force, at least in an initial phase, could be achieved in 2027.

The way in which they have been created compels EU Member States to become guarantors of achieving the end result contemplated in each of these Directives and they therefore must, to this end, begin to incorporate them into their own national legislation. In the case of the European Water Framework Directive, the deadline for carrying this out has been set at three years from the date of its entry into force. Currently, all the Member States in the region under review have tried to formally comply with the duty to transpose this Directive into their national legislation, although the results have not always been entirely accepted by Community bodies. Table 15 contains the timetable for its implementation.

The entry into force of the Water Framework Directive has allowed this regulation to implement not only the aforementioned integrative function but also its capacity to promote a culture of water that is highly respectful of the environment in all Member States that

TABLE 15 **Timetable for Implementation of the Provisions of the Water Framework Directive**

Year	Reference	WFD Article
2000	Directive entered into force	Art. 25
2003	Transposition into national legislation	Art. 23
2003	Identification of river basin districts and authorities	Art. 3
2004	Characterisation of river basins	Art. 5
2006	Establishment of programmes for monitoring the state of waters and protected areas	Art. 8
2006	Start public consultation	Art. 14
2008	Present draft river basin management plans to public	Arts. 13 & 14
2009	Publication of river basin management plans including programme of measures	Arts. 11 & 13
2010	Introduce water pricing policies	Art. 9
2012	Make operational programmes of measures	Art. 11
2015	Meet environmental objectives	Art. 4
2021	First extension of environmental deadlines ends	Arts. 4 & 13
2027	Second extension of environmental deadlines ends	Arts. 4 & 13

Source: Commission of the European Communities, 2007; p. 6.

are equipping themselves with the institutional framework defined thereby to manage their water resources.

Water Management Regulations in Mediterranean EU Member States

Water management in the European Mediterranean region is based upon laws democratically passed by the parliaments of the respective Member States and promulgated in accordance with their constitutions. Consequently, the principle of legality lies behind the regulation of water resources, guaranteeing the exclusion of arbitrariness in the related decision-making processes. It can be said that, from 2000 on, the majority of water resource-related legislative activity carried out in Member States is associated with the application of Community regulations within their territories, and with the Water Framework Directive being the common denominator for water management in all of them. The implementation of its principles and the search for the goals set forth within it cannot, under any circumstances, be far from the ancient Mediterranean culture of water.
The main water management-related legislative steps taken in the countries studied are listed below.

- Greece. Law 3199/2003, of 9 December, of the Greek Republic, transposed the Water Framework Directive into Greek national law. It sets forth a national strategy to achieve sustainable use of available water resources in the country, effective protection of water-related ecosystems and the securing of high levels of surface water and groundwater quality. This Law is, today, a key point of reference for water management in the country.
- Cyprus. The Water Protection and Management Law of 5 February 2004 transposed the Water Framework Directive into Cypriot national law. The Law represents the legal basis for the management of this country's waters.
- Malta. Law 194/2004, on the legislative framework for the water policy in its archipelago, transposed the Water Framework Directive into Maltese national law.
- Italy. Laws 183/1989, of 18 May, and 36/1994, of 5 January, together with Legislative Decree 152/1999, of 11 May, constitute the legislative basis governing public waters in Italy and, to a certain degree, anticipate the content of the Water Framework Directive in Italian national law. Legislative Decree 152/2006, of 3 April, modified by Legislative Decree 4/2008, of 16 January, formally transposed the Directive into Italian law.
- France. Amongst the water-related laws in France are Law 64/1964, of 16 December and Law 92/1992, of 3 January. Law 338/2004, of 21 April, transposed the Water Framework Directive into French national law. Also contributing to this function was the Water and Aquatic Environment Law 1772/2006, of 30 December.
- Spain. Article 129 of the Tax, Administrative and Social Order Measures Law 62/2003, of 30 December, modified the Reworded Text of the Water Law (Royal Legislative Decree 1/2001, of 20 July) transposed the Water Framework Directive into Spanish national law.
- Portugal. With regard to water-related legislation in Portugal, worthy of note are Law 54/2005, of 15 November and Law 58/2005, of 29 December, which transposed the Water Framework Directive into Portuguese national law.

The Guiding Principles behind Water Management in the European Union

Management of water resources is a social function which finds material form in the orderly carrying out of the activities required for the fair and sustainable use of water. Management always relates to the territory in which plans, programmes and actions to rationalise demand are executed, promoting savings and economic, social and environmental efficiency in the different uses of water by means of the utilisation of water resources in accordance with the forecasts contained in general economic planning.
In water resource management in the European Union, the following characteristics are noteworthy: rationality, proximity to users, integrated management, prior planning and public participation.

Rationality

The principle of rationality is present in the Treaty establishing the EC, with it providing particular inspiration for the provisions regarding production processes in the EU's territory. From amongst the objectives to be achieved by EC policy, Article 174 of the Treaty highlights the prudent and rational utilisation of natural resources. The environmental component of water resource management is developed around this principle: the concepts of precaution,

prevention, rectifying pollution at source, responsibility ("polluter pays") and sustainability of water use can be considered as included within it.
Rationality also covers the economic aspects inherent in its use and, therefore, in addition to being considered as a natural resource, water should be seen as a production factor wherever, due to its scarceness, it must be considered an economic asset. The recovery of water-associated costs, contemplated in Article 9 of the Water Framework Directive, may also be deemed a manifestation of this principle.
Rationality appears in all national legislations as a requirement of proper water management. The need for water planning as a precursor to the management of these resources can also be regarded as a consequence of this principle.

Proximity to Users

With regard to water management, European regulations seek to bring the decision-making process closer to users of the resources. This follows from the path forged by many Member States who took on board the need transfer to the territories where the water is used all the activities required for its management. For example, Article 13.2 of Spain's Water Law (1985) includes respect for the unity of river basin systems amongst its water management principles. This is also the case of Article 3.2 of Portugal's Water Law. The districts introduced by the Water Framework Directive have as their basic territorial reference the concept of the river basin, although they have been extended to include groundwater and coastal waters associated therewith. This explains the relative ease with which these districts have been defined in Member States in which river basins already constituted the territorial reference for water management. For the European Directive, water districts are the management unit closest to the places in which water is used or affected, and these meet with the condition of proximity contemplated in Point 13 of the preamble to the Water Framework Directive. The Directive raises the river basin district to the rank of the main unit for river basin management purpose (Article 2). Currently, in the Member States studied, there are a total of 67 river basin districts, whose numerical distribution is set forth in Table 16.

Integrated Management of Water Resources

According to European regulations, management of water resources in river basins must be carried out on an integrated basis, taking them as a whole, especially from the viewpoint of satisfying demand. Proof of the validity of the principle of totality at this regulatory level is provided by the formulation of river basin management plans (Article 13 of the Water Framework Directive). The principle of totality inspires the integrated management of water resources, which is based on coordination between the availability and the use thereof and of that of land and other natural resources. This process is in response to the need to put into practice the principles adopted by the international community in Dublin (International Conference on Water Management, January 1992) and in Rio de Janeiro (United Nations Conference on Environment and Development, 1992), which were subsequently renewed. It is associated with the unity of the river basin.
Article 8 of Galli Law (Legge 36/1994) requires, together with respect for the unity of the river basin, the overcoming of the fragmented management of water resources in Italy. Article 2 of the French Law (Loi 93-3/1992) establishes as a goal of the management of water resources the distribution thereof reconciling the qualitative and quantitative demands of their different uses. Article 13 of the Spanish Water Law, in its initial formulation (1985), adopted the princi-

TABLE 16 **Number of River Basin Districts in European Mediterranean Countries**

Country	River basin districts
Greece	14
Cyprus	1
Malta	1
Italy	8
France	9
Spain	24
Portugal	10
TOTAL	**67**

Source: Commission of the European Communities, 2007; p. 58-61.

ple of integrated management of resources as one of the guiding principles of water management. Article 3.1 d) of the Portuguese Republic's Law 58/2005, of 29 December, includes the integrated management of water and of the ecosystems associated with this resource amongst the guiding principles of this function.

Prior Planning

In European regulations, water planning is deemed a necessary precursor for the management of water resources. Article 13 of the Water Framework Directive establishes the content of the river basin plans that must be drawn up for each water district.
Law 3199/2003, of 9 December, of the Greek Republic, introduced a national strategy for the management of water resources in Greece, including the establishment and development of plans for the management of river basin resources.
In Italy, the "Improvement of Water Resources" Legislative Decree 152/1999, of 11 May, governs their planning, financing and management. Article 56 ff of Spain's Royal Legislative Decree 152/2006, of 3 April, regulates the activity of planning water resources in accordance with the Water Framework Directive.
In France, Article 3 of Law 92/1992, of 3 January, attributes to the management plans of each river basin or basin grouping the duty to bring together the fundamental orientations for a balanced management of water resources.
Title III of Spain's Water Law governs water planning as the instrument to achieve a good state of and proper protection for public water resources, the meeting of demand for water and balance between and harmonisation of regional and industrial development. It states that this should be carried out in river basin plans and the National Water Plan. Law 10/2002, of 5 July, and the modifications thereto, govern their content, establishing the regulatory forecasts to guarantee compliance therewith.
Chapter III of the Portuguese Republic's Law 58/2005, of 29 December, deals with the regulation and planning of water resources. Article 24 defines the objectives of and tools for water planning, including the National Water Plan and the river basin management plans.
The brief references above show the great importance planning has in the management of water resources in the territories object of this study.

Public Participation

Point 14 of the preamble to Water Framework Directive acknowledges that its success depends, amongst other factors, on the involvement of the public, including water users, in the main decisions on water management. In any case, it is the duty of the planner to encourage active participation, which obviously requires something more than the cold publication of announcements in official journals. Special emphasis is placed on this participation as a perquisite for the establishment and updating of river basin plans, processes during which the public must be properly informed so that its members may provide their input before the plans are definitively adopted. Article 14 develops this duty and establishes the right to access, after previously so requesting, the documentation and information required to formulate these plans.

User Participation

The participation of users of water in the management of the resource goes beyond their presence from time to time in planning processes. In general, all the legislation of the Member States studied contemplates their active presence in both governing and consultative bodies related with the management of water resources. For example, Law 3199/2003, of 9 December, of the Greek Republic, includes user representatives on its National Water Council and Regional Water Councils. Via these bodies, they have influence on the decisions of the Inter-Ministerial Water Committee, the Central Water Agency and the Regional Water Directorates.
In Spain, the Water Law defines "User Communities" as associations of those with rights of use over water or other public water elements. These are public law corporations which are affiliated to the relevant river basin bodies. Article 70 of the Portuguese Republic's Water Law defines the Water User Communities in said country. In France, Article 31 of Law 92/1992, of 3 January, governs the involvement of territorial groupings in the study, execution and operation of all the water-related works of a general or urgent nature within the field of water resource management. Order 632/2004, of 1 July of the Ministry of Home Affairs, Internal Security and Local Freedoms, governs the owners' associations whose object is the construction and maintenance of water works associated with them. In Italy, the law provides for the constitution of different types of owners as-

sociations depending upon the responsibilities assigned to them, which include voluntary consortia of irrigators.

In the region studied, there have been different types of water user organisations for more than one thousand years. In many cases, they put into practice ancient know-how on the "whats, hows and whys" of many of the problems of water management, particularly that of shortage of supply to meet all the kinds of demand occurring in each territory. Management of water resources could not be imagined without their active participation.

In general, their operations are organised by means of a founding charter or regulations. These define their governing bodies, which are generally made up of a general assembly, executive body, Chairperson and, in many cases, a tribunal which hears cases on breaches of their regulations.

The Public Administration of Water

Finally, it should be noted that water management in European Mediterranean countries is carried out, almost in its entirety, by administrative bodies subject to public law with statutes defined by the provisions of the relevant national laws. Nevertheless, an overview of this management function would be incomplete if, together with the technical complexity inherent in regulating such a vital, scarce and threatened resource as water, account was not also taken of the political problems associated with carrying out the functions of planning and managing its use and demand.

Study of the legal framework currently in force in this region shows that legislative provisions go further than what was previously possible even if they only provide a response to the needs of today and tomorrow. Taking on board the "New Water Order" requires processes of genuine acceptation on the part of large sectors of society and also of assimilation, not substitution, of what has been, and still remains, the Mediterranean culture of water. All this in the aim of overcoming problems of the division of powers between the territorial public administrations affected by management decisions and, also, to prevent radicalised local positions that call into question the State's ownership of public water resources.

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