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Analysis of the implementation of full cost recovery of water services and water pricing in Greece under the provisions of the Water Framework Directive 2000/60/EC. Focusing on the Legal Aspect.

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Abstract: *This paper is related to the European Union (EU) water policy and in particular the 2000/60 Water Framework Directive (WFD) as the most comprehensive of all EU-directives, in the water sector. The WFD is the key point of the institutional framework of the third phase of EU's water resources management, a new "generation directive" that defines a framework for integrated river basin management. Among other innovations the "Recovery of costs for water services" provided for in Article 9 of the WFD requires Member States to consider the cost recovery principle during the establishment and application of their pricing policies for water services. This study is referring to the legal aspects of pricing water services in line with Article 9 of the WFD and presents the implementation policy and the legal framework on pricing water in Greece. Finally, this paper sheds light on the extent that Greece managed to implement Article 9 "Recovery of costs for water services" of the 2000/60 WFD. The findings reveal that there are considerable problems and delays in its implementation and that the Greek legislation hasn't yet delivered the main objectives of costs recovery.*
Keywords: *Environmental policy, Full cost recovery of water services, Greek law, Water resources management, Water Framework Directive*

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I. Introduction

The Community policy on water resources has been one of the first regulatory interventions in the sector of European environmental law, since from the early 1970s regulations for water quality protection have been in place. This legislation differs significantly from the legislation on the other natural resources (air, soil), as on one hand it is called upon to deal not only with pollution problems but also with water over-pumping and on the other hand with the multiple uses of water (water supply, irrigation, navigation, power generation, fishing) that make its single and coherent management challenging.

The basic areas of the Community policy on water protection and management are:

- drinking water, and in particular surface freshwater, bathing water and shellfish and aquaculture waters
- marine pollution (Barcelona Convention, Helsinki Convention, Paris Convention)
- discharge of substances and dangerous substances into the aquatic environment; flowing and underground water, lakes, rivers

The evolution of the Community institutional framework for the management and protection of water resources could be divided into three phases, based both on chronological criteria and on the directives content adopted each time period. The first phase was based on the guidelines of the First Action Plan (1973-1976) on the environment, which recognized water as one of the main priorities of environmental policy and ranged chronically from 1973 to 1980 [1]. During this time period, directives and decisions of two categories were formed:

a) The first category laid down Environmental Quality Standards (EQS), in order to ensure a minimum acceptable water quality for various uses and types of surface water, sea, fishing and bathing water, (Council Directive 75/440 / EEC on surface water, Council Directive 76/160 / EEC concerning the quality of bathing water and Council Directive 80/778 / EEC, relating to the quality of water intended for human consumption) [2] and

b) The second set the environmental limit values of specific products and substances in water for special [3]. This includes the Directive on the Pollution caused by Certain Dangerous Substances (CDS), (Directive 76/464/EEC), which is the first legislative text of the EU, which only concerns the protection of the aquatic environment against public health. In 1980, Council Directive 80/68 / EEC, supplementing Directive 76/464 /

EEC, was adopted by the Council of European Communities in relation to the reduction of emissions, but this time, to groundwater.

As a result of all these Directives during the first phase of Community law, significant progress has been made in limiting the risk of point source pollution in European waters, while pollution from diffuse sources (fertilizers and herbicides from agriculture) has proved more difficult. In addition, the legislation focused mainly on Water Quality Objectives (WQO) for specific categories such as bathing water, fishing, groundwater and water for shellfish farming.

During the second phase of the institutional framework for water resources management, which ranges from 1988 to 1995, European Community focused on controlling pollution at source based on Emission Limit Values (ELVs). The legislative framework of that period provided for the construction of biological cleaning plants and integrated projects for the protection of soils from pollution caused by various agricultural activities. The individual directives that were adopted were more specific as on one hand they aimed at setting maximum permissible water contamination limits and, on the other hand, at establishing stringent ELVs for specific substances and technical specifications based on new anti-pollution technologies.

The most important directives, which aimed at substantially improving water quality and preventing environmental degradation and were introduced within the framework of the second phase, were: (a) the Directive concerning the collection, treatment and disposal of urban waste water (Directive 91/271 EEC) and industrial waste water; (b) Directive 98/83 which laid down strict conditions for the quality of water intended for human consumption; and (c) the Nitrates Directive (Directive 91/676 / EEC) concerning the protection of waters against pollution caused by nitrates from agricultural sources, so as not to threaten the supply of drinking water, tourism and other economic and non-economic activities related to the water [4].

The third phase of the institutional framework for the water resources management has launched at the time of Communication of the Commission on the 21st of February 1996 on water resources policy. By its Communication, the Commission analysed the objectives and principles of this policy, identified the different types of water pollution and proposed the adoption of a framework directive on water resources. The aim of this Directive would be to rationalize existing legislation on management and water pollution, to approximate the qualitative and quantitative aspects of this policy, to strengthen the pollution control and to integrate planning of water management, based on river basins. Finally, in 2000, the European Parliament and the Council of 23rd October 2000 have adopted the Directive 2000/60/EC, thus establishing a framework for Community action in the field of water policy.

II. Recovery Of Costs For Water Services In WFD

The WFD is the key point of the institutional framework of the third phase of European's Union water resources management. In particular, Article 1 of Framework Directive 2000/60 provides that, for the first time, the scope of the new legal framework is the protection of surface, transitional, coastal and groundwater. This provision indicates the intention of the EU to establish an integrated management policy for all water resources in relation to the previous directives dealing with the issue fragmentally and individually. The purpose of this Directive is to establish a framework which:

«…(a) prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;

(b) promotes sustainable water use based on a long-term protection of available water resources;

(c) aims at enhanced protection and improvement of the aquatic environment, inter alia, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;

(d) ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and

(e) contributes to mitigating the effects of floods and droughts

and thereby contributes to:

- the provision of the sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use,
- a significant reduction in pollution of groundwater,
- the protection of territorial and marine waters, and
- achieving the objectives of relevant international agreements…»

Among these objectives, water management should be guided by the principle of sustainability, that is to say the promotion of sustainable water use and the creation of a policy that respects and protects water against human economic activities [5]. The principle of sustainability in the water resources management is a central aim of the Directive and is directly linked to the EU objective, as provided for by the Treaties for "... harmonious, balanced and sustainable development …".

The main pillar of the EC new policy and the key point of implementation of the Directive by the Member States is the provision of Article 3, which provides river basins as the basic unit for water resource

planning and management [6], [7]. River Basin is the new decentralized hydro-political unit, based on which water management is organized, replacing the former management, which was based on administrative boundaries and uses of water.

The "Recovery of costs for water services" provided for in Article 9 is the most important innovation of the Framework Directive compared to the pre-existing legislative framework for water management. In accordance with the provision of this Article, Member States shall take account of the principle of recovery of the costs of water services during the establishment and application of their pricing policies for water services.

The traditional and regular water management practice was focused on the one-sided management of its supply, where, when one water resource was exhausted, the consumption of one of the following started. Any needs were covered solely based upon the continuous construction of costly projects, giving little importance to needs control. Nowadays, based on the principles of sustainable water development and management, the practice followed by the states is to formulate policies for demand management rather than water resources supply. Demand management can be achieved through a series of actions relating to minimization of transport losses, water reuse, and efficient use of water resources [8].

Demand management is mainly achieved through the introduction of a regulatory framework for licensing of individual uses of water. The new EU policy, as set out in Directive 2000/60, has established specific licensing rules that Member States must incorporate. Demand control can also be achieved by costing water according to its full value, which is another viable solution for water saving. Costing is not only aiming at increasing profitability from water services, but likewise in awakening citizens to save this valuable resource.

For the calculation of the total cost of water services, three sub-parameters should be taken into account:

- supply cost that includes the costs of investments, operation and maintenance, labor and administrative costs,
- resource cost that according to WATECO represents the loss of profit, due to the restriction of water resources and refers to the foregone benefits due to the inefficient allocation or the excessive use of water resources [9]
- environmental cost that represents the cost from the damage directly on the environment and aquatic ecosystems and indirectly to the users because of human activities [10]

The table below illustrates the parameters as discussed above [11]:

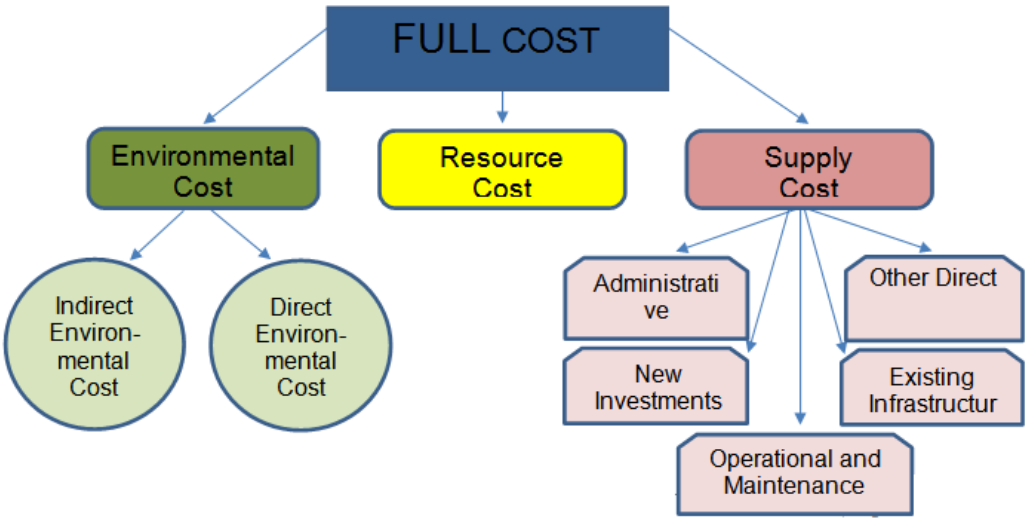

Table 1: Full cost recovery of waters services

In the WATECO guidance's glossary of terms, environmental costsare defined as the costs of damage that water uses impose on the environment and ecosystems and those who use the environment (e.g. a reduction in the ecological quality of aquatic ecosystems or the salinization and degradation of productive soils). Resource costsare defined as the costs of foregone opportunities which other uses suffer due to the depletion of the resource beyond its natural rate of recharge or recovery (e.g. linked to the overabstraction of groundwater) [12].

More generally, water pricing is a quite sensitive issue, particularly with regard to its ethical and social importance, namely the obligation to pay for a basic commodity, which is by its nature public and global and it is a recognized human right. Full cost recovery is not yet a common practice in pricing of the use of domestic water, irrigation and industrial use in the Member States.

III. Economic Instruments As A Tool For The Implementation Of WFD

The provision of Article 9 of the Directive is an economic instrument, since it obliges Member States to develop water-pricing policies for different uses, with the purpose of contributing to the environmental objectives and implementing the recovery of the costs. Economic instruments are an instrument of EU environmental policy which is increasingly used as one of the key priorities of the Sixth Environment Action Program of the European Community [3]. The "polluter pays" principle is the basis for implementing and enforcing economic instruments. Economic tools are regulatory tools (different types of environmental taxes and charges) that motivate individuals to change their conduct with the threat of financial costs in case of non-compliance.

The main advantages of these instruments in relation to the traditional "command and control" approach are:

● economic instruments allow those targeted by a regulation to choose between changing their conduct or accepting the costs provided by each financial instrument while at the same time remaining free to choose neither of them and bear these specific penalties. The latter option is also the only option that the regulatory model may provide in case of non-compliance with a rule

● responsibility for the success and better functioning of a rule is transferred – through the use of economic instruments - from regulators to those being regulated. So the addressees of the regulation have to decide what actions should be continued, stopped or modified so as to bring about a regulation that shall meet its objectives

● payment of environmental levies and similar charges as a result of the application of the principle "the polluter pays", urges consumers and businesses to behave in a way that does not violate the ecological requirements.

The economic instruments that could be used for the implementation of cost recovery principle provided under Article 9 of the Directive and the "polluter pays" principle are mainly environmental charges, which are characterized by the special consideration element. These charges allow to make an action causing pollution or environmental degradation (discharge of substances or waste into the water or over-abstraction of water), acceptable with the payment of a financial contribution.

As regards the economic parameters of water resources management, the philosophy underlying Article 9 should be interpreted within the general spirit of the Directive. In particular this philosophy is provided under the legal grounds no 38 of the Directive:

"The use of economic instruments by Member States may be appropriate as part of a programme of measures. The principle of recovery of the costs of water services, including environmental and resource costs associated with damage or negative impact on the aquatic environment should be taken into account in accordance with, in particular, the polluter-pays principle. An economic analysis of water services based on long-term forecasts of supply and demand for water in the river basin district will be necessary for this purpose."

Moreover, in Article 5 of the Directive it is provided that "each Member State should undertake for each river basin district an economic analysis of water use", on the basis of which the prices and charges for the various water supply services will be determined in order to take account of both net financial and environmental costs involved in the service.The aim of the pricing policy proposed by the Directive is the improvement of water policy management, based on the principle of sustainability, since reasonable and fair pricing could lead to the reduction of negative impacts, mainly in the area of agriculture and demand management.

Although it has been argued that the cost recovery principle is not in line with the general wording of the Environmental and Public Health Directive, nonetheless, during the preparation process of the Directive, its adoption was deemed necessary to control consumption and uncontrolled demand for water [13]. It is characteristic that in the negotiations for the production of the Directive the principle of full cost recovery has been an important issue of conflict between states, as other countries have a water charging system and others not, such as Ireland that supplies domestic water for free and recovers cost through taxation.

The implementation of the WFD was intended to provide the necessary impetus to water-pricing policies based on the elements set out in the Commission Communication to the Council, the European Parliament and the European Economic and Social Committee: "Pricing and sustainable management of water resources" [14]. This Communication notes that in order to achieve the environmental aims and to include the major economic principles, water pricing policies must reflect the following costs: (a) Financial costs, (b) Environmental costs, and (c) Water resource cost, namely that the cost of water management and utilization projects should be also taken into account. Additionally, each user must bear the cost of consuming water, while, if pricing is to promote better water-resource use prices must be directly linked to the amount of water consumed and/or pollution produced.

The basic obligations established under the Directive are that the Member States shall ensure by 2010:

- that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive,

- that different water uses (industry, households and agriculture) contribute to the recovery of costs for water services, based on the economic analysis conducted according to Annex III and taking account of the "polluter pays" principle.

The first obligation is very crucial since it clarifies that water-pricing should be conducted within the framework of environmental objectives provided by the Directive, whereas the second one leaves considerable room for interpretation [15], while it does not determine what the term "adequate contribution" means and restricts water service to those provided for in Article 2 of no 38 of the Directive. "Water services mean all services which provide, for households, public institutions or any economic activity: (a) abstraction, impoundment, storage, treatment and distribution of surface water or groundwater, (b) waste-water collection and treatment facilities which subsequently discharge into surface water". Water services are classified based on the definition given in two categories: a) those related to abstraction, impoundment, storage, as well as treatment and distribution of groundwater or surface water, and b) those covering waste-water collection and treatment facilities, which subsequently discharge into surface water.

To put it briefly, the water-pricing policy provided by the Directive should strike a balance between the need for cost recovery with an appropriate pricing policy and the use of appropriate economic instruments and the necessity to ensure access to safe drinking water for all. The latter is a social good that has been recognized as a fundamental human right by the United Nations Commission on Economic, Social and Political Rights [16] [17].

IV. Application Of Article 9 Of Wfd 2000/60 In Greece

Law 3199/2003 on "Water Protection and Management – Harmonization with Directive 2000/60/EC of the European Parliament and the Council of 23rd October 2000" was the first attempt by the Greek legislator to transpose EU law into domestic law in the field of water management. The Law was - according to its Introductory Report - designed to establish a framework for the integrated protection and sustainable management of internal surface, transitional, coastal and groundwater.

This new framework Law has introduced an innovative and holistic approach concerning water management on the basis of river basins as well. In more detail, the main objectives of new Law include:

- long-term protection of water resources, the prevention of deterioration and the protection and restoration/remediation of degraded water resources and wetlands,
- reduction and, in cases, the phase out of harmful and polluting discharges,
- reduction of groundwater pollution and the prevention of its further deterioration as well as the mitigation of the effects of floods and droughts.

Law 3199/03 has also incorporated the 'polluter pays principle' and the 'good ecological status' for all water resources and has provided a detailed identification of 13 River Basin Districts (RBDs) according to the administrative units of the country. The active involvement of the interested parties is ensured by their representation at the National and Regional Water Councils and the incorporation of the public participation requirements of the WFD.

Scope of the law is surface and groundwater, and in particular the "surface water system". This Law is including six basic chapters that contain the basic concepts, bodies, instruments, and plans - water management measures, the basic rules on water use, sanctions as well as transitional provisions. The changes included in the provisions of these chapters in relation to the previous legislative framework concern primarily the water resource management bodies.

At a central level, Law 3199/2003 provided for the establishment of a National Water Board, a National Water Council (Article 3) and a Central Water Authority (Article 4). The regional organization of water management has been governed by Articles 5 and 6 and Article 7, which provides for drafting of river basin management plans.

Article 10 provides for the various water use and water supply subheadings; it provides that this is prioritized against any other use, i.e. irrigation, industrial use, energy use and recreational use. This article also makes the sole reference to the entire legislative text on the energy use of water, a very vital factor in Greece.

The basic innovation introduced by the next article, which also concerns water uses (Article 11), in relation to the previous legislative framework is that it has established license granting for all uses of water and thus has provided for the regulation of the issue by a Joint Ministerial Decision. The first Ministerial Decision, which was issued under the authorization of Law 3199/2003, was the Joint Ministerial Decision no. 43504/2005, which was replaced by no. 140424/14.03.2017 Joint Ministerial Decision on "Modification of no 146896/2014 Joint Ministerial Decision (Official Gazette B' 2878 and B' 3142/2014), as amended by Joint Ministerial Decree No 101123/2015 (Official Gazette B' 1435) and Joint Ministerial Decision no. 170766/2016 (Official Gazette B' 69), as well as Joint Ministerial Decision no 145026/2014 (Official Gazette B' 31), as amended by no 145893/2014 Joint Ministerial Decision (Official Gazette B' 1212)".

The new Joint Ministerial Decision sets out the precise procedures and data required for issuing water use licenses as well as for electricity supply of new and existing agricultural facilities. Specifically, for water uses, the law has determined certain rules to be taken into account in the Management Plans: (a) each use should aim at sustainable and balanced fulfillment of development needs and should ensure long-term water protection, pollution reduction and prevention, conservation of water resources and (b) the satisfaction of water demand is based on the potential of water resources and the conservation of ecosystems, with the aim of balancing between pumping and recharge.

At the same time, the provision of Article 14 of Law 3199/2003 for the imposition of criminal sanctions provided for in article 28 of Law 1650/1986 is exceptionally critical.

"…. To any person causing pollution or otherwise degrading the waters by an act or omission contrary to the provisions of this law ... and to any person who carries out an activity or business without the required, ... license or approval or exceeds the limits of the license or approval granted to him".

Regarding the "Recovery of Costs for Water Services", Law 3199/2003 provided in particular under Article 12 of the Law that:

"In virtue of a decision by the National Water Committee, published in the Official Gazette, the procedures, the method and the levels of cost recovery for water services in different uses by taking into account:

(a) analysis of characteristics of drainage basins,

(b) overview of impact of human activities on conditions of surface water and groundwater,

c) economic analysis carried out in accordance with the provisions of Presidential Decree provided for in Article 15, paragraph 1,

(d) «polluter pays» principle,

(e) social, environmental and economic effects of recovery, as well as geographical and climatic conditions of the area concerned."

In this way, the Law gave the legislator the legislative power to regulate the issue of cost recovery for water services, taking into account some principles. Directive 2000/60 provided that states should incorporate in their legislation full cost recovery for water services, taking into account economic costs, environmental costs and resource costs by 2010.This general framework set by Law 3199/2003 was supplemented by Presidential Decree 51/2007, which included Article 8 on the Costs Recovery for Water Services, which essentially repeats the provision that general costing rules and pricing of water, including cost recovery, are approved by a decision of the National Water Committee, published in the Government Gazette. At the same time, it was envisaged that in order to achieve the objectives of national water policy, by 2010:

"... (a) water pricing policies should provide appropriate incentives for users to use water resources efficiently and thus contribute to the achievement of environmental objectives ...

(b) appropriate contribution of the different uses of water, at least in industry, households and agriculture, should be established for recovery of water services cost on the basis of the economic analysis ..."

From the study of the legislative framework laid down by Law 3199/2003 and as supplemented by Presidential Decree 51/2007, we may observe that there are only general references to the Law on Cost Recovery and that Pricing - Costing will be determined later on after a decision issued by the National Commission Water. Although Article 12 of the Law and Article 8 of the Presidential Decree raises the question of cost recovery, therefore neither any measures are provided for its achievement nor any ways of informing the users and especially the farmers who are the main users of the annual capacity, in order to link agricultural policy to the new EU policy for water.

Water in this way is not treated as a natural and social good for all, nor as a resource for the productive development of the country, and the provisions provided for the recovery of water cost do not provide comprehensive protection, they do not actually apply the principle "Polluter pays", they do not provide for specific provisions to increase available water capacity and they do not incorporate the framework set by Directive 2000/60, since many definitions and objectives included in the Directive have not been transposed into the law. Moreover, the transposition of Directive 2000/60 into national law is not the only case of a misapplication of Community law, since Directive 76/464/EEC on water pollution has been transposed into national law by three judgments by the ECJ (Cases C- 232/95, C-233/95 and C-384/97) and Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources has been transposed into national law with considerable delay.

Considering the aforementioned analysis, it is clear that the Greek legislation (Law 3199/2003 and Presidential Decree 51/2007), did not adopt the provisions set by the European directive for the full recovery of costs and for the pricing of water. According to data of the report drawn up by the Athens University of Economics and Business in 2008 on behalf of the Ministry of the Environment, Physical Planning and Public Works entitled: "Implementation of the economic aspects of Article 5 of the Water Directive 2000/60/EC in Greece" [18] the total water cost recovery up to the adoption of legal framework in 2017 by Joint Ministerial Decision 135275 / 22.05.2017 was the sum of the prices listed below and it was conducted at four levels:

Recovery from water sales, recovery from fixed consumer costs, recovery from the use of the sewerage network and finally recovery through the special fee of 80% for study construction and extension of the network [19]. More specifically:

1. Recovery from water sales: It is assumed that all the water quantity requested for water supply as presented in the National Management Plan by the Ministry of the Environment, Physical Planning and Public Works is sold to consumers. From the data of the Association of Municipal Water Supply Sewerage Companies (EDEYA), the average water price per cubic meter for the water compartment is derived. Recovery from water sales in the water compartment will be equal to the product of the required quantity in cubic meters on the average water price per cubic meter of the water compartment. The exception is the Attica water district where the average selling price of Athens Water Supply and Sewerage Company (EYDAP S.A.) is used instead of the average price of the apartment.
2. Recovery from fixed consumer costs: Additionally, the average of fixed costs per water compartment is deduced from EDEYA data. The average number of accounts that the consumer pays per year is also calculated. As an indication of the total number of consumers, the total number of hydrometers in the water compartment is used. Recovery from fixed charges in each water compartment is estimated as the product of the average fixed charge and the average number of bills multiplied by the known number of water meters. It should be noted that in this way the recovery from fixed charges is underestimated, since the known number of water meters is less than the total number of consumers in the water compartment.
3. Recovery from sewerage services: The average charge as a percentage of the total cost for purchasing water is calculated from the EDEYA data. Recovery from sewerage services is calculated as the product of the total water purchase cost and the percentage of the average charge.
4. Recovery from the special fee of 80%: It is defined as 80% of the total water purchase cost.

Greece delayed transporting the provisions of Article 9 of the WFD for almost 7 years. Before the new legal framework was adopted (Joint Ministerial Decision no. 135275/22.05.2017) the European Commission drafted a report in 2015 [20] , a summary of the programs of measures (PoM), including the ways in which Greece expect to achieve the objectives of Article 4 of the WFD for River Basins. Drafting of River Basin Measure Programs (RBMPs) was commissioned to different consultants and coordinated by Ministry of Environment, Energy and Climate Change – Special Secretariat for Water (EGY). The programs should have been established by 2009, but due to delayed submission of the Greek RBMPs, this deadline could not be kept. This delay was due to several factors which relate to technical issues, as well as legislative and administrative barriers and socio-economic constraints.

According to the findings reported on the Communication from the European Commission to the European Parliament and the Council titled as: "The Water Framework Directive and the Floods Directive: Actions towards the 'good status' of EU water and to reduce flood risks" in Greece, economic analysis differs significantly between River Basin Districts (RBDs) due to the extensive lack of data and the lack of a clear national guidance on the issue. For all RBDs, the economic analysis shows: "gaps regarding the actual information used or available (e.g. division of costs for public water supply and sewage is not possible; lack of information regarding costs and revenues for many water supply companies/municipalities etc.) and questionable methodologies and assumptions are used for the calculation of environmental costs."

As the Commission reported, Greece did not apply the "Polluter pays" principle, the contribution of water users to the costs of water services and the implementation of pricing according to the WFD. In the Greek legal framework there is no clear definition of water services and water supply and wastewater treatment services are treated together as one service. This service is competent for calculation of cost recovery rates and the existing cost recovery levels varies as environmental and resource costs have not been calculated and included in the cost recovery calculations in all RBDs, in the way the WFD sets. According to the data of the Report no information was found on the application of provisions of Article 9 of the WFD, or regarding the implementation of Article 9.

The legislative gap in recovering the water services cost in Greece was covered only in May 2017 by a new Joint Ministerial Decision, after a long delay from the threshold established by Directive 2000/60 and following consultation with interested parties and a variety of reactions from various authorities. The Ministry of Environment and Energy has organized a public consultation concerning the Joint Ministerial Decision in September 2016 and the Deputy Minister Mr. Yiannis Tsironis urging citizens and social organizations to participate in public e-consultation in order to submit their proposals.

At the same time, a technical consultant on behalf of the Ministry was assigned to submit proposals for pricing and cost recovery of water services. The findings of the study revealed that water services and water providers do not operate in a homogeneous manner within a national framework, and in some cases Municipal Water Supply and Sewerage Services (JSCs) follow a unified and organized pricing system, while others do not discriminate between data costs not even per service (water supply, sewerage) neither per use (water supply, irrigation, etc.), and when the Municipality does not own an enterprise but manages the water supply service by

itself, many elements of the financial cost are not even calculated or they are confused with other services provided. Koundouri's et al. research a few years earlier provided almost the same estimates of current cost recovery of water services as they reported significant differences in the degree of cost recovery between the different municipalities in Greece [19].

Regarding irrigation in particular, the data showed that few operators (General Land Improvement Organizations - GGEB, Public Power Corporation S.A. -PPC) follow modern systems for recording the cost of water, while Local Land Improvement Organizations-LLIO do not record the actual cost of water or consumption, nor do they use any specific principles for its pricing. The study suggested, as far as household pricing policy is concerned, full recovery of all cost elements for each provider on the basis of local conditions and cost reduction combined with the generally applied principle for increasing tariffs for higher consumption levels.

V. New Legislation, New Hope?

The objective of the new Joint Ministerial Decision No. 135275 / 22.05.2017 on "Adoption of general rules for costing and pricing of water services, method and procedures for recovery of water services cost in its various uses" was the establishment of costing principles, pricing of water services and the determination of procedures, method and levels of cost recovery of water services in its various uses and the systematic application of the provisions of Article 12 of Law 3199/2003 on cost recovery of water service and Article 8 of Presidential Decree 51/2007. This decision by the National Water Board is a transposition of the provisions of the Water Framework Directive 2000/60/EC as incorporated into Greek law by Law 3199/2003. The comparable decision should have been issued since 2010 and constituted conditionality for the country in the water sector.

In particular, this Decision seeks to:

• Incorporate the requirements of Directive 2000/60 / EC
• Cover all uses of water and all water service providers
• Recover the cost of water services flexibly and gradually as a tool to conserve water consumption
• Include environmental costs and resource costs (environmental tax) as a guarantee of sustainable use of water resources
• Refund the environmental charge received through the green fund
• Price the water on a staggered bill
• Treat water as a social good, with special care of socially vulnerable population groups
• Establish measures for continuous monitoring a gradual improvement of water services in social interest.

Ministry of Environment and Energy has stated in a press release that, "Improving the cost recovery of water services is primarily driven by cost reductions and not by the approach of collecting tariff increases", adding that "in cases such as periodic increases in average water service charges, which cannot exceed the GDP growth rate of the previous year, are allowed. In this way, improving the welfare of citizens, as reflected in GDP, is linked to any possible increase in the price of water."

Pricing will include the following:

A) Financial Cost (Article 4 and Paragraph I): capital cost calculated on the basis of annual depreciation of fixed assets of provider, cost of opportunity calculated on the basis of return on capital employed in alternative activities, operating costs consisting of fixed and variable running costs, infrastructure maintenance costs and administration costs including third party fees. In case of water transport in arid areas, users are charged with additional costs unless there is a relevant government grant.

B) Environmental Cost (Article 5 and Paragraph II), which, among other things, was also imposed in cases of underground water system with poor chemical status, not caused to natural causes. This simply means that, as Government imposing very difficult fines for pollution, users will pay the cost of remediation of water system pollution by third parties.

C) Resource Cost (Article 6 and Paragraph III) is also covering the poor management of water resources.

Environmental and resource costs are added together (Article 7) to the environmental tax, which shall be specifically "clearly and comprehensibly" inserted in the accounts and when collected, it shall be submitted, almost as a whole, known as the "Green Fund". Article 9 (General Billing Rules) provides for increases in bills if savings made by a water-supply company are not sufficient to improve the recovery of service cost. Article 14, entitled "General Rules and Directions for Improving Water Services", mostly gives guidance on how increases can be imposed.

Only a few months after adoption of new institutional framework it would be inappropriate and premature to include some observations in the present study on whether or not to achieve the full cost recovery of water services on the basis of provisions of Directive 2000/60. However, two points of new legislative framework are of particular concern and will certainly be the subject of discussion and study at EU-and at national level as well.

One point concerns the explicit exclusion of the energy sector.
Article 2 "Scope of Application" in paragraph 2 provides as follows:
«... .2. This decision shall not apply to: (a) water services for the production of hydropower from inland surface waters and ... '.

The new Joint Ministerial Decision therefore excludes from its scope of application any water services for the production of hydropower that is permitted by Article 9 (4) of the Directive, which provides that Member States are allowed under certain conditions not to apply the principle of cost recovery of a specific activity related to the use of water,since the objectives pursued by that directive are not thereby affected and their achievement is not jeopardized. Indeed, it is characteristic that for the same case of omission Germany has been referred to the European Court of Justice (ECJ), where the ECJ held that:
"…Although, as rightly pointed out by the Commission, the various activities listed in Article 2(38) of Directive 2000/60, such as abstraction or impoundment, may have an impact of the state of bodies of water and are therefore liable to undermine the achievement of the objectives pursued by that directive, it cannot be inferred therefrom that, in any event, the absence of pricing for such activities will necessarily jeopardize the attainment of those objectives….

It follows that the objectives pursued by Directive 2000/60 do not necessarily imply that Article 2(38)(a) thereof must be interpreted as meaning that they are all the subject of all activities to which they refer to the principle of recovery of costs, as maintained in essence by the Commission."

The second point concerns Water Service Providers as these are provided for in Articles 3 (1) and 8 (3) of Joint Ministerial Decision. In particular, Article 3 under "Definitions" provides:

«1. Water service providers ": Public and municipal bodies, Public Organizations, Public Enterprises, Legal Persons of Private Law (EYDAP SA), Water Supply & Sewerage Company of Thessaloniki (EYATH S.A.), EYDAP Assets Company, EYATH SA Assets Company, the Land Improvement Organizations (OEBs), Local Administration Organizations (level A'), which provide water services either to other entities or to end-users.
And Article 8 "General Framework of Services"
«3. Water service providers for water supply and / or sewerage and wastewater treatment are EYDAP SA, EYATH SA., EYDAP Assets Company, Municipal Enterprises for Water Supply and Sewerage (EDEYA), Local Administration Organizations (level A'), as well as other bodies supplying water to the final users."

The reference of the meaning of other providers in Article 8 of water supply to end users in conjunction with Article 16 (2), where it is clear that in case of private collective water supply networks, the costing and pricing rules are treated in a similar way as in concessions agreements, enables individuals to participate in the provision of water services. Besides, the largest providers of water and sewerage services EYDAP SA and EYATH SA which are expressly considered in the new Joint Ministerial Decision as water service providers are multiple share listed companies, and the state's shareholding has been transferred to the Superfund in order to be sold to investors, for financing the Greek debt.

Greece's water price policy should be designed on the principles of economic efficiency, equity, affordability and environmental effectiveness [21], and the provisions of Greek legal framework should be interpreted in conjunction with both Greek Constitutional provisions on the protection of water resources and the recent Decision by Council of State no. 1906/2014, which has judged that:

"…The provision of services of general interest, such as water supply and sewerage, is not an activity inseparable from the core of state power. In the contested act, EYDAP is privatized not only by type but also in essence, by virtue of its transformation into a privateenterprise, following the secession of the Greek State from the majority of the company's share capital, in violation of Articles 5 and 21 (3) of the Constitution.»

VI. Conclusion

Much progress has been made in water protection in Europe, but after almost 30 years of European water legislation, the demand for further action is expressed, in order to conserve adequate supplies of a resource for which demand is continuously increasing. The WFD is setting general, long term goals and leaving many choices open to member states than previous directives. One of the Directives' most important innovations is the introduction of pricing and recovery of costs as Member States will be required to ensure that the price charged to water consumers reflects the true costs.

Although the WFD is an ambitious and comprehensive framework for water protection it hasn't fulfilled its target for a sustainable management in all EU countries. In Greece there was a big delay in transportation and implementation of the goals and standards in recovery of costs for water services as well as in the process organised. Even though the stakeholders were formally involved in the discussion for the adoption of the new Joint Ministerial Decision no. 135275/22.05.2017 for water pricing, the central state representatives took the final decision. According to the "World of Compliance" typology Greece belongs partly to the world of "transportation neglect", as it has major deficiencies in the transposition in the water pricing sector. The

implementation of measures on cost recovery and water pricing based on a common approach across RBDs is urgent in Greece, in order to fulfil the Article 9 requirements and to achieve economic sustainability.

Although there are previous researches for the implementation of WFD in Europe and in particular in Greece as the WFD has attracted wide scholarly attention, this survey is the first to provide a review of Greek legislative framework on Recovery of Costs of Water Services. In this study we focus on Greece and we make an attempt to aggregate the legislation concerning the pricing and cost recovery of water services even there is a lack of data, research and very low public participation in decision making and policy making. Implementing efficient water prices is always a milestone at public authorities' policy as they raise social concerns and influence household water consumption.

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