



## Info-package 6

# Authorities and Policy Makers

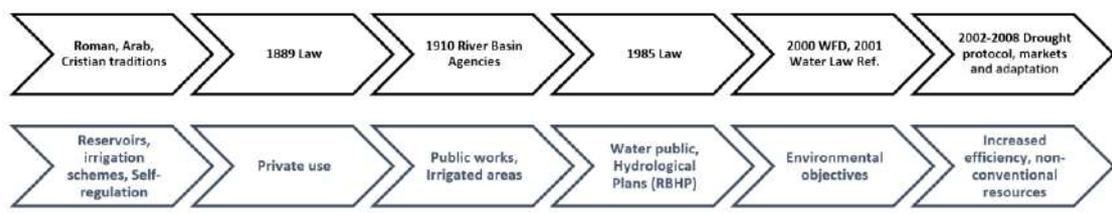
### Fact Sheet 6.3 – Water resources governance (e.g. need to incorporate reclaimed water into integrated water resources management).



**SUWANU EUROPE** is a H2020 project aiming to promote the effective exchange of knowledge, experience and skills among practitioners and relevant actors on the use of reclaimed water in agriculture. This factsheet is part of a total of 5 factsheets in Info-package 6 aimed at authorities and policy makers, that describe trajectory and current features of water governance in Spain

#### 1. Introduction:

Agriculture is the main water user (72% of total abstractions), especially irrigated agriculture, which is 18% of the total cultivated area. Urban and industrial water supply is guaranteed and is of good quality. Moreover, southern Spain has water scarcity and prolonged droughts, leading to the growing use of seawater desalination and a lack of resources to cover water demands.



**Figure 1: Chronology of Spanish water governance and institutions**

#### 2. Evolution of water governance in Spain

Spain has a long history of State intervention in water management. The 1879 Water Law regulated the private use of water both individually and through “water users’ associations” (WUAs), which have a key role in Spain’s water policy. This law established administrative licences for water rights and declared water resources to be public property under the control of the State. Water agencies (River Basin Authorities - RBAs) were created in the 1920s to execute water policy, mainly through supply-side actions (reservoirs and channels). The Democratic Regime renews the water institutions with the 1985 Water Law that reinforced the public nature of water resources and raised the priority of water quality protection and ecosystem health. Additionally, this law led to the first cycle of River Basin Hydrological Plans (RBHP) which strove to implement water rights defined with supply guarantee according user hierarchy (a failure threshold below 10% for irrigation and 0.2% for urban sectors).

#### 3. Drought management

The 1978-1984 drought probably heavily influenced the 1985 Water Law. However, the 1990-1995 ‘Megadrought’ affected all of Spain during the first cycle of RBMPs and had a marked impact on the regulation and allocations of water under extreme conditions. As a reaction to this drought, the 2001 National Hydrological Plan Act incorporated the concept of drought management plans (DMPs) to be drawn up by the RBAs. These plans include a) drought diagnosis (definition of indicators and monitoring); b) program of measures; c) management options; and d) a follow-up system. Once a drought has been identified, the DMPs should identify the most appropriate mitigation measures, adapted to the different established drought thresholds and phases.

The environmental effects of droughts on ecosystems were not initially included in the RBMPs (1992) and were incorporated into Spanish legislation through the 2001 Water Law and were also included in the 2009 and 2015 RBMPs.

#### 4. Water governance since 2000

The purpose of the 2001 Water Law that amended 1985 Law was to include the European Water Framework Directive (WFD) in Spanish law. WFD is mainly addressed to achieve a 'good environmental status' of all European water bodies and encourage efficient water management. The Spanish legislation incorporates the environmental criteria besides the traditional two that were: satisfying human needs and contributing to territorial and economic development. The growing scarcity due to temporal droughts and decreasing resources the last decades and the increasing societal demands (environmental flows, water masses status) and the opposition to increased supply by new reservoirs have changed the paradigm towards managing demand by increasing efficiency use and implementing economic instruments: water markets, and water tariffs.

While water markets had been traditionally used in Spain, especially in the arid southeast, they were abolished under the 1985 Water Law, but the 2005-2008 drought forced reestablishment of water markets to support high-value crops by trading between different users. However, the volume of water traded in Spain remain small and are concentrated in a few regions. Additionally, water trading occurred almost exclusively during droughts, and even under these extreme scarcity situations, trading accounted for less than 5% of total water use.

The national program for irrigation 'modernization' began in 2002 in response to the 1990-1995 drought. The national policy of subsidizing water savings and conservation technologies was considered as the core of the national plan for "drought emergency measures". The Spanish government developed the National Irrigation Program to convert the old open-channel distribution infrastructure into pressurized pipe networks to achieve annual water savings of 3,000 hm<sup>3</sup> (Berbel et al., 2019). Water-saving techniques are the main irrigation management initiatives in the implementation of the WFD and the RBMPs in southern Spain. National investments of EUR 4,0·10<sup>9</sup> have been made in water conservation technologies, which have affected 1.7 10<sup>6</sup> ha with an estimated water abstraction reduction of 1,925 hm<sup>3</sup>. Regarding urban water, levels of consumption (137 l/day/inh.) leave a margin for water savings.

Regarding water tariffs, those are regulated by the Law and by the WFD and should be aimed to cost recovery and should implement volumetric billing. The 'modernization' of irrigation system included volumetric metering as a condition to subsidize infrastructure and consequently a majority of the farmers pay water per volume, with an increasing cost due to the impact of pressurized networks and impact of energy expenses which is moving farmers to invest in PV systems and precision irrigation (53% of irrigated area uses drip systems).

#### 5. Recent developments

The recent droughts, the WFD and political pressures have altered perceptions of water use, especially in urban areas. In all regions, several policies have been implemented to reduce water use, specially in the water scarce areas in Southeast and Islands. The construction of desalination and water-recycling plants supplied certain municipal water use. Similarly, regulations were implemented to reduce water consumption and to incentivize urban water conservation. Reclaimed water and desalinated water amount to 2% of total use, both sources were promoted as a response to 2005-2008 drought event. Water reuse was regulated by Royal decree 1620/2007 meanwhile desalination that goes back to 1964 and was promoted in program A.G.U.A (2007).

#### Reference/further readings

Berbel, J., & Esteban, E. (2019). Droughts as a catalyst for water policy change. Analysis of Spain, Australia (MDB), and California. *Global Environmental Change*, 58, 101969.

Berbel, J., Expósito, A., Gutiérrez-Martín, C., & Mateos, L. (2019). Effects of the irrigation modernization in Spain 2002–2015. *Water resources management*, 33(5), 1835-1849.

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