

Sharing water in the international Tagus River basin: a geopolitical approach to explaining water governance issues in Spain

Compartiendo el agua en la cuenca internacional del río Tajo: un enfoque geopolítico para explicar los problemas de la gobernanza del agua en España

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ABSTRACT

This paper provides an overview of different policies, political strategies and spatial conflicts on water issues in 21st century Spain, with an illustrating example about the management of the Tagus River. This international river basin, which is shared between Spain and Portugal, must meet the requirements of the Water Framework Directive, as all the river basins in the European Union do. The power granted to Spanish regions, their asymmetric economic development patterns, and the worsening droughts associated with climate change have created a water conflict. This paper shows, through the French geopolitical approach, how water policy in Spain has evolved these last decades and how water scarcity has become a geopolitical representation in certain territories. This study focuses on the territorial observation of power rivalries at different scales, providing new and complementary elements that can help understand water governance challenges in Spain in the years to come.

KEYWORDS: Geopolitics, Tagus River, Spain, Water Framework Directive, Albufeira Convention.

RESUMEN

Este artículo ofrece una visión general de las diferentes políticas y conflictos espaciales en materia de agua en España durante el siglo XXI, con un ejemplo ilustrativo sobre la gestión del río Tajo. Esta cuenca hidrográfica, compartida entre España y Portugal, debe cumplir los requisitos de la Directiva Marco del Agua. El poder otorgado a las regiones españolas, su desarrollo económico asimétrico y el aumento de la severidad de las sequías asociada al cambio climático han creado un conflicto hídrico. Este artículo muestra, a través del enfoque geopolítico francés, cómo la política del agua en España ha evolucionado estas últimas décadas y cómo la escasez hídrica se ha convertido en una representación geopolítica en determinados territorios. Este estudio, centrado en la observación territorial de las rivalidades de poder a diferentes escalas, aporta elementos nuevos y complementarios que ayudan a comprender los retos de la gobernanza del agua en España en los próximos años.

PALABRAS CLAVE: geopolítica, río Tajo, España, Directiva Marco del Agua, Convenio de Albufeira.

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Partager l'eau dans le bassin international du fleuve Tage: une approche géopolitique pour expliquer les enjeux autour la gouvernance de l'eau en Espagne

RÉSUMÉ

Cet article fournit une vue d'ensemble des différentes politiques, stratégies politiques et conflits spatiaux sur les questions d'eau en Espagne pendant le 21ème siècle, avec un exemple illustrant la gestion du fleuve Tage. Ce bassin fluvial international, partagé entre l'Espagne et le Portugal, doit répondre aux exigences de la directive-cadre sur l'eau, comme tous les bassins fluviaux de l'Union européenne. Le pouvoir accordé aux régions espagnoles, leur mode de développement économique asymétrique et l'aggravation des sécheresses liées au changement climatique ont créé un conflit de l'eau. Cet article montre, à travers l'approche géopolitique française, comment la politique de l'eau en Espagne a évolué ces dernières décennies et comment la pénurie d'eau est devenue une représentation géopolitique dans certains territoires. Cette étude se concentre sur l'observation territoriale des rivalités de pouvoir à différentes échelles, fournissant des éléments nouveaux et complémentaires qui peuvent aider à comprendre les défis de la gouvernance de l'eau en Espagne dans les années à venir.

MOTS-CLÉ: Géopolitique, Fleuve Tage, Espagne, Directive-Cadre sur l'Eau, Convention d'Albufeira.

Partilhar água na bacia internacional do Tejo: uma abordagem geopolítica para explicar as questões de governação da água em Espanha

RESUMO

Este artigo apresenta uma visão geral de diferentes políticas, estratégias políticas e conflitos espaciais relacionadas com questões hídricas em Espanha no século XXI, com um exemplo ilustrativo focado na gestão do Rio Tejo. Esta bacia hidrográfica internacional, que é partilhada entre Espanha e Portugal, tem de cumprir os requisitos da Directiva-Quadro da Água, como é o caso em todas bacias hidrográficas da União Europeia. O poder concedido às regiões espanholas,

os padrões assimétricos de desenvolvimento económico, e o agravamento de secas associadas a alterações climáticas, criaram um conflito hídrico. Este artigo mostra, usando uma abordagem geopolítica francesa, como a política da água em Espanha evoluiu nestas últimas décadas e como a escassez de água se tornou uma representação geopolítica em determinados territórios. Este estudo foca-se na observação territorial das rivalidades de poder a diferentes escalas, fornecendo elementos novos e complementares que ajudam a compreender os desafios da governação da água em Espanha nos anos vindouros.

PALVRAS CLAVE: Geopolítica, Rio Tejo, Espanha, Directiva-Quadro da Água, Convenção de Albufeira.

Condividere l'acqua nel bacino internazionale del fiume Tago: un approccio geopolitico per spiegare i problemi di governance idrica in Spagna

RIASSUNTO

Questo articolo fornisce una panoramica delle diverse politiche, delle strategie politiche e dei conflitti territoriali sulle questioni idriche nella Spagna del XXI secolo, con un esempio illustrativo sulla gestione del fiume Tago. Questo bacino fluviale internazionale, condiviso tra Spagna e Portogallo, deve soddisfare i requisiti della Direttiva quadro sulle acque, come tutti i bacini fluviali dell'Unione Europea. Il potere concesso alle regioni spagnole, i loro modelli di sviluppo economico asimmetrici e l'aggravarsi della siccità associata ai cambiamenti climatici hanno creato un conflitto idrico. Questo articolo mostra, attraverso l'approccio geopolitico francese, come si è evoluta la politica idrica in Spagna negli ultimi decenni e come la scarsità d'acqua sia diventata una rappresentazione geopolitica in alcuni territori. Questo studio si concentra sull'osservazione territoriale delle rivalità di potere a diverse scale, fornendo elementi nuovi e complementari che possono aiutare a comprendere le sfide della governance idrica in Spagna negli anni a venire.

PAROLE CHIAVE: Geopolitica, Fiume Tago, Spagna, Direttiva Quadro sulle Acque, Convenzione di Albufeira.

Introduction

In Spain, water management is currently influenced by strong power rivalries among different stakeholders. Over the last 20 years, Spanish water policy has set not only the main political parties, regions and consumers against one another (golf-related tourism, irrigation communities, agriculture companies, hydroelectric power and water supply companies etc.), but also civil and environmental organizations. Society's perception that water resources are scarce and necessary for economic development or for the protection of river ecosystems makes sharing water a sensitive question in many areas. The main stakeholders involved base the legitimacy of their demands on economic, environmental, and even identity and patriotic arguments (common interest, inter-regional solidarity, etc.)¹. Faced with this scenario, the issue of water management has led to a strong political confrontation to the point that difficulties arise when it comes to approving a National Water Plan (Spanish National Hydrological Plan) implementing the European Union Water Framework Directive (hereafter WFD) or respecting international agreements on transboundary river basins.

For example, the approvals in 2014 of the first Tagus River Basin Management Plan and the second in 2019, which were established by the WFD in 2009 and 2015 respectively, have been blocked due to political tensions about the future of the Tagus-Segura inter-basin transfer. Several Spanish Autonomous Communities (i.e., regions), with their respective regional interests, are confronted with "a minimum environmental flow" to achieve a good ecological quality of water between 2015 and 2027. The Tagus-Segura transfer, operating since 1979, is actually one of the main symbols of national water policy and has stimulated regional development in agriculture and tourism in Southeastern Spain, especially in the Región of Murcia and in the South of Valencia. In addition, the governments of Spain and Portugal are required to fulfill the binding commitments for the international Tagus basin, under the Albufeira Convention signed in 1998.

Rivalries are mainly caused by the idea that water resources are scarce, which reflects an objective situation resulting from recurrent droughts. The climate time series shows that dry periods are longer in the Iberian Peninsula than humid ones. Since 1980, average

rainfall has decreased and drought cycles have been longer (1979-1982, 1990-1995, 2005-2008)². Moreover, according to climatic projections, global warming should exacerbate floods and droughts. Nevertheless, these rivalries also depend on the chosen economic development patterns and their modes of water usage, regardless of which political party is in power. In general, water-scarce regions such as the Mediterranean (Valencia, Murcia and Eastern Andalusia) consider the State as the only "owner" of water resources. Conversely, the inland regions (Aragón and Castilla-La Mancha) that provide water transfers claim protection for their local natural resources from regional authorities.

These significant events show how the issue of water has become geopolitical in Spain, since political strategies on this subject are highly linked to the territories³. The results of negotiations depend on local policies and their articulation at national and EU levels, and not only on environmental issues.

Objectives and methodology

The purpose of this article is therefore to present the French geopolitical approach, which hasn't often been applied to the study of water issues (in Spain). That is, the study of spatial conflicts and political strategies among different stakeholders and across multiple scales. Its principal theorist, Yves Lacoste, set the basis for this scientific approach in the 1970s. He defined geopolitics as the study of power rivalries or influences over a very specific territory and/or the population living there⁴. Unlike the geopolitics oriented towards the production of concepts applied to vast territories, the French method is based on the study of conflicts in more restricted territories; it is a method based on precise knowledge of the terrain. This is why the geopolitical approach incorporates geographical reasoning and physical, economical and human characteristics of the different spaces⁵.

In addition, while political geography places the study of space at its center, the object of geopolitics as it is approached here is not space itself, but the rivalries and maneuvers that antagonistic groups develop in said space. It further compares the analysis of opposing

¹ Salinas Palacios, D., 2016, 534.

² Lorenzo-Lacruz *et al.*, 2013, 8063-8103.

³ Salinas Palacios, 2016, 534.

⁴ Lacoste, 1993, 1680.

⁵ Loyer, 2019, 224.

convictions and the contradictory representations of the different protagonists in the conflict, “geopolitical representations” which have been based on historical events⁶. These different “points of views” about the conflict are usually created by convictions founded on very partial truths, or even lies. Indeed, the stakeholders’ strategies and their articulation on a local, regional and international scale is key. In fact, this spatial analysis at different levels, called *diatopic*, and the mapping of phenomena are tools to discern the changing power relationships and placing them in their context⁷.

More specifically, the term “water geopolitics” is increasingly used to define political rivalries over the sharing of water flows in river basins or even the exploitation of groundwater resources⁸. Such rivalries between different actors are manifested through water works and projects. They can occur between States whose territory is crossed or bordered by a river. For example, the Euphrates-Tigris basin is mostly shared between Turkey (upstream), Syria and Iraq. Since the beginning of the 1960s, the co-riparian States unilaterally initiated large-scale water development projects for irrigation and hydropower in an uncoordinated way, thereby affecting the river flow⁹. The large number of factors which play a part in the eruption of the conflict shows that grievances over water management are not the only sources of conflict in the Euphrates-Tigris basin. This also shows how Turkey, as an upstream State, could instrumentalise water to pressure States located downstream.

Similarly, the sharing of Nile waters between Egypt, Sudan and Ethiopia is a source of conflict due to population growth, recurrent droughts, and declining Nile floods. The Aswan High Dam, built in Southern Egypt by President Nasser in the 1970s, enabled the Egyptian State to develop irrigated agriculture in the desert. However, it increased its dependence on the waters of the Nile, making diplomatic and legal cooperation between riparian countries difficult. Since 2011, tensions between these countries have increased because of the beginning of work on the Grand Ethiopian Renaissance Dam. This major Ethiopian hydropower project is located on the Blue Nile, one of the two major tributaries of the Nile, which supplies 85 % of the water to the Nile during the rainy season. Each adjoining State claims its right to water, dealing with opposing doctrines

(absolute territorial sovereignty, absolute territorial integrity, prior appropriation) in a manner that corresponds with its national interests.

The recurrent treatment of water issues at the international level as a geopolitical conflict, even a violent one, between two or more States hides power rivalries between internal actors. Indeed, they can also happen within the same State, between regions or cities, which plan to take advantage of the water resources of nearby basins. The water distribution and use problems that exist in the Western United States affecting the States that share the water of the Colorado River, such as California or New Mexico, or between urban areas, such as the city of Los Angeles, and the large agricultural areas of Southern California, are a couple of concrete examples of said internal rivalries.

In the case of Spain, water issues have been studied very much from many disciplines, combining different perspectives and study approaches. In general, conflicts between users and regions are usually present as consequence of the spatial unbalance of total renewable resources, water use and demand¹⁰. Water scarcity has been historically linked to dry Southern Spain (400 mm of annual rainfall or less) as opposed to wet Northern Spain (1500 mm of annual rainfall). These climatic factors have made dryland farming predominant in a large part of the territory. This is why the construction of waterworks, such as dams and transfers, seemed to be the only the only solution to progress. The emotional charge of these issues is strong, and it is also a very important cultural and historical reality. In fact, several papers have analysed the water management and hydraulic paradigm in Spain governed by the dominance of hydropower and irrigation-driven development¹¹. Much emphasis has been put on water irrigation as a vital input for agricultural production and, thereby, to increase production and employment¹². But also, emphasis has been placed on the accelerate performance transformation of irrigation districts and improvement in water use efficiency (water reuse, desalinations plants, modern irrigation techniques, water market...) in semi-arid regions of Southeastern Spain¹³.

⁶ Lacoste, 1993, 1680.

⁷ Loyer, 2019, 224.

⁸ Lacoste 2010, 84.

⁹ Kibaroglu & Scheumann, 2013, 279–305.

¹⁰ Candela; Domingo; Alarcón; Berbel, 2008, 197-203. Estrela Monreal; Cabezas; Calvo-Rubio; Estrada Lorenzo, 1999, 125-138. Molina & Melgarejo, 2016, 781-798.

¹¹ Swyngedouw, 1999, 443-465. Fornés; López-Gunn; Villarroja, 2021, 1113-1123.

¹² Melgarejo; López-Ortiz, 2020. Berbel; Expósito; Gutiérrez-Martín; Mateos, 2019, 1835-1849.

¹³ Morote; Olcina; Rico, 2017, 2058. Rupérez-Moreno; Senent-Aparicio; Martínez-Vicente; García-Aróstegui; Calvo-Rubio; Pérez-Sánchez, 2017, 67-76.

Conversely, an increasing number of studies indicate how intensive irrigation farming destroys traditional landscapes, pollutes ecosystems, and enables a development of mass tourism that depletes water resources (pools, golfs courses etc.)¹⁴. Indeed, a Spanish movement of researchers for a “new culture of water” have been at the forefront of research on the analysis of droughts, advancing the idea that the drought was not a water problem, but a social (over-consumption, public participation, etc.) and environmental issue¹⁵. Their influence, through their reflections and critical analysis on water policies in Spain and in their defense of environment and river ecosystems, has been focused on a regular monitoring and evaluation to achieve a correct implementation of the WFD.

From this perspective, the WFD’s transposition to Spanish legislation, based on Integrated Water Resources Management, seems to be the key issue for long term sustainability of water resources and conflict resolution¹⁶. Nonetheless, its implementation, both the how and the why, continues to generate a vigorous debate and conflict among regions and users. As we will see, these divergent paradigms and different study approaches about water management in Spain are essential to the reasoned arguments and strategies of those stakeholders involved. To what extent is water still a problem of quantity or access, or is it really a fundamentally geopolitical or hydro-political issue?

This paper brings up questions about the relevance of these territorial tensions and competition between sectors over the use of water where the political actors exploit the debate for their own interests. My working hypothesis is that the issue of water in Spain is not only the outcome of climatic factors and the patterns of economic development, or the mere subject of different policies and approaches over the planning and management of water resources, but the result of a geopolitical situation. In this sense, water policy evolves according to power struggles between national and local political parties, between state authorities and regions as well as in the balance of forces resulting from European Union directives and in sharing transboundary basins in the Iberian Peninsula.

Therefore, the geopolitical approach will help us understand the different facts related to water issues in Spain and consequently reflect about present and future

challenges for policy makers. This article employs qualitative research methods based on multidisciplinary documents and a plurality of newspaper analyses, as well as semi-structured interviews conducted with politicians, civil servants, industry representatives, and social groups involved in water management.

The paper is divided into three main sections according to the power struggles and their articulation within the different levels of spatial analysis taking the Tagus basin as a reference.

The first section presents the main water issues at a national level and their connection with the Spanish regional structure. As we shall see, water policy has become one of the main internal geopolitical issues in Spain since the 1990s, motivated mainly by three major elements:

- 1) The failure of a State’s water policy conceived as a representation of the economic development of the nation since the late nineteenth century, with the effect of increased water scarcity and climate change’s impacts in many territories.
- 2) A gradual dissension between social groups, allowing for the emergence of new key actors contrary to the established hydro-economic model. The gradual eclipse of the hydraulic paradigm coincides therefore with the development of the European Water Framework Directive, which has lent further impetus to changes in water management and governance¹⁷.
- 3) Finally, the Spanish decentralization process, bringing about the rise of regional political leaders, who sometimes defend interests divergent from those of the national politicians, thereby causing territorial tensions and making it difficult for national water planning negotiation and decision-making.

In the second section we will discuss the articulation of these issues at a regional and local level in the region of Murcia, the main beneficiary of the Tagus-Segura transfer. We have selected this region for our analysis as we consider it the most remarkable example of the perception of water scarcity as a geopolitical representation, as mentioned above. This small Mediterranean region, governed by the right-wing conservative party since 1995, has a strong agribusiness lobby, which is strongly opposed to changes in water management paradigms.

¹⁴ François, 2006, 25-35. Martínez; Esteve, 2000, 53-71.

¹⁵ Martínez-Fernández; Hernández-Mora; Moral Ituarte; La Roca, 2020, 1-26. Estevan; Naredo, 2004, 128.

¹⁶ Candela; Domingo; Alarcón; Berbel, 2008, 197-203.

¹⁷ Fornés; López-Gunn; Villarroya, 2021, 1113-1123.

The third section focuses on the issue of water at an international level and on its implications for internal geopolitics in Spain. Therefore, European integration, but also the evolution of European Union directives, will determine the balance of power when sharing international waters between Spain (upstream country) and Portugal (downstream country), but also among Autonomous Communities. Indeed, European water authorities and stakeholders will face additional management challenges such as growing water scarcity, drought and floods, probably causing future changes in water management and governance.

Our conclusions assess the importance of geopolitical analysis regarding future water governance challenges and provide key aspects to decision makers.

Water management: a geopolitical issue in Spain

The problems arising from water sharing between the Autonomous Communities in Spain has been troublesome since the vote on the European Union Water Framework Directive in 2000¹⁸. The establishment of environmental goals as well as the process of gradual democratization and decentralization of the State since the 1980s favoured the rise of regional powers and the emergence of new stakeholders and water management approaches. Therefore, conflicts over inter-basin water transfer are still pitting regions against each other and against the national Government.

In Spain, according to the 1985 Water Law, the body responsible for managing the hydrological plans is the Ministry of Environment, through the Spanish Water Confederations (river basin). This legislation is part of the political and institutional context of the country following the approval of the Constitution of 1978 and the arrival of democracy. The Constitution makes a distinction between river basins entirely situated in one region (intra-community river basins) where planning and management competencies belong to regional authorities (Regional Water Agencies), and river basins shared among several regions (inter-community river basins) in which the State is responsible via the river basin organizations. As for river basin unity, these public entities—which involve users and governments (local and regional authorities) as well as administrative

agencies that provide technical support for the execution of work—oversee designing River Basin Management Plans. Thus, to provide for each territory's needs, the Ministry prepares a National Hydrological Plan, which must be ratified by the Parliament.

Indeed, since the end of the nineteenth century, Spanish national water policy has focused on increasing the availability of resources through water projects (dams, transfers and, more recently, desalination plants), with a view to redistribution between “surplus” and “deficit” territories. The issue of water as a State's policy reference is inspired by the late nineteenth century intellectual movement in favour of the regeneration of the country (the period called *Regenerationism*) focused on bringing irrigation to areas with significant agricultural potential. This economic sector was considered necessary for the development of the nation, which required a more active participation of the State through public funding of water projects. The largest development of this policy was during the Franco Regime (1939-1975) and its main beneficiaries were the large farming companies, the hydroelectric power companies and the technocratic elites, such as the Corps of Engineers. This State hydraulic paradigm, as a strategy for spatial transformation, became, therefore, a national representation linked to socio-economic development.

At present, Spanish water infrastructure is one of the most developed in the world. There are over a thousand dams, one million water wells recognized by the State (according to the Ministry, there are approximately half a million more not legally recognized) and several water pipes and inter-basin transfers over hundreds of kilometers. This capacity of water storage and mobility currently enables irrigating a surface of around 2 million hectares, supplying drinking water to 30 million people, and responding to a strong tourist demand concentrated predominantly in the littoral areas during the summer season. In fact, among European countries, Spain is one of the heaviest water users. Nevertheless, the strong expansion of these activities has on the one hand increased the socio-economic imbalances between Mediterranean and inland regions, and, on the other hand, led to a vulnerability of the resource in many territories¹⁹.

¹⁸ Salinas Palacios, 2016, 534.

¹⁹ Nowadays, more than 50% of the Spanish population lives in the Mediterranean areas while the inland regions (excluding Madrid), named the *España vaciada* (emptied Spain), are home to only 10% of the population, despite occupying 75% of the Spanish territory.

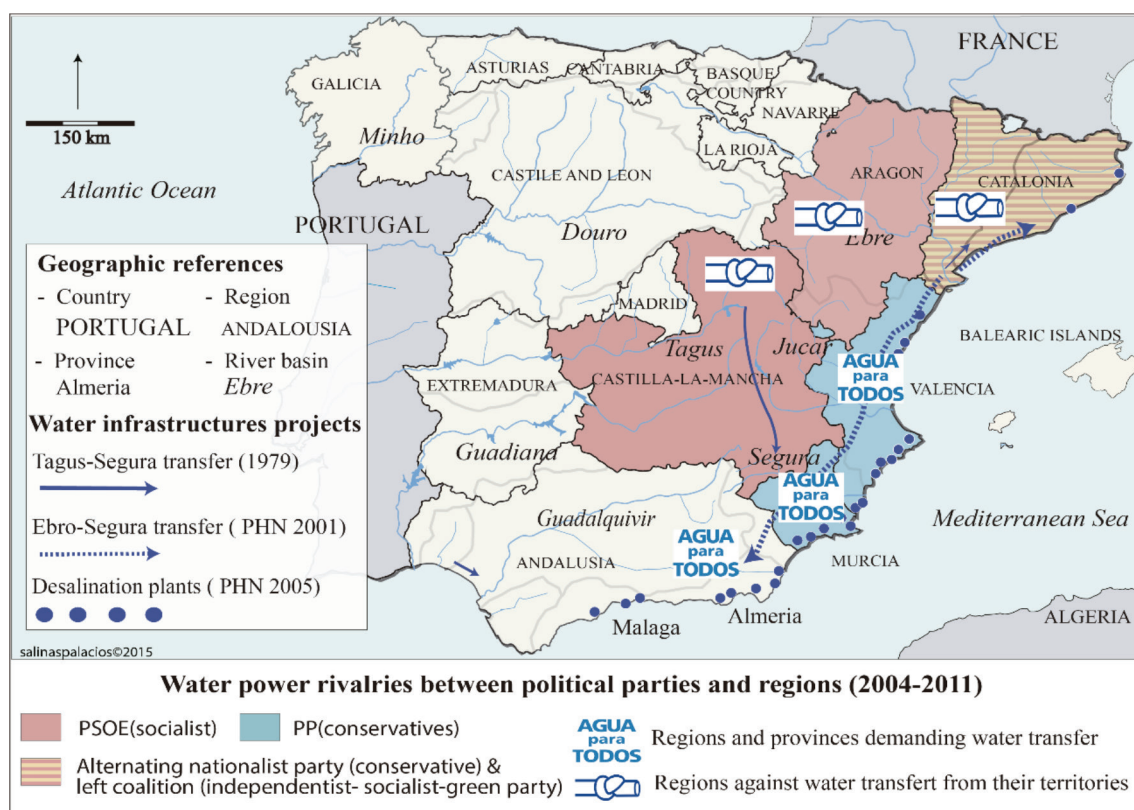
Thus, the severe drought that affected much of the Iberian Peninsula in the early nineties of the 20th century would lead to the existing water policy being questioned. Since then, water planning has become a highly controversial issue between the two principal political parties and the different regions involved. The current Spanish National Hydrological Plan was approved by the Spanish Parliament at the initiative of the socialist Government (hereafter PSOE) of José Luis Rodríguez Zapatero (2004-2011) in 2005. This plan launched the AGUA Program, mainly focused on ensuring the water supply of Mediterranean regions through desalination of seawater (Map 1).

The Spanish National Hydrological Plan, under the influence of “The New Water Culture Foundation” (a multidisciplinary academic movement created in the 1990s against the traditional hydraulic policy) also sought to direct water management towards the WFD’s goals and the reduction of water demand. However, the AGUA Program has replaced the construction of an inter-basin water transfer between the Ebro, located in the Northeast of the Iberian Peninsula, and the Mediterranean regions (Map 1). This transfer, which was the main project of the old 2001 National Hydrological Plan during the conservative governments (hereafter PP) of

José María Aznar (1996-2004), aimed to solve the water deficit of the littoral regions (i.e., Catalonia, Valencia, Murcia and Eastern Andalusia). All these regions have historically been characterised by the irrigation of intensive agriculture and an important tourist industry.

These changes in national policy during the decade of the 2000s have encouraged a strong political confrontation over water issues. They have also increased territorial conflicts between inland regions (i.e., Aragón and Castilla-La Mancha, usually ruled by the Socialist Party) against water transfers from their territories to Mediterranean regions (i.e., Valencia and Murcia, usually ruled by conservative parties), which claim more water to support their development needs (Map 1). Nevertheless, a decentralized territorial model, different economic choices, droughts, and the omnipresence of regional identity discourses in politics strengthen the wish of Spanish politicians to become “owners” of the water. One major result of this regionalization process occurred during the statutory reforms between 2004 and 2011. Several regional governments tried to increase their power over water resources, and therefore the Constitutional Court had to intervene to ensure the legal principles of the 1978 Constitution. The Statute of Catalonia (2006), of Castile and Leon (2007) and of Andalusia

Map 1. Two national water policies and territorial rivalries in Spain



Source: Salinas Palacios, 2016, 534.

(2007) establish the exclusivity of these regions on the resources of rivers whose course is located entirely within their territories, therefore neglecting the river basin unity. On the other hand, Aragón (2007) aims to limit water transfers to neighboring territories, as well as to protect its future development needs, estimated at 6,550 hm³/year. The Statute of Valencia (2006), supported by Murcia, proclaims the right to receive surpluses from other river basins. For its part, the socialist Government of Castilla-La Mancha tried in 2010 to have an exclusive right to use 4,000 hm³/year in its territory, as a means of limiting the transfer of water from the Tagus-Segura transfer to the regions of Valencia and Murcia. As we will see, the “need” for water becomes a policy-influencing tool that seeks to convince voters of the existence of a vulnerability that the candidate promises to solve.

These regional aspirations, focused on territorial development strategies based in many cases on irrigation expansion plans or new urban tourism areas, cause tensions and a real competition across the populations and resources concerned. Despite the creation of the State of the Autonomies, the legal framework established in the 1978 Constitution didn't consider the consequences of the decentralization process regarding spatial planning and water issues. On the one hand, power rivalries and regional political strategies have an unexpected impact on the decision-making of the national Government, which is ultimately responsible for the elaboration of a National Hydrological Plan. On the other hand, Spanish spatial planning has been characterised by a disorganisation in the coordination of sectoral policies between the State and the regions, such as urbanisation, environmental, tourism, or agriculture, among others.

Therefore, water authorities and stakeholders will face additional challenges to achieve a thorough water planning consensus that carefully balances water demands with increased vulnerability of water ecosystems. Furthermore, the effects of the economic and financial crisis (2008-2015) and the independence processes in Catalonia (2012-2021) had resulted in a parliament strongly fragmented with unstable governments²⁰. Spain's two-party (PP and PSOE) system changed in 2015 into a two-bloc multi-party system with the emergence of new political parties such as Podemos (extreme left), Cs (liberal right) and Vox (extreme right). Political divisions also affect cross-cutting

issues related to ecological transition (sustainable development, organic production, circular economy, climate change mitigation, etc.), or new investment, which brings into question the economic production model of several territories.

The Tagus-Segura transfer: from the national interest to the regional claim

The Región of Murcia (1.5 million inhabitants and 11.313 km²), entirely situated in the Segura basin, is one of the most illustrative cases of water scarcity as a regional geopolitical representation. This Mediterranean region, mostly located in a semi-arid area (Southeast of Spain) and historically identified by its traditionally irrigated landscape of orchards (*huertas*), is currently one of the most affected areas in Europe by land degradation and desertification. The rainfall in the Segura basin (the annual average precipitation was 381.78 mm between 1940 and 2005) is characterised by a heterogeneous spatial and temporal distribution. Its available internal water resources are approximately 1,300 hm³/year. Furthermore, the Tagus-Segura water transfer from the upstream of the Tagus basin (center of Spain) in the Castilla-La Mancha region, provides an average of 330 hm³/year since 1979 (Map 2). Built during the Franco's dictatorship (construction began in 1968) and lauded as a symbol of industrial development and the nation's economic growth, this hydraulic construction of approximately 250 km with several dams, pipelines and water lines (post-transfer infrastructures), is currently the main source of inter-regional litigations in Spain.

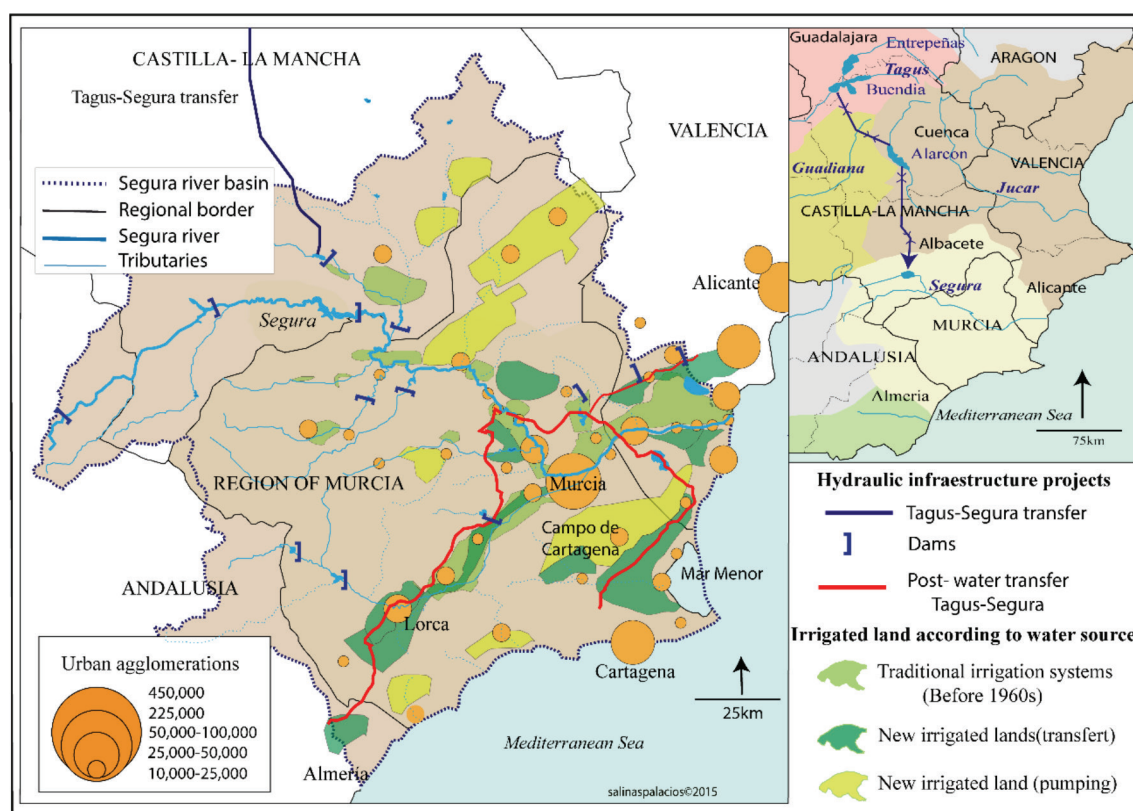
The transfer, originally estimated at more than 600 hm³/year, did not solve the deficit, but worsened the situation. The increase of available water led to an uncontrolled explosion of irrigated lands, including the exploitation of groundwater resources, and a strong expansion of urban and tourist activities, until the early 2000s (Map 2). For example, between 1972 and 1998, the estimated number of irrigated areas officially using waters from the transfer had increased by 70 % compared to initial forecasts²¹. Since 1998 the deficit of the basin has been around 480 hm³/year.

These spatial dynamics were marked by the establishment of a residential model in isolated areas and characterised by the construction of individual housing

²⁰ Since 2018, a few smaller regional parties, including independentist from Catalonia, partially support a progressivist-left coalition Government formed by PSOE, Podemos and the unreconstructed Communist Party, shocking the right wing.

²¹ Martínez; Esteve, 2000, 53-71

Map 2. Water resources development and spatial dynamics in the Segura River basin



Source: Salinas Palacios, 2016, 534. www.chsegura.es, www.mct.es

estates in gated communities around golf courses. In total, 16 golf courses were built between 1997 and 2011, and 34 gated community projects were designed, although some of them were paralysed at the beginning of the economic crisis in 2008. In this situation of water stress, water resource management in the Segura River basin has been characterised in recent decades by a strong diversification of supply sources such as water reuse and desalinated water, and by use of increasingly effective resources.

In contrast, the environmental impacts and risk of irrigated agriculture are particularly profound. For example, the Mar Menor, the largest (135 km²) hypersaline coastal lagoon of the Mediterranean basin, suffers a severe eutrophication and has experienced several hypoxia crises (2016, 2019, 2022) due to the nutrients that it receives from the Campo de Cartagena watershed (1,316 km²), mainly nitrate from intensive agriculture developed since the 1970s and irrigated through the Tagus-Segura transfer and groundwater pumping. Nonetheless, the perception of water scarcity clearly coincides with a significant increase in irrigation areas and water consumption in urban and tourist areas. The Spanish housing boom coincided with the absolute domination of the PP, the main defender and promoter

of this growth policy, in the Región of Murcia (1995-?) and Valencia (1995-2015). Therefore, water issues become a primary policy objective, mainly motivated by two facts: first, the derogation of the transfer project from the Ebro to the Mediterranean regions by the socialist national Government (2004-2011) in 2004 and, second, several attempts to interrupt the existing transfer from the Tagus by the socialist regional Government of Castilla-La Mancha (2004-2011).

This situation has encouraged the emergence of a political discourse under the slogan “Agua para todos” (Water for everyone) that demands the participation of the State and the solidarity of other regions to increase the availability of water resources to support regional development. Initially the PP and more recently Vox (both competing for a similar electorate) defined irrigation not only as a water supply, but as a necessity to defend regional identity and the Spanish nation. In this way, they elaborate a representation that insists on the importance of irrigation for the productivity of the regional agricultural economy and, consequently, for employment. Furthermore, agriculture, which consumes 80 % of water resources, has exponentially become a very powerful agro-industrial lobby with great influence on regional political and economic power. They

oppose the majority use of desalinated water due to its high prices and poor quality compared to those of the Tagus-Segura transfer²².

In contrast, Castilla-La Mancha or Aragón, which represent the inland regions with low population density and allegedly have a water resources surplus, have the perception of being less developed than the others. They protest the State's lack of investment in infrastructure to allow them to take advantage of "their" resources." Therefore, for them, the policy of water transfers is seen as exacerbating territorial imbalance mechanisms, or, in other words, the theft of natural resources from poor regions to those, that precisely because of their higher level of economic development, demand more water²³.

Consequently, the lack of regional identity in Murcia and Castilla-La Mancha has facilitated the rapid integration of water vulnerability as a major regional geopolitical representation. If the decentralization of the State has enabled a reorganization of the geopolitical subsets in Spain coherent enough in some cases (Galicia, Catalonia, the Basque Country, Aragón ...) and less natural in others (Madrid, Murcia, Cantabria, La Rioja ...), water infrastructure in the region of Murcia has become a factor that homogenizes the territory by giving it a landscape and an economic structure that favours a social and political identity more uniform in recent times²⁴. In this respect, 2004 was a turning point in regional policy. The socialists improved their electoral results at the national level in 2004 and 2008 in all regions except in Murcia, which represented a break with the national will. Nor is it a coincidence that in the 2019 Spanish elections, Vox was the party that won the most votes in Murcia. Thus, the problem of water scarcity as a geopolitical strategy of the right conservative regional Government has become a very important factor in understanding the identity process of the Murcia region. Indeed, it is in the context of the 2000s and following the rise of autonomous power in Spain that there has been a progressive representation, both external and internal, of the water issue in the region of Murcia as the main sign of regional identity.

The outbreak of regional and political tensions in the beginning of the 2000s mainly oriented

hydro-geopolitical issues around the implementation of the Water Framework Directive and the requirement to conduct hydrological plans in each basin to complete goals. This is the question needed to maintain river ecosystems and achieve good water quality. In fact, the establishment of minimum ecological flows affected future water transfers. The case of Hydrological Plan of the Tagus basin, conditioned by the existence of the Tagus-Segura transfer and its own international nature, is a very illustrative example of these rivalries of power at different scales.

The territorial articulation of the international Tagus River: between conflict and compromise

The aim of the Water Framework Directive is to achieve a good status for all surface and groundwater bodies in the European Union between 2015 and 2027. In this regard, Spanish Water Confederations were required to adopt a River Basin Management Plan for each management cycle (2009-2015, 2015-2021, 2021-2027). In the case of the international Tagus River basin, the geographical and geopolitical particularities of the basin make it difficult to achieve water sharing agreements, causing a significant delay in the implementation of the Water Framework Directive. The Tagus basin is shared between Spain (66 %) upstream and Portugal (34 %) downstream (Map 3).

In Spain, the Tagus basin traverses five regions (Castile and León, Aragón, Castilla-La Mancha, Extremadura, and Madrid). However, the basin-level water planning must also consider the commitments under the Albufeira Convention (i.e., an international convention signed between Spain and Portugal in 1998) and the water demands of the regions of Valencia and Murcia, both of which are in the Segura basin (Map 3).

In this regard, the establishment of minimum ecological flows in compliance with the Water Framework Directive has marked the negotiations between the regions and stakeholders involved since the beginning of the first River Basin Management Plan, started in 2011²⁵. The quantity established between the upstream reservoirs (Entrepeñas and Buendía) and the city of Aranjuez limited the surplus (or not) of water for major water transfers to the Mediterranean regions. This part

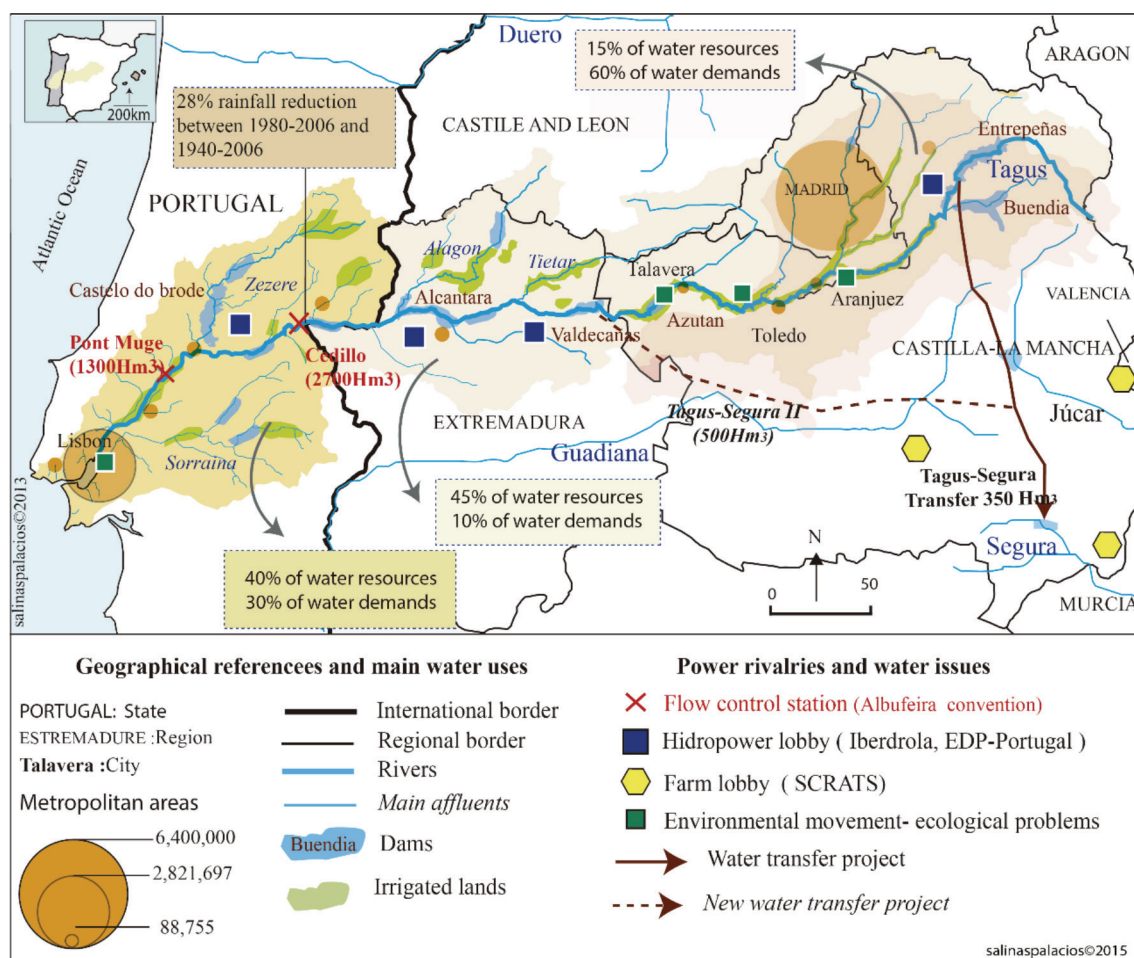
²² Water resources from Tagus-Segura transfer costs between 0,13 and 0,17 €/m³ while those produced by desalination plants cost between 0,56 and 0,63 €/m³. Salinas Palacios, 2019, 59-71.

²³ Del Moral, 2001, 87-112.

²⁴ Salinas Palacios, 2016, 534.

²⁵ Second Cycle and of the WFD (2015-2021). The 3rd Cycle plan covers the period 2022-2027.

Map 3. The challenges of the international Tagus River basin



of the river is not only affected by the deviation of waters but also by the large amount of pollution coming from the metropolitan area of Madrid.

In 2013 the national conservative Government and the involved regions, all of which were at the time governed by the PP between 2011 and 2015, signed a Memorandum on the conditions and the future of the transfer. The river basin plan adopted in 2013 provided a considerable reduction of ecological flows and hence enabled transfers to the Mediterranean, although it imposed stronger conditions²⁶.

However, the problem was far from over. In 2019 the Supreme Court of Spain, following an action brought by environmental organisations, reversed several articles for not setting the ecological flows correctly. Each river basin planning cycle will be subject therefore to a contested arena of power struggles.

In any case, the transfer's irrigators still had trouble accessing water allocations. Droughts often severely impact both the Segura basin and the Tagus basin at the same time²⁷. According to the Spanish State Meteorological Agency, rainfalls are becoming more irregular or scant, and droughts are predicted to become more frequent and severe. The Spanish Water Confederations have included a reduction of between 4 % and 14 % in surface water run off for 2030 in their own river basin plans. Furthermore, the proportion of water released in reservoirs in the upstream sections of the Tagus River (Entrepeñas and Buendía) for the 1980-2006 period fell by half compared with the water storage estimated before the construction of the water transfer at the end of the 1960s.

This situation in the Tagus and Segura River basins, combined with unstable political context in Spain since 2016, makes it more difficult to adopt a new national

²⁶ Starting in 2018, water transfers are allowed from a threshold of 400 hm³/year, instead of 240 hm³/year, from the Entrepeñas and Buendía reservoirs, at the source of the Tagus.

²⁷ Salinas Palacios, 2019, 59-71.

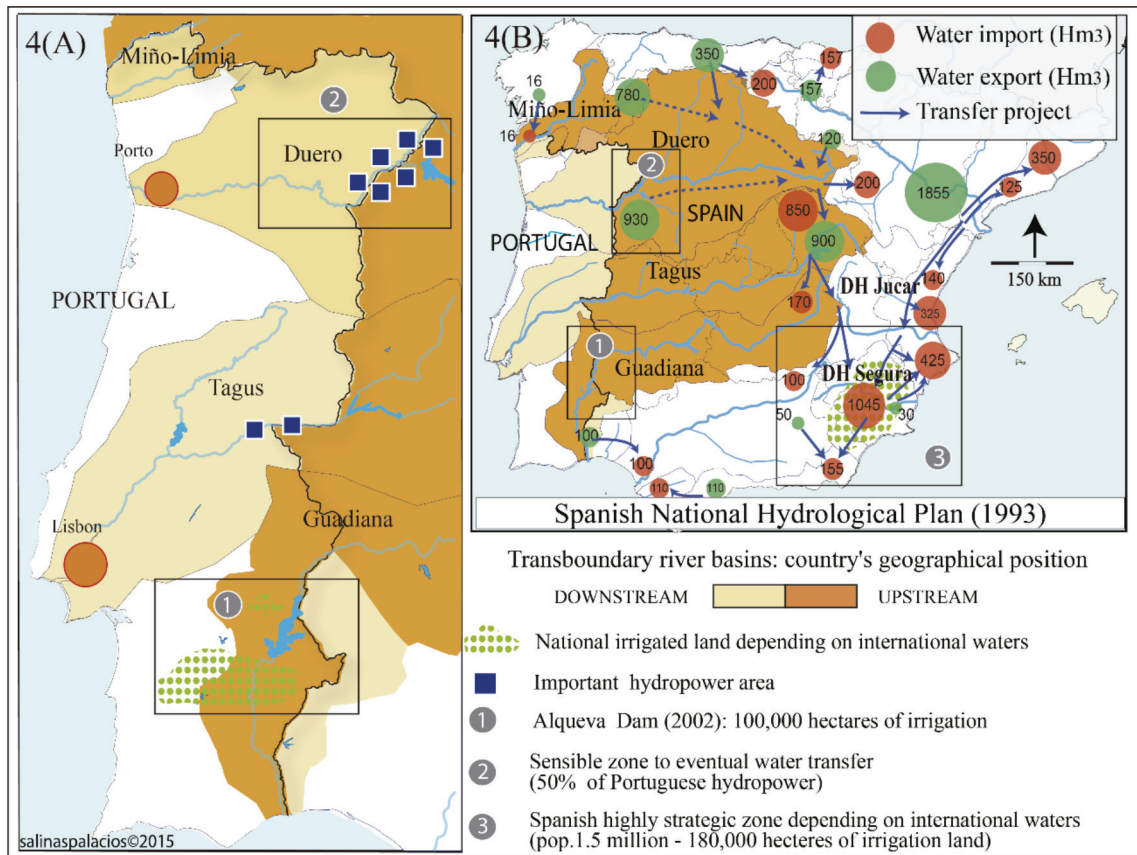
hydrological plan. The difficulty of rescuing the Ebro project transfer, contrary to the WFD approaches and opposed by the regions of Aragón and Catalonia, and the difficulties down the cost of desalinated water for the agricultural sector limit the opportunities for the coming years. One of the solutions defended by the regional Government of Murcia would be the construction of a new water transfer from the central section of the Tagus River since the flows are more abundant there (Map 3). Nevertheless, this project may have to face not only the environmental requirements of the WFD, but also a strong opposition from the Portuguese Government, as we will discuss below.

The Spanish and Portuguese hydrography is characterized by the geomorphological inclination, from East to West, of the Iberian Peninsula. This implies that the largest rivers rise in Spain and flow to Portugal, which means that Spain is an upstream country and Portugal a downstream country (Map 4A). Throughout the entirety of the twentieth century, the management of transboundary water resources between both countries was

governed by international treaties specific to each river and characterized by a spatial and sectoral restricted jurisdiction. The agreements were mainly focused on hydroelectric uses located on the cross-border rivers. The power relations between the two countries were focused on converging interests and therefore interdependent²⁸.

In 1998, the “Agreement on Cooperation for the Protection and Sustainable Use of the Waters of the Spanish-Portuguese Hydrographic Basins” (Albufeira Convention) established an integrated water management of the transboundary river basins (Minho, Limia, Duero, Tagus and Guadiana), which included environmental aspects as well as obligations and bilateral mechanisms to enhance cooperation. This international legal framework was the result of a long process of negotiations between Spain and Portugal driven by two main factors: first, the severe drought in the 1990s in the Iberian Peninsula and, second, the unilateral plans of the Spanish Government to develop multiple inter-basin water projects that would impact

Map 4. The Spanish-Portuguese river basins management: between conflict and compromise



Source: Salinas Palacios, 2016.

²⁸ Aura; Larios de Medrano, 2008, 354.

hydropower production located along the downstream areas of international rivers (Map 4B).

The Convention also imposes respect for previous levels of water consumption. This requisite, pushed mainly by the Spanish Government, sought to protect the water rights of the agricultural farmers and water supply operators acquired from the Tagus-Segura transfer. In return, Portugal could make the Alqueva Dam project, located on the Guadiana River, and more precisely, at the only upstream area allocated to Portugal. The dam, the biggest in Western Europe, was finally inaugurated in 2002, and supplies water for 110,000 hectares of irrigated lands, many of them located outside of the international basins (Map 4B).

The entry into force of the Albufeira Convention in 2000 consequently modified water related geopolitics in the Iberian Peninsula²⁹. The current Convention forces Spain to yield a minimum flow in the international rivers, 2,700 hm³/year, for the Tagus at the control station of Cedillo Dam. Although periods of drought are considered to determine these volumes of water (as was the case in 2006, 2009, 2012, 2019 and 2022), the peculiarities of this basin generate uncertainties in its management. Nevertheless, the Albufeira Convention did not directly address common challenges such as the increase in droughts and the reduction in rainfall, or problems related to water governance and policy. Instead, these agreements focused on getting closer to the Water Framework Directive's approaches³⁰.

In this context, the physical, socio-economic and political factors of the Tagus River basin involve significant challenges for the Spanish and Portuguese transboundary basin relations. Currently, the upstream area of this river suffers the highest demand (75 % of the total population of the international basin) while its water resources only amount to 10 % of the total basin flows (Map 3)³¹. Apart from the above-mentioned transfer of water to the Mediterranean regions, management and water planning is subject to various sectoral interests represented chiefly by the metropolitan area of Madrid (about 6 million inhabitants), irrigated lands in Castilla-La Mancha as well as the presence of major hydroelectric dams in the middle section of the Tagus, near the border with Portugal. At the Portuguese section, there are also important hydropower interests, as well as the metropolitan area of Lisbon (3

million inhabitants) which represents one third of the country's population. Although tributaries on the last part of the Spanish river provide 65 % of the resources that reach Portugal, the water flow of the bordering Cedillo Dam decreased 28 % of its annual capacity in the period 1980-2006³². The demands on water resources in both countries have been increasing since the 1960s. Even worse, some climate change scenarios estimate a reduction of 10 % of direct runoff in the coming decades while 75 % of the Iberian Peninsula is at risk of desertification. Considering such a scenario, exceptional circumstances may provoke an incomplete implementation of the Convention and put into question the future of the Tagus-Segura transfer. This situation already took place during the hydrological year from October 2009 to September 2010. The Spanish Government, under the pretext of scarcity in the Western part of the basin, invoked the clause of drought stipulated in the treaty. The stored water from the Cedillo Dam was 8.7 % (236 hm³/year) below the "minimum" required by the agreements.

However, Spanish and Portuguese environmental organisations and the New Water Culture Foundation argued that the decrease of flows was also a result of the water shift to the Mediterranean areas. During the same hydrological year (2009-2010), the Spanish Government agreed to transfer 293 hm³/year to supply urban and agriculture needs in the Segura basin. As of now, the different Portuguese governments have not yet declared themselves against the Tagus-Segura transfer. Nevertheless, the difficulties to accomplish the WFD goals on both sides and the pressure of civil and environmental organizations have recently boosted closer cooperation between both countries. At that point, the future of the Tagus-Segura transfer will be strongly determined by the achievement of the Water Framework Directive goals. The willingness to conduct this kind of water policy will be subject to future changes on the Spanish political scene.

Conclusions

The Spanish economic model developed in the second half of the 20th century remains highly dependent on water resources in territories that are particularly sensitive to the effects of climate change. The major agricultural and urban spatial dynamics that have transformed

²⁹ Salinas Palacios, 2016, 534

³⁰ Garrido *et al.*, 2010.

³¹ Confederación Hidrográfica del Tajo (hereafter CHT), 2013.

³² CHT, 2013.

the territories thanks to the development of large water infrastructures contrast with the current problems of water scarcity and pollution. The country faces the challenge of ensuring long-term water security. According to the European Commission, water stress stood at 42.5 %, and diffuse agricultural pollution affects 34 % of surface water bodies and 56 % of groundwater bodies³³.

However, water planning is becoming increasingly complex given the delicate balance between respecting the ecosystems and the distribution of water resources among the different territories and users. Two political strategies around territorial, economic and water issues have emerged that may clash at the national level in the coming years. The first one, which will be supported by a coalition of left-wing and regionalist parties, is based on a model of economic development that is more concerned with environmental considerations and whose relationship with water must firstly prioritise demand management and programs to improve its quality. This policy conditions the continuity of the Tagus-Segura water transfer and limits the left-wing parties governing in the Mediterranean regions. The second one, claimed by right-wing political forces, demands a stronger central State capable of ensuring inter-territorial equality and solidarity between all citizens, including the access to water resources. For these forces, water is still perceived as an endogenous asset of socio-economic and territorial transformation, therefore the possible solutions for sharing the resource involve maintaining the Tagus-Segura transfer and the interconnection of the largest river basins.

In view of this situation, this paper has reflected on different arguments and future challenges on water issues in Spain. We have seen how conflicts over water resources in Spain have grown with the increase of water demands for economic development and the decentralization of the State in the context of democracy. Under these premises, the necessity of water has been normally used during elections by the two main political parties in Spain based on their respective territorial strategies, including the rise of power of some regional political leaders. The Mediterranean regions continue to demand water transfers with the aim of not only alleviating the shortage affecting parts of their intensive farming, but also strengthening their tourism sector. Conversely, inland regions claim for better water infrastructure to improve the control on their

water resources and revitalise their local economy. Their landlocked nature holds back the development of the valuable tourism sector in these regions. Thus, irrigation lands are seen as a key player in the strategy for the future regional growth.

Therefore, the problem of water sharing between the central Government and the regions is far from being solved. The gradual evolution of the State of Autonomies does not correspond with the real distribution of power between the State and the regions on the issue of water. Depending on the geopolitical context, regions have the capacity to influence the national Government in the decisions of the main guidelines in the implementation of the river basin management plans and the National Hydrological Plan. Thus, water governance in most shared river basins is subject to power relationships at different scales based on the interest of political parties and the influence of the main lobbies.

The importance of irrigation, hydropower and urban-tourism activities has continued increasing with the gradual construction of the autonomous regions, without discussing the economic models implemented. Therefore, the announcement of the development of new water infrastructures by different governments and the strengthening of regional interests have accentuated the rivalries and increased water stress and environmental degradation in multiple territories. However, the lack of water is also a social, cultural, and economic representation that is difficult to quantify and is strongly impacted by how society uses water resources. Although we cannot consider the drought events as extraordinary in the majority of Spain, this dependence on the resource in semi-arid territory explains why the drought is also perceived by society as a socio-economic constraint and more recently as an environmental concern.

Obviously, democracy has encouraged these rivalries, and also the dissension of civil society, making possible the emergence of new actors organized against the dominant hydro-economic model. It was not until the arrival of the socialist Government in 2004, surrounded by social movements promoting a new water culture and being legitimized by the goals of the Water Framework Directive, that aspects such as the quality and sustainable use of the resource became new paradigms of Spanish water policy. Until recently, protest and mobilization of Spanish civil society was very limited, especially on issues concerning ecology. The country's political agenda has increasingly incorporated the public contestation over agricultural pollution. For

³³ European Commission, 2019.

example, in August 2022, a popular legislative initiative that gathered more than 640,000 signatures, allowed Mar Menor to become the first European ecosystem with legal status. This new paradigm for the legal defense of nature has been approved in the Senate with the support of all political parties, except for Vox. However, the implementation of ecological flows to respect the River Basin Management Plan is still perceived by the different political and socio-economic stakeholders as either a threat or an opportunity for their respective interests. Consequently, this has led to a difficult implementation of the Water Framework Directive, strongly influenced by the country's political situation.

Considering these facts, we can see that geopolitical reasoning becomes essential in the analysis of multiple existing problems, but also a necessary support to draw up prospects. It is necessary to understand that these different levels of spatial analysis and internal processes are part of a complex environment. An environment characterised by a superposition of different power rivalries across multiple scales that may affect the challenges of Spanish stakeholders on water issues. Although the institutions of the European Union are especially concerned about water scarcity due to the last droughts in Europe (especially since 2003), the design of current European water policy still focuses on water quality. In contrast, to Spanish irrigated agriculture, water availability concerns and water pricing are higher priorities. This brings up questions about the relevance of an intensive irrigated farming export-oriented model, in one of the highest water-stressed European regions. It is therefore necessary to adopt changes towards a profound review of the water policy and the Spanish hydro-economic model. Nonetheless, water governance refers to the problems of institutional, economic, identity and territorial power relations in Spain, which complicate the task of reversing these imbalances.

In addition, concerns about the impact of climate change on water resources are progressively gaining importance in most countries, particularly in those that share international watercourses. The issues around the Tagus lead us to reconsider Spanish-Portuguese relations in the coordination of international river basin plans. The interdependence between an international basin, such as the Tagus, and a national basin, such as the Segura, highlights that internal rivalries between regions and economic actors are even more decisive than the unitary and integral vision of the Tagus basin. Thus, the political difficulties to fix

the ecological flows in the river basin plan, the reached transfer agreements (Memorandum), and the regional discourses about new inter-basin projects which have no consideration for the international specificities of the Tagus basin, have revealed two major issues: on the one hand, the internal subjectivity of the WFD in water management and planning in Spain and, on the other hand, the weaknesses of the mechanisms for cooperation between the Portuguese and Spanish governments. Water governance centered on the concept of international river basins is therefore the most suitable technical option to initiate a correct hydrological planning.

Furthermore, water issues are, therefore, transversal, and necessarily involve sectors (energy, urban planning, agriculture...). Climate change mitigation and risk reduction require substantial funding and consensus among multiple stakeholders at different levels in a complex national and international scenario. These possible changes in water policy will depend on the geopolitical evolution of Spain, the political and social majorities, and their concern about environmental issues.

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