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## **Institutional Plasticity in River Basin Organizations: A Review of 100 Years of Spain's *Confederaciones Hidrográficas* (1926-2026)**

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**ABSTRACT:** River basin organisations are frequently portrayed as technically grounded and politically neutral instruments of water governance, but this framing conceals the contested social and political processes through which they are constituted and transformed. This article reviews the hundred-year trajectory of Spain's *confederaciones hidrográficas* – established in 1926 and among the oldest RBOs in the world – through three analytical threads: 1) vertical governance (the central state versus peripheral regional powers), 2) horizontal governance (social participation), and 3) shifting ideological projects. Drawing on critical institutionalist and political ecology perspectives across four periods of institutional reconfiguration, the analysis shows that each one of those components has been variously interpreted, diluted, instrumentalised, or contested across radically different political regimes. Crucially, while the first three periods were organised around the hydraulic mission as a shared political project, the fourth reorients the *confederaciones hidrográficas* towards the European Union's Water Framework Directive. This illustrates a decoupling between an institution's continuity and its political purpose. Meanwhile, social participation has oscillated between irrigation associations having genuine autonomy, their authoritarian subordination, and procedural formalism that achieves no substantive redistribution of decision-making power to a broader range of social actors. Basin unity, though technically legitimised, has been persistently contested by provincial, regional, and sectoral interests. The centralisation-decentralisation balance has proven no less volatile, reflecting broader disputes over territorial organisation rather than water-related governance needs. These findings challenge the narrative of the *confederaciones hidrográficas* as a pioneering and exemplary model and contribute to debates on the institutional plasticity of river basin organisations – understood as their capacity to accommodate divergent political projects while preserving formal institutional continuity. Ultimately, they underscore that the performance of basin organisations cannot be understood in isolation from the historically specific power configurations and hydro-social conflicts in which they are embedded. These socio-political relations must be rendered visible, and governance arrangements must not only incorporate broader participation but actively challenge entrenched power asymmetries.

KEYWORDS: River basin organisations, water governance, water management, social participation, basin unity, hydrographic confederations, Spain

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## INTRODUCTION

Historically, river basin organisations (RBOs) worldwide have been mobilised within a wide range of political projects and by diverse actors. Rather than constituting a single, coherent institutional model, the RBO is thus a flexible formula whose concrete configurations depend on its legal remit and on how this is articulated with other centres of authority, including state agencies, political actors, organised water users, and additional stakeholders (Molle, 2009).

While RBOs are often portrayed as arenas of rational and consensual decision-making (INBO and GWP, 2009; UN-Water, 2017; UNESCO, 2018; FAO, 2025), they are frequently expressions of deep-seated power asymmetries and social inequalities (Molle, 2009; Molle and Wester, 2009; Romero Navarrete and Olvera Molina, 2019). Seen in this light, the RBO can be understood as a governance device that is continually reinterpreted and strategically deployed to support divergent – and often conflicting – political agendas.

Acknowledging these tensions is essential for moving beyond normative or technocratic framings of basin-scale management. In this article, we mobilise the lens of institutional plasticity to show that RBOs' capacity to accommodate divergent political projects while preserving formal continuity depends on reinterpreting rules, recombining legal responsibilities, and adjusting practices. This echoes approaches that view institutions as inherently malleable arrangements whose trajectories are shaped by ongoing reinterpretation and strategic redeployment. Institutional evolution often proceeds through such cumulative adjustments – the repurposing of existing bodies, shifts in practical routines, or the selective reinterpretation of rules – rather than through abrupt ruptures (Streeck and Thelen, 2005; Mahoney and Thelen, 2010).

Within this analytical framework, the Spanish case is particularly salient. As of this writing in 2026, exactly one century has elapsed since the creation of Spain's first RBOs, the *confederaciones hidrográficas* ('hydrographic confederations', CHs). They were established much earlier than comparable RBOs in other countries – a circumstance that has often led them to be cited internationally as a pioneering reference model of basin-scale water management (WWC, 2015; OECD, 2016).<sup>1</sup> This review revisits an overly idealised interpretation (Hijós and Sancho, 2026) of Spain's deeply entrenched basin-scale water management, using a critical examination of the CHs' historical evolution and of the most recent – or latent – conflicts surrounding their operation. We offer an analytical lens through which to examine how RBOs are reconfigured over time in response to changing political regimes, processes of territorial reorganisation, social hegemonic interests, and evolving governance paradigms. We approach RBOs not as governance solutions per se, but as historically situated and politically embedded institutions whose performance depends on their historical trajectories and institutional positioning.

This review focuses primarily on the 'what' and the 'by whom': the organisational evolution of the *confederaciones hidrográficas*, the changing forms and limits of social participation within these RBOs, and the identity of the actors driving and shaping these participatory processes. In addition, we pay particular attention to the objectives of water management and to the core functions attributed to the CHs at different historical moments (the 'why'), as well as to the effectiveness of institutional reforms in responding to shifting policy goals and governance challenges (the 'how'). To this end, and in order to

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<sup>1</sup> For instance, the creation of the CH for the Ebro River in 1926 attracted the attention of technocrats from various countries, who helped to disseminate the institution's structure and functions and encouraged the establishment of similar organizations elsewhere (Melgarejo, 2000; Nadal and Lacasa, 2003).

address specific historiographical gaps, our analysis combines a review of the existing literature with an analysis of state-issued legal documentation and relevant official statistical data.

Three axes provide the analytical backbone of this review: vertical governance, referring to reallocations of authority across local, regional, national, and European Union (EU) levels; horizontal governance, concerning who participates and with what weight in decision-making processes; and ideological projects, understood as the dominant programmes and policy paradigms that define 'good management'. Such an approach is especially relevant in settings where RBOs have long institutional trajectories, since these axes provide a vantage point from which to trace how institutional plasticity materialises in practice as shifts in authority, participation, and dominant policy paradigms reshape the roles and internal configurations of RBOs over time.

In order to facilitate the reading and interpretation of a long and complex institutional evolution, the article distinguishes four successive models of RBOs, corresponding to four clearly differentiated periods: (1) the foundational and politically turbulent initial stage (1926-1939); (2) the consolidation and transformation of the CHs under the Francoist dictatorship and the subsequent transition to democracy (1939-1978); (3) the configurations that emerged during the democratic period, particularly following the emergence and evolution of Spain's quasi-federal system of autonomous regions and the enactment of the 1985 Water Law (1978-2000); and (4) the subsequent, ostensibly radical, reorientation of objectives and governance principles associated with the EU's Water Framework Directive (WFD; from 2000 onwards).

Finally, the discussion and concluding sections provide a broader reflection and raise questions about the future trajectories of basin-scale governance in Spain. Specifically, we examine whether current disagreements around environmental policies and the WFD may signal the emergence of a new, fifth stage in the century-long evolution of these institutions.

### **THE CONFEDERACIONES SINDICALES HIDROGRÁFICAS: CREATION AND EARLY EROSION (1926-1939)**

This initial phase of the CHs' development unfolded across an exceptionally turbulent period in Spanish (and European) history, marked by profound political, economic, and social instability. It spanned a decade and a half shaped by two dictatorships – that of Primo de Rivera (1923-1930) and that of Berenguer (1930-1931), the latter effectively an extension of the former – and a young and fragile democracy, the Second Republic (1931-1939). This period included the three-year Spanish Civil War (1936-1939). This shifting political landscape, although disruptive, did not halt the advance and consolidation of a powerful hydraulic mission (Molle et al., 2009b), conceived as a lever for national transformation. This hegemonic vision gradually took centre stage for the CHs; in fact, it was perhaps the only transversal principle shared – albeit interpreted and applied from very different political and social perspectives – by the antagonistic forces that would later confront each other during the devastating Civil War.

During this period, the legal framework governing water remained anchored in the 1879 Water Act,<sup>2</sup> a legal text deeply shaped by the liberal and productivist logic of the nineteenth century. This legal corpus established a concessionary regime for surface waters, recognised as part of the public domain, while granting groundwater a private status linked to land ownership. At the same time, it legitimised and encouraged the creation of communal institutions for the collective management of irrigation systems and set out a hierarchy of uses that prioritised domestic supply, irrigation, and industry, in line with its objective of promoting economic development (Menéndez Rexach, 1986; Pérez Pérez, 1992). This normative architecture endured until 1985 and served as the foundational legal scaffold for the hydraulic mission, although it unfolded across markedly different political contexts.

<sup>2</sup> For a more robust development from the initial 1866 Water Act, see Pérez Pérez (1992), Abellán Contreras (2014), and Calatayud (2016).

## Foundational principles

The creation of the first RBOs in Spain took place in 1926, during the dictatorship of General Primo de Rivera, under the designation of *confederaciones sindicales hidrográficas* ('hydrographic syndical confederations'). These institutions were grounded in three essential principles (MF, 1926): the recognition of the river basin as a functional territorial unit, administrative decentralisation with respect to the central state, and water users' participation in both the management and co-financing of hydraulic works. Their primary purpose, in line with other similar bodies established elsewhere during the twentieth century (Molle et al., 2009a), was to promote hydraulic infrastructure that would expand irrigation and energy supply, which were both understood as pillars of national socioeconomic development. In Spain, this hydraulic mission emerged as a direct expression of the ideology of *Regeneracionismo* ('Regenerationism'), an extensively studied intellectual movement of national 'regeneration' whose political project revolved around the domestication and economic exploitation of Spain's waters (Costa, 1911; Ortega Cantero, 1979a, 1999; Fernández Clemente, 1989; 1990; Gómez Mendoza, 1992a; Swyngedouw, 1999; Gil Olcina, 2002; Boelens and Post Uiterweer, 2013; Duarte-Abadía, 2023). Hydraulic development constituted the cornerstone of a discourse of national reconstruction with a predominantly agrarian orientation. This was aimed at improving food security and living conditions but also served an implicit social objective: the containment and depoliticisation of rural unrest and revolutionary threats in a context marked by acute agrarian conflict (Díaz del Moral, 1973).

Regeneracionismo emerged at the beginning of the twentieth century as a deliberate break with the liberal hydraulic paradigm of the century before, which had entrusted water development to private initiatives. That model proved increasingly untenable as private leadership failed – with few exceptions – decisively. Regeneracionismo thus provided the intellectual and political foundation for the early-twentieth-century shift in hydraulic policy, underpinning the attempt to promote large-scale hydraulic works under new state leadership and financing. The strategy's first major political expression was the ambitious but ultimately unsuccessful 1902 *Plan General de Canales de Riego y Pantanos* ('General Plan of Irrigation and Dams', also called the Gasset Plan; see Ortega Cantero, 1979a 1995, 1999; Menéndez Rexach, 1986; Gómez Mendoza, 1992a; Frutos Mejías, 1995; Gil Olcina, 2002). However, the Gasset Plan did not distinguish between different regions in calculating productive potentials for irrigation and relied exclusively on the criterion of conversion costs per hectare (Ortega Cantero, 1995). In contrast, the establishment of the *confederaciones sindicales hidrográficas* signalled the state engineering corps' commitment to a framework that would be attentive to the diversity of conditions across the nation. This approach sought to consider the variety of geographical, productive, social, and economic circumstances, initiatives, and possibilities present in each river basin (Ortega Cantero, 1999). It represented a reorientation of hydraulic policy aimed at surpassing the shortcomings of earlier uniformity and fostering the transformation of those regions that were more dynamic and more open to the creation of a RBO.

The organisation of institutions at the river basin scale was not a novel approach within the Spanish administration. The river basin had served as a spatial reference for water management since 1865, when the *divisiones hidrológicas* ('hydrological divisions') had been established as state instruments for water administration. Institutionally fragile and financially neglected, they produced highly unsatisfactory results (Mateu Bellés, 1995). After a brief hiatus during which the territorial scope of the river basin was questioned, they were renamed and reorganised in 1900 as *divisiones de trabajos hidráulicos* ('hydraulic works divisions'; see Mateu Bellés, 1995; del Moral, 1995). Following the creation of the *confederaciones sindicales hidrográficas* starting in 1926, these divisions continued to operate in those territories where basin organisations had not yet been established.

Most scholars who have dealt with this question (Fernández Clemente, 1986; 1989 1990, 2013; Marcuello, 1990; Frutos Mejías, 1995; Romero González, 1995) concur in highlighting that what was truly distinctive in the creation of the RBOs was their 'syndical' or participatory conception. This characteristic

was a key component of the Regenerationist programme, though it has often been overshadowed by the overwhelming emphasis placed on its hydraulic mission. This interest in administrative decentralisation and user participation was closely linked to the defence of agrarian collectivism,<sup>3</sup> the nationalisation of water, and autonomous water management advocated by prominent *Regeneracionistas* such as Joaquín Costa and Rafael Altamira.

The engineering profession of the early decades of the 20th century enthusiastically embraced these principles, and the Hydraulic Works Division of the Ebro River basin became the institutional setting in which such proposals took root. There, some engineers had already advocated for state ownership of hydraulic works as early as the mid-nineteenth century (Frutos Mejías, 1995; Mateu Bellés, 1995). It was in the Ebro basin, from 1906 onwards, that Manuel Lorenzo Pardo – widely regarded as a key figure in the creation of RBOs (Marcuello, 1990) – received his professional training.<sup>4</sup>

Two episodes were particularly influential in shaping Lorenzo Pardo's thinking and contributing to the eventual materialisation of the confederal project. The first was the First National Irrigation Conference, held in 1913, where the idea of establishing a *mancomunidad económica* ('economic community') for the Ebro was proposed. The second was the experience of the *Plan de Riegos de Aragón* ('Irrigation Plan of [the region of] Aragon', within the Ebro River basin), which was organised through a social board involving user participation (Martín-Retortillo, 1960; Frutos Mejías, 1995; Fanlo, 2008).

In this regard, the process of establishing the confederaciones sindicales hidrográficas cannot be separated from the earlier experience of the *sindicatos centrales de riego* ('central irrigation syndicates'), which served not only as a legal and institutional precedent but also as a model of collective management of irrigation water and hydraulic infrastructure. Since the mid-nineteenth century, these irrigator organisations had developed in several regions, managing water collectively in accordance with the 1866 and 1879 Water Acts.<sup>5</sup> Lorenzo Pardo himself would later explain that his initial intention had been to structure the confederations as a 'valley syndicate' (Lorenzo Pardo, 1930). The confederaciones sindicales hidrográficas thus represented "the transplantation to a higher scale of the principles of the irrigators' communities" (Martín-Retortillo, 1960). It is therefore no coincidence that the initial formulation of the confederations included the term 'syndical', nor that this term was later removed as the balance between central authority and user participation was recalibrated. Yet this framing may obscure the extent to which the irrigators' communities themselves were dominated by agrarian elites whose interests the confederal model was equally designed to protect.

### Articulation of the confederal project

The political catalyst for the Regenerationist aspirations during the dictatorship of Primo de Rivera was the engineer and minister Rafael Benjumea, who was familiar with the work and intentions of Lorenzo

<sup>3</sup> Regenerationist collectivism did not include the socialisation of capital and therefore did not affect private property: "It respects and preserves private property on the same terms as at present, not only in the products of labour, but also in the means of production, with only one exception: the soil, that is to say, the land" (Costa, 1981).

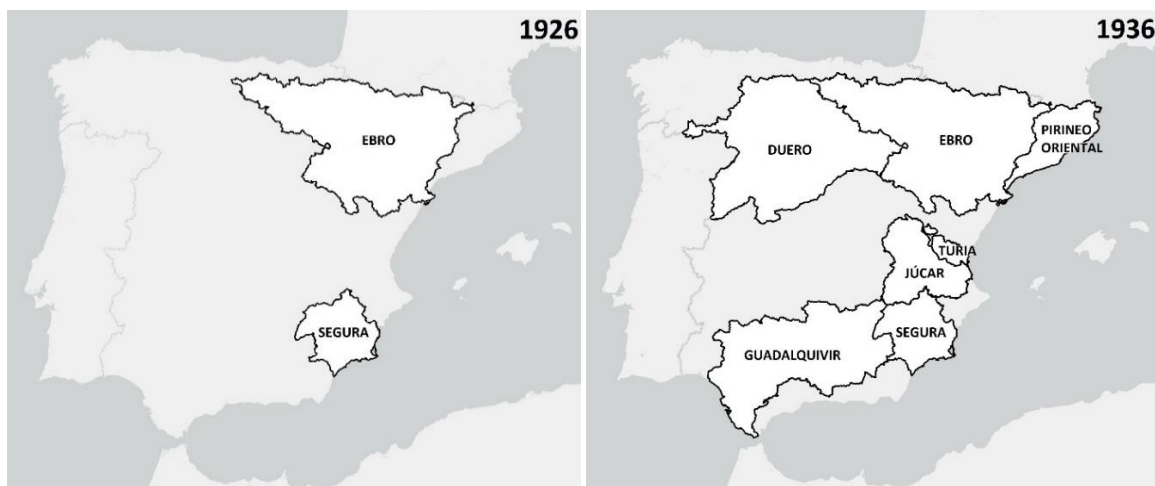
<sup>4</sup> Manuel Lorenzo Pardo (1881-1953) was a civil engineer trained at the Madrid School of Civil Engineering and a central figure in Spain's hydraulic administration across both the Second Republic and the early Franco regime. Influenced by the technocratic strand of hydraulic Regeneracionismo, he directed major works in the Ebro basin and served as the principal architect of the 1933 National Plan for Hydraulic Works. After the Civil War, he remained within the hydraulic administration in strictly technical capacities. In this sense, he has frequently been depicted as a key figure in the continuity of 'hydraulic ideology' across the decades of his career (Martín Gaité, 1983).

<sup>5</sup> The Sindicatos Centrales de Riego rested on a broad base of local irrigators' communities – heirs to a long historical tradition of communal water management, often led by powerful local elites – that had been visited and examined by experts from several European colonial powers, helping to disseminate a romanticised view of these institutions (Jaubert de Passa, 1823; Aymard, 1864; Markham, 1867; Scott-Moncrieff, 1868).

Pardo in the Ebro basin (Martín Gaité, 1983).<sup>6</sup> His appointment to the Ministry of Public Works in 1925 was decisive in shaping the confederal project, which rested on the state's commitment to the hydraulic mission and to user participation in management. User representatives participated in the collegiate governing bodies of the confederations – the general assemblies and their consultative and planning bodies – together with state representatives.

On 5 March, 1926; the confederaciones sindicales hidrográficas were created and, through the same decree, the Ebro basin's confederation was formally established. Others followed in subsequent years.<sup>7</sup> The establishment of the Segura RBO resulted from negotiations initiated the day after the publication of the first confederal decree and concluded with the Confederación Hidrográfica del Segura's creation in August 1926 (Melgarejo, 1995; 2002). It was followed by the Duero and the Guadalquivir RBOs in 1927, the Pirineo Oriental's ('Eastern Pyrenees') in 1929, and during the Republican period in 1934, the Júcar's, as well as a very short-lived RBO for the Turia (1936) (see Figure 1).

Figure 1. Maps showing the confederaciones hidrográficas established between 1926 and 1936, prior to the Spanish Civil War



Note: The *Confederación Hidrográfica del Guadalquivir* was originally established for the Guadalquivir basin proper, but in 1934 it was expanded to include the small coastal basins between the river mouth and the Strait of Gibraltar, as shown on the map.

Beyond the institutional milestones – and the political myths – the confederaciones sindicales hidrográficas concealed significant spatial diversity and a turbulent temporal trajectory. For instance, not all of these RBOs were confined strictly to the boundaries of a single river basin; in some cases, such as that of the Eastern Pyrenees, several small basins were grouped together. This revealed the complexity

<sup>6</sup> Rafael Benjumea (1876-1952) was a civil engineer trained at the Madrid School, where he became part of the technical milieu shaped by hydraulic Regeneracionismo. He directed and promoted the construction of the Chorro Reservoir (later renamed Conde del Guadalhorce) in Málaga, southern Spain (Boelens and Post Uiterweer, 2013). This success made him an emblematic figure of 'practical Regenerationism'. His appointment as minister stemmed from this prestige.

<sup>7</sup> Later confederations adopted a structure that was practically identical to that of the Ebro's in 1926. Their organisational charts were built around: (1) a general assembly, a deliberative body with representation from water users, local authorities, and the state administration; (2) an executive committee, responsible for day-to-day management and for implementing the assembly's decisions; (3) a presidency, appointed by the state, with political and administrative leadership functions; (4) technical services, headed by a chief engineer and subdivided into specialised *jefaturas* (project design, works supervision, hydrology and gauging, and system operation); (5) a general secretariat and economic services, responsible for internal administration; and (6) users' syndicates or boards, corporatist bodies for representation and consultation. Taken together, they adopted a hybrid model that was formally participatory and operationally technocratic.

of adapting a single administrative structure to diverse hydrographic realities.<sup>8</sup> Sanchis-Ibor (2012) identifies a marked contrast between the process through which the CHs were established in basins with a long-standing tradition of collective water management and those in which the involvement of the state engineering corps was more decisive. In the creation of the Segura, Júcar, Eastern Pyrenees, and Turia Confederations – all on the Mediterranean coast and with centuries-long traditions of irrigated agriculture – user participation proved crucial, thanks to the resolute actions of the central irrigation syndicates and of major irrigator communities (Melgarejo, 1988; Mateu Bellés, 2011; Pavón, 2012; Sanchis-Ibor, 2012, 2016).<sup>9</sup> These cases constitute, in a sense, a 'syndical route' in the process of these institutions' articulation. Their examples stand in contrast to the pioneering Ebro Confederation, where institutional development was driven by the engineering corps under the leadership of Lorenzo Pardo and, likewise, to those of the Guadalquivir and the Duero river basins, where the state's commitment to hydraulic public works was more pronounced (del Moral, 1991; Frutos Mejías, 1995).

The push towards a more syndical or participatory character may seem paradoxical, given that it took place in the context of a military dictatorship led by a general (Primo de Rivera and, later, Berenguer) and endorsed by the monarchy (Ben-Ami, 1983). The dictatorship emerged in response to intense social unrest driven by peasant and urban working-class mobilisations (Malefakis, 1972) and involved the suspension of democratic institutions and the outlawing of the principal workers' and peasant union, the Confederación Nacional del Trabajo (González Calleja, 2005). This apparent paradox is explained by several factors, including the ideological breadth that the hydraulic mission acquired in Spain. But, more fundamentally, it is critical to note that participation in RBOs was not socially neutral. The irrigators' communities that drove the confederal model in the Mediterranean basins were controlled by local agrarian elites with strong ties to the Primo de Rivera regime and subsequently to the right-wing parties of the Second Republic (CEDA and the Radical Party; see Sanchis-Ibor, 2012; Sanchis-Ibor and Gómez-Alfaro, 2012).

### **The Second Republic: Revision, distortion, and reconfiguration of the confederal model**

The Second Republic (1931-1939) was a convulsive phase marked by profound socio-political turbulence and persistent institutional instability. Over the course of eight years, twenty-six governments succeeded one another, reflecting deep political polarisation, recurrent cabinet crises, and shifting parliamentary coalitions. This is a notoriously understudied phase of RBO development. Scholarly work on this period is relatively scarce, and several significant questions therefore remain unresolved. To undertake a historiographically rigorous critical reassessment, we have complemented the limited existing scholarship with a systematic review of official documentation. The excerpts from these documents should be interpreted within their specific historical context. In broad terms, this phase is characterised by an initial profound reappraisal of the confederal model, followed by a gradual restoration of its capacities and functions.

The original configuration of the confederations had already been undermined before the proclamation of the Republic; the brief Berenguer dictatorship (1930-31) imposed limits on their administrative autonomy. The confederations were also subject to criticism from financial institutions and hydroelectric companies reluctant to submit to binding plans or contribute to the financing of the hydraulic administration (Ortega, 1979a; Frutos Mejías, 1995; Romero González, 1995; Mateu Bellés, 2011).

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<sup>8</sup> The RBO established in the Turia basin, created against the opposition of the state engineering corps, encompassed only the portion of the basin located within the province of Valencia. It therefore represented a distortion of the principle of basin unity, subverted by the pressures exerted by Valencian irrigators (Sanchis-Ibor, 2012).

<sup>9</sup> Notably the Sindicato Central del Río Segura, the leadership of the Acequia Real del Júcar, and the communities represented in the renowned Tribunal de las Aguas de Valencia.

In, 1931; the advent of the Republic brought about another significant reconfiguration. Barely two months after the formation of the first republican government, the new authorities – distrustful of institutions created under the Primo de Rivera dictatorship – reorganised the RBOs by simplifying their structure and reducing the presence of user groups. Control was placed in the hands of *comisiones gestoras* ('management commissions') dominated by the central government (Frutos Mejías, 1995), in hopes that more direct state supervision would increase their effectiveness (MF, 1931; Fernández Clemente, 2013).<sup>10</sup> Indeed, the *comisiones gestoras*' first task was to assess ongoing and planned hydraulic works using cost-benefit criteria and suspend those that failed to meet them (MF, 1931). The name of the RBOs was changed from 'confederaciones sindicales hidrográficas' to *mancomunidades hidrográficas*<sup>11</sup> on the grounds – largely unfounded in the case of the Mediterranean confederations – that they had not been created through "spontaneous initiative" but had instead been "compelled by the State" (MF, 1931). It was also argued, in this case accurately, that the confederations had not achieved the expected financial autonomy and depended "almost exclusively on the resources granted to them by the State" (MF, 1931). To provide them with their own financial resources, it was proposed that they be granted the usufruct of hydroelectric plants built at the feet of dams, as well as the surplus value generated by agrarian transformations (Nadal and Lacasa, 2003).

From 1932 onwards, several decrees progressively expanded user participation once again (MOP, 1932a). The *mancomunidades* were renamed *delegaciones de servicios hidráulicos* ('delegations of hydraulic services'), and their remits were broadened to include "agronomic and forestry services, and those relating to accounting and expenditure management" (MOP, 1932b). In addition, the creation of boards of irrigators and hydroelectric users was authorised in several river basins where RBOs had not yet been established (such as those of the Júcar, Tagus, Guadiana, and Southern Spain), following the model recently created in the Segura River basin (MOP, 1932b). The aim was to stimulate user participation and strengthen interaction between users and the hydraulic administration in those basins lacking RBOs.

Following the electoral victory of the centre-right parties in November, 1933; the *comisiones gestoras* were abolished (MOP, 1933). In February, 1934; the Ebro RBO recovered its original name of 'confederación hidrográfica', although without the term 'sindical'. With the change of designation came the reinstatement of the general assembly, thereby re-establishing the original goal of user participation in water management that had inspired the first confederations. The reorganisation decree, after praising the original confederal model, acknowledged that the "democratic foundations indispensable for the fruitful consolidation of such institutions" had gradually been eroded, since previous republican governments had found themselves "obliged to adopt various measures to revise the functioning of these bodies (...) in some of which the autonomy that had informed their creation was notably absent" (MOP, 1934). With these words, the right-wing republican government sought to justify its reversal of the changes introduced by the previous left-wing government and to recall the original essence of these institutions. This process of rehabilitation was gradually replicated in other basins: In May, 1934; similar reorganisations were implemented in the Segura, Guadalquivir, and Duero RBOs; in June, the Júcar RBO was created following these criteria; and in September, 1935; the Eastern Pyrenees RBO was reformed.

Why did the first republican government confront these institutions from the very first moment? Why were confederation-based organisations reinstated after 1932 and during the right-wing biennium? The

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<sup>10</sup> The management commissions were to be composed of a government delegate, the technical director of the *mancomunidad*, the head of legal services, and the chief engineer, together with four representatives of agricultural interests and one representing industrial interests, all "attached to the confederation" and appointed directly by the Minister of Public Works (MF, 1931).

<sup>11</sup> In Spanish administrative and legal tradition, the term *sindical* carries the connotation of user participation, whereas *mancomunidad* generally refers to a voluntary association of municipalities or public entities who manage a shared service or infrastructure and where the role of the users is not explicit.

various reforms carried out during the Republican period – initiated very early on by the first and provisional government – were formally justified on the grounds of operational or administrative efficiency (MF, 1931), but they also appear to reflect a political revision of the actions of the dictatorship. As we have noted, historical research on this period is limited, but another factor that may have prompted this reassessment is the evident lack of financial resources within the CHs; the user-state co-financing mechanisms had failed, leaving the full burden of investment to a state with very limited fiscal capacity (MF, 1931).

The limitations on user participation during the republican period were temporary and reversed within a relatively short period under right-wing moderate republican governments, which preserved close ties with local irrigation elites.<sup>12</sup> Yet beyond these clientelist connections, it is important not to lose sight of the collaboration that took place during what is commonly referred to as the 'reformist' biennium of the Second Republic, guided by the socialist Minister of Public Works Indalecio Prieto (1931-1933) and Manuel Lorenzo Pardo, together with other state engineers of conservative orientation. This alliance illustrates the ideologically cross-cutting character of Spain's hydraulic mission and culminated in the approval of the 1933 *Plan Nacional de Obras Hidráulicas* ('National Plan for Hydraulic Works'; see Ferri i Ramírez, 2012). That plan, arguably the definitive roadmap of Spain's twentieth-century hydraulic policy, enshrined a unitary and national conception of water management, explicitly (albeit mostly rhetorically) subordinating private and regional interests to the proclaimed "general interest" within an anti-oligarchic framework that included the threat of expropriation (Ortega Cantero, 1999).

Studies focusing on specific river basins suggest that, in addition to national-scale planning, the Republican period witnessed the development of extensive detailed river basin planning, which served as the foundation for the expansion of hydraulic infrastructures in subsequent decades. This was the case, for example, with the planning of the irrigable areas of the Bembézar, Genil, Viar, and Lower Guadalquivir basins, the last supplied by a massive canal that had begun to be constructed immediately after the end of the Civil War using the labour of political prisoners (and thus named the *Canal de los Presos*, the 'Prisoners' Canal'; see del Moral, 1991).

Bartolomé (2011) and Bartolomé-Rodríguez et al. (2024) have argued that the material balance of the period, in terms of achieving its objectives, was rather modest, both for the agricultural and the hydropower sectors (see also GHER, 1991). This was partly due to the brevity of the phase and partly to its political instability and lack of financial support. If we develop a simple comparative analysis, it is true that Mediterranean confederations saw some momentum in the construction of large reservoirs, particularly in the Segura and Ebro basins, but the scale of this activity was comparable to that observed in other areas where RBOs had not yet been established during this period, such as the Tagus or the Guadalhorce.<sup>13</sup>

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<sup>12</sup> Thus, for example, Ricardo Samper – member of the Radical Party, Minister of Industry and Commerce, and finally Prime Minister between April and September 1934 – had earlier served as secretary of the Acequia Real del Júcar (Mateu Bellés, 2011). Joaquín Chapaprieta – member of the Centro Democrático Party, Minister of Finance 1933-1934, and Prime Minister between September and October 1935 – also had strong familiar connexions with irrigation landholders of the Segura basin.

<sup>13</sup> In the Segura basin, the mobilisation of irrigators to establish the basin organisation aimed to promote river regulation, which materialised in the construction of the Fuensanta reservoir (210 hm<sup>3</sup>) and the commencement of works on the Cenajo dam (435 hm<sup>3</sup>). A similar pattern can be observed in the Turia basin, with the start of construction of the Benagéber reservoir in 1932, or in the Ebro basin, where the Tremp reservoir (236 hm<sup>3</sup>) was raised. In the Tagus basin, the El Burguillo dam on the Alberche (208 hm<sup>3</sup>) was heightened, and in the Guadalhorce basin the El Rollo dam (85 hm<sup>3</sup>) was completed – promoted, indeed, by Rafael Benjumea himself.

## THE APEX OF THE HYDRAULIC MISSION: THE CONFEDERACIONES HIDROGRÁFICAS UNDER THE FRANCO REGIME (1939-1978)

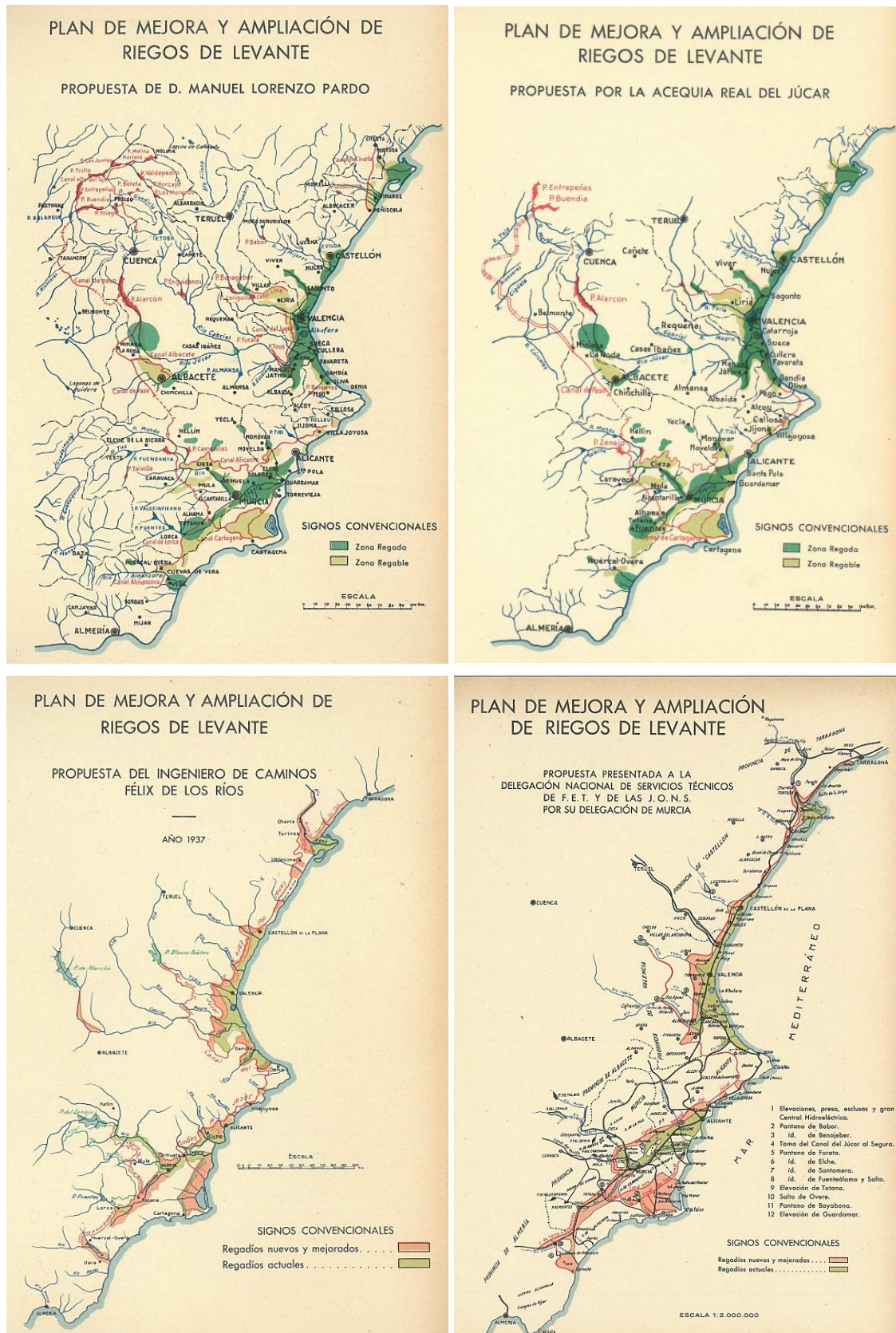
The entry of Franco's troops into the towns of Alicante and Valencia at the end of March 1939 marked the end of the Spanish Civil War, which had started in July 1936. In Valencia, the first official building to raise the Francoist flag was that of the confederación hidrográfica. This anecdote illustrates the spirit of the new period, in which the political objectives of the dictatorship became fully aligned with those of the Regenerationist hydraulic mission, fulfilling the aspirations of much of the state's engineering corps. The persistence of these aspirations across political regimes can be explained by their institutional and professional reproduction within the state's engineering bodies, whose relative continuity allowed such ambitions to adapt to shifting political contexts while maintaining their underlying logics.

This continuity points not to neutrality but to the enduring authority of technocratic expertise in shaping water governance and spatial planning (Camprubí, 2014). The late nineteenth- and early twentieth-century Regeneracionismo had framed hydraulic development as a central instrument of national modernisation while presenting it as a politically neutral and technically inevitable project. In this sense, the Francoist period should be understood as a moment of convergence and intensification, in which pre-existing technocratic visions found unprecedented political support, enabling their large-scale implementation while further consolidating a model of water management that obscured its social and environmental implications.

Numerous authors (Melgarejo, 2000; López-Gunn, 2009; Swyngedouw, 2015; del Moral and Hernández-Mora, 2016a; d'Amaro, 2022) agree that, in this context, the CHs were regarded as mere peripheral instruments serving the state's policy of mobilising and exploiting water resources. From the very beginning of the so-called 'New State', this policy was guided by the 1940 *Plan Nacional de Obras Hidráulicas* ('Hydraulic Works Plan'). The plan drew – partially and in a fragmented manner – on much of the work contained in Lorenzo Pardo's 1933 plan (DGOH, 1933), although it prioritised the construction of reservoirs over the development of interbasin transfers (Figure 2). It set the objective of reaching 2.5 million irrigated hectares and treated irrigation as "the most complete and most satisfactorily achieved form of colonisation" (DGOH, 1940). To this end, the *Instituto Nacional de Colonización* ('National Institute of Colonisation', INC) was created in 1939. As several authors have noted, the extensive public investment deployed through these programmes tended to enhance the productive potential – and therefore the market value – of privately owned land in the areas where irrigation was introduced (Melgarejo, 2000; Gil Olcina, 2002; del Moral and Hernández-Mora, 2016a). In other words, these interventions effectively channelled substantial public resources into improvements that accrued primarily to private landholdings, reinforcing a long-standing pattern of public-private resource transfer within Spanish hydraulic policy.

Broadly speaking, the INC took charge of small-scale hydraulic development, including secondary distribution canals and the network of irrigation ditches that delivered to individual plots, while the RBOs were entrusted with the construction of reservoirs and major canals. These initiatives were inspired by the *Ley de Obras de Puesta en Riego* ('Law on Irrigation Development') (MF, 1932), with the crucial difference that, whereas the objective during the republican period had been to compel landowners to invest in land transformation or face the expropriation of their estates for the settlement of landless labourers, the INC implemented a model that proved highly beneficial for large landowners. Their properties were significantly revalued, and part of their land was purchased by the state at favourable prices in order to settle a pacified labour force within the context of the rigid dictatorship established after the Civil War (Ortega Cantero, 1979b).

Figure 2. Maps published in the *Plan Nacional de Obras Hidráulicas* of 1940.



Note: The 1940 Plan examined two alternative versions of each of two proposals aimed at supplying water to Spain's eastern regions – the *Levante* – which constituted the central objective of both the 1940 plan and its 1933 predecessor. Two of the maps above present Tagus-Segura transfer options: the proposal included in the 1933 Plan (top left) and an alternative put forward by Valencian irrigators that excluded the connection of the River Júcar (top right). The other two maps depict different proposals for a transfer from the Ebro River: one drawn up by Félix de los Ríos, president of the Ebro River Confederation (bottom left), and the other by Falangist technical bodies in Murcia (bottom right). All four proposals were ultimately rejected on the grounds that further studies were required. Nevertheless, the idea was revived in the 1960s and eventually materialised with the arrival of Tagus waters in the Segura basin in 1979 (del Moral Ituarte, 1999).

River regulation also served to boost the hydroelectric sector, which was favoured by the dictatorship through a combination of direct intervention and public-private collaboration. On the strictly public side, the regime promoted the creation of the *Instituto Nacional de Industria* ('National Institute of Industry', INI), which founded the public electricity companies Endesa (in 1944) and ENHER (in 1946) and financed the construction of major regulating dams that structured the national electricity system. At the same time, it established a concessionary and financial framework that encouraged private companies to participate in hydropower exploitation, providing subsidies, credit, and advantageous conditions. Critical scholarship (Garrués-Irurzun, 2012; Swyngedouw, 2015; Bartolomé-Rodríguez et al., 2024) has argued that this scheme led to increasing corporate integration and a close interweaving of the electricity oligopolies with the state apparatus.

Francoist legislators kept the 1879 Water Act in force, preserving the concessionary regime for surface waters and private ownership for groundwater – although the INC became heavily involved in the mobilisation of groundwater resources (Ortega Cantero, 1979b, 1993; Closas, 2018). The regulations on irrigation communities and central syndicates were also largely preserved, even though the Francoist *Sindicato Nacional* (the so-called 'vertical union') sought to eliminate these institutions and absorb them into its single, vertical structure, following the corporatist model promoted by fascist regimes in the rest of Europe (Sánchez Recio, 2002; Gómez Herráez, 2008).<sup>14</sup> The Water Act was regarded as an appropriate framework for the development of the hydraulic mission, although the Francoist State operated around its edges to strengthen, control, and steer that mission. For the new regime, the water confederations had to be drastically reorganised so as to make Regenerationist objectives compatible with the new and rigid political landscape, oriented towards safeguarding the interests of the elites within the oligarchic financial-industrial-agrarian complex that had emerged victorious from the brutal Civil War.

### Authoritarian control and the disarticulation of the confederal model

Mateu Bellés (2011) and Melgarejo (1995, 2002) have described how, to enable the CHs to fulfil this dual – agricultural and energy-related – transformative mission in accordance with Francoist principles, it was necessary to eliminate their decentralising essence, their autonomy, and their mechanisms of limited social participation. As a result, the original 'syndical' principles were emptied of meaning, and a vertical, strictly top-down system was established under the command of the *Dirección General de Obras Hidráulicas* ('Directorate General for Water Works', DGOH), which exercised tight control over the RBOs.

The participatory structure of the CHs began to be dismantled even before the end of the war as territories were progressively brought under the control of the uprising. Once the conflict was over, the reorganisation of the RBOs was carried out through an internal memorandum circulated in January 1942

<sup>14</sup> The *Sindicato Nacional* ('National Syndicate') was the only legal trade union in Spain between 1938 and 1977, and it compulsorily brought employers and workers together within a single hierarchical structure, with no possibility of free trade unionism or autonomous collective conflict. Its design followed a corporatist model and operated under the ideological tutelage of the *Falange Española*, the single fascist party that provided the political, ideological, and organisational foundations of the Francoist State. Within this structure were integrated the *Hermandades Sindicales* ('Syndical Fraternities'), local bodies created by the regime to organise and control workers and employers, especially in the agricultural sector. In this way, both the National Syndicate and the *Hermandades Sindicales* – the latter in rural areas – acted as instruments of political, social, and labour control for the Franco regime.

but never published. Instead of explicitly dismantling the existing participatory structures, the ministerial order simply refrained from renewing the mandates of the members of CH representative bodies, whose posts were then 'temporarily' filled by representatives of the administration – a provisional arrangement that in practice lasted two decades. As Martín-Retortillo (1960) criticised, despite "the strict requirement for the General Assemblies to meet every six months",<sup>15</sup> these assemblies ceased to be convened in any CHs. The confederal bodies came to be composed solely of official members, effectively turning them into strictly bureaucratic organisations (Fanlo, 1996). The distortion of the CHs' legal nature was thus consecrated de facto, though not formally.

López-Gunn (2009) has highlighted the role of the hydraulic bureaucracies in this process. A technocratic approach was institutionalised, which reserved the main posts within both the CHs and the DGOH almost exclusively for civil engineers. With a rigid hierarchical structure and an elitist character, the engineering corps occupied the key positions within Spain's hydraulic bureaucracy and exercised uncontested leadership – often despotic towards other professional groups or users – in the domestication of river systems.

The structure of the CHs also underwent significant changes in the distribution of their functions.<sup>16</sup> After the Civil War, a distinction was maintained within their technical services between the *Servicio de Obras* ('Works Department') and the *Servicio de Aguas* ('Water Department'): The former was responsible for the promotion and execution of infrastructure and the latter for the allocation and control of water rights. In 1947; however, these departments were merged under a single administrative authority. This integration of all CH functions under a unified command lasted for twelve years.

Then, in 1959, a major restructuring separated part of the RBOs' responsibilities, which were allocated to a new and independent body, the *Comisaría de Aguas* ('Office of the Water Commissioner'). These were established within the territorial scope of each existing CH but also in areas where no CH had previously been created.<sup>17</sup> The *Comisaría de Aguas* were entrusted with the state's so-called 'sovereign functions': allocation of water use rights, use of the public domain, monitoring and control, etc. (Menéndez Rexach, 1986). Seven years later (MOP, 1966), their powers were expanded – again at the expense of the CHs – to include inspection, operation, and maintenance of hydraulic works, hydrological studies, flood forecasting, and expropriations, among other responsibilities (Menéndez Rexach, 1986; Cano García, 1992). The functions of the CHs were restricted to the preparation of water-use plans, gauging, and the study, execution, and operation of works – that is, the strictly engineering-based task of river regulation. This separation of functions would remain in place until the enactment of the 1985 Water Act under democratic rule.

The reduction of the CHs' remit also became evident during the implementation of large-scale irrigation development plans promoted by the Franco regime at the provincial level, such as the Badajoz

<sup>15</sup> "Through regulatory non-application, the Spanish public administration has almost abruptly cut off the immanent trajectory of the public-water legal system". Besides the engineers, there was also a relevant professional body – lawyers and legal servants – which should be analysed in its complementary but also potentially conflictual relationship with the former one, as Martín-Retortillo's works prove (1960).

<sup>16</sup> During the early Franco regime, the confederations maintained the basic structure inherited from 1926 and slightly reorganised in 1935 – presidency, general assembly, executive committee, technical services, general secretariat, and user syndicates – but under a regime of strong recentralisation and political control. The presidency acquired a dominant role as a delegate of the State; the assembly and participatory bodies were stripped of autonomy; and the technical services, headed by the chief engineer, were consolidated as the operational core of the hydraulic apparatus. The functions of hydraulic policing, control of the public water domain, and processing of concessions – later assumed by the water commissioners' offices – were at that time integrated into specific technical departments, subordinate to the chief engineer and closely supervised by the ministry.

<sup>17</sup> The decree creating the water commissioners' offices argued that the CHs were managing an "extraordinary volume" of water-related matters and that many of them risked being postponed because they required slower and more careful attention, in contrast to "the urgency of the problems associated with hydraulic works" (MOP, 1959).

Plan (for the Guadiana River basin) or the Jaén Plan (for the Guadalquivir River basin). Both were highly distinctive projects of Francoism and can be understood as particularly ambitious expressions of the hydraulic paradigm. They were not merely irrigation schemes; rather, they combined large-scale hydraulic infrastructure, agrarian colonisation, industrialisation, and territorial transformation (MA, 1952; 1953). Between 1955 and 1959, the regime formulated a specific legal framework for the development of these large-scale irrigation development projects, prioritising the provincial scale over the river-basin scale and stripping the CHs of many of their functions.<sup>18</sup> "All of this", in the critical and contemporary words of Martín-Retortillo (1960: 186), entailed abandoning the "natural criterion" of the river basin in favour of "an administrative one: the province". The position taken by this jurist, who opposed "stripping the CHs of their functions", reveals that within the regime – often portrayed as monolithic – divergent views and institutional interests coexisted.<sup>19</sup> It also foreshadowed some of the changes that would take place during the final decade of the regime with respect to the RBOs.

Figure 3. During this period, the map of the CHs was completed



Note: In 1953, the CHs for the two remaining major river basins, the Tagus and the Guadiana, were created. For the smaller, peripheral basins, the chosen solution was to integrate several basins into a single confederation: the Júcar absorbed all the basins located between the Ebro and the Segura in 1942 (Mateu Bellés, 2011); the CH Norte was created in 1961, integrating all the basins of the northern Atlantic coast; and the CH Sur was established in 1960, incorporating the Andalusian Mediterranean basins into the CH that had been created in 1947 on the Guadalhorce River.

### Towards the rehabilitation of confederal principles

From 1965 onwards, in parallel with the regime's process of economic liberalisation, the CHs went through a gradual restoration process: Various decrees progressively reinstated some of the participatory features that had characterised their initial design.<sup>20</sup>

This institutional shift was the outcome of a process that had begun many years earlier. As d'Amaro (2022) has lucidly analysed, it resulted from the pressure exerted by two irreconcilably opposed groups that had been competing for the same dual objective: to restore the agricultural sector's participation in

<sup>18</sup> Budget Act of 26 December 1957; Decree of 13 February 1958; Order of 29 March 1958.

<sup>19</sup> Sebastián Martín-Retortillo (1960: 183-189) stated: "The River Basin Confederations currently display an effectiveness entirely different from that which corresponded to them as originally structured. They have gradually suffered a real reduction of their functions". In his view, this amounted to a "true dispossession".

<sup>20</sup> This period is often referred to as the regime's *aperturista* phase, a term that reflects an attempt to introduce limited political and social reforms within the dictatorship without altering its authoritarian structure. It corresponds mainly to the regime's final decade. Driven by less dogmatic sectors of government, these opening measures responded to the advancing integration of the Spanish economy into international economic institutions. The period began with the Stabilization Plan of 1959 and the World Bank's report on the Spanish economy, establishing new logics of profitability in public policies. But the regime, despite social pressure, maintained strong political repression and the absence of genuine pluralism (Payne, 2011).

the CHs and to establish themselves as the legitimate representatives of irrigators before the administration. The first of these groups was the Sindicato Nacional, which, as earlier stated, was the only legally recognised trade union under Franco. It operated in rural areas through the hermandades sindicales under the ideological tutelage of the Falange, the regime's single party.<sup>21</sup> The second group was made up of the *comunidades de regantes* ('communities of irrigators'), led by the local conservative elites of the traditional irrigation systems, who had been the driving force behind the creation of the CHs during their foundational period.

From the late 1940s onwards, the hermandades sindicales pressured the authorities to restore the CHs' user assemblies and put them under the hermandades' control. They agitated for this unsuccessfully in the case of the Ebro CH in 1949 and again during the subsequent creation of the CH Norte (D'Amaro, 2022). Meanwhile, however, the irrigators' communities were reorganising themselves to reclaim their lost position within the assemblies, and to this end (among others) they created in 1955 a semi-clandestine<sup>22</sup> *Federación Nacional de Comunidades de Regantes* ('National Federation of Irrigation Communities' or FENACORE), which continues to play a major role in Spanish hydro politics up to the present day.

The Sindicato Nacional used its political leverage to obtain, in 1959, an order dissolving FENACORE, which was ignored by the irrigators although it remained formally in force for twelve years (D'Amaro, 2022). FENACORE continued its activities and in June 1964 organised – with the tacit support of the authorities – the First National Congress of Irrigators' Communities.<sup>23</sup> Beyond its substantive content, this event demonstrated FENACORE's political victory over the Falangist Sindicato Nacional. Less than a year later, Franco signed the decree that restored user participation in the RBOs, giving irrigators – alongside electricity users and municipal water suppliers – a voice in the *Juntas de Obras* ('Works Committees') to be created on each river for "the operation of works and the administration of waters (...) in accordance with the best tradition of our autonomous water administrations" (MOP, 1965). The 1965 Decree, far from sidestepping the issue, clearly brings this political shift to light, recognising "the representative system established by the principles that inspire the Spanish political conception (...) in line with the tradition of our historical water law". It also explicitly acknowledged "the aspiration of users to participate more actively in the tasks of the CHs, which was clearly expressed at the First National Congress of Irrigators' Communities in June 1964" (MOP, 1965). These discursive elements can also be found in the successive decrees, which sought to politically justify the shift towards irrigation elites and to articulate the renewal of the alliance already established during the Primo de Rivera period.

In the following years, irrigators continued to gain ground within the CHs. In 1967; drawing on "the original conception of the confederaciones hidrográficas", another decree expanded the membership of the CHs' governing boards by adding four new members: two representatives of irrigation users, one representing the municipal water supply, and one representing hydropower users (MOP, 1967). In 1974; one year before Franco's death, the *Juntas de Explotación* ('Operation Boards') expanded irrigator representation and included users who discharged their waters into a public watercourse, whenever the magnitude of the discharges so warranted, given the growing importance "of wastewater in the integral and balanced management of resources" (MOP, 1974).

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<sup>21</sup> See note 14.

<sup>22</sup> The leaders of the Acequia Real del Júcar made several visits to numerous Spanish irrigation communities and invited them to participate in a meeting of the Acequia's governing board, concealing the real purpose of the meeting – to establish a federation – and thus circumventing the regime's restrictions on the right of assembly.

<sup>23</sup> The *Congresos Nacionales de Comunidades de Regantes* had their precedent in the *Congresos Nacionales de Riegos* ('National Irrigation Congresses'), studied in detail by López Ontiveros (1992, 2001). This author underscores the persistent strength, throughout the period under study, of the myth of irrigation as a vehicle for the radical transformation of both landscapes and social structures, modelled on idealised representations of historical Levantine irrigation systems – what he describes as "the Levantine mirage".

In general terms, and as a balance of the period, Francoism consolidated and accelerated a centralising hydraulic mission, integrating it into its ideological project. The regulation of river systems and its impact on irrigated land and energy production were striking and, as Swyngedouw (2015) stated, this was inseparable from an uneven socio-ecological reconfiguration. Intensive dam construction increased the country's reservoir capacity from 3.6 Mm<sup>3</sup> to 42.2 Mm<sup>3</sup> between 1940 and 1972 and expanded irrigated area to 2.2 million hectares by 1975, slightly below the target set in the 1940 Hydraulic Works Plan. Installed hydroelectric capacity also rose exponentially, from 1.3 GW in 1941 to 11.9 GW in 1975 (Espejo and García, 2010).

Recent historiography by Bartolomé-Rodríguez et al.; has examined this period by debating whether the agricultural or the hydroelectric sector carried more weight in the hydraulic mission, both in terms of political power and material outcomes (2024). These authors acknowledge the difficulty of settling this question quantitatively, yet they converge on two main points. First, they argue that the Francoist political apparatus sought to prioritise agricultural transformation discursively, overshadowing the achievements of the energy sector by appealing to the deep social roots of the Regenerationist ideal and seeking full political control of the countryside. Second, they emphasise that, in quantitative terms, the leap experienced by both sectors – and the associated socio-economic and environmental transformation – has no parallel in any other historical period.

Central to these processes was the way in which the expansion of irrigation and hydraulic infrastructure became intertwined with broader dynamics of capital accumulation that favoured specific families and oligarchic networks linked to the financial, industrial, and agrarian sectors. Regarding the latter, it is important to note that the repeal of the Agrarian Reform promoted by the Second Republic was a fundamental objective of the Francoist coup d'état. The new regime that emerged from the Civil War reinforced the power of local oligarchies based on land ownership, largely characterised by latifundist structures in much of the country (including Andalusia, Extremadura, and Castile-La Mancha), or by less polarised patterns of land tenure in other regions (such as Castile and León, Murcia, or Valencia), yet consistently dominated by local elites closely aligned with the ideology of National Catholicism and demonstrating unquestionable loyalty to a regime that both secured and relied upon its social hegemony, as discussed in detail by Ortega Cantero (1999).

Within this political economy of hydraulic development, large-scale projects relied partly on regimes of coerced labour, including the mobilisation of political prisoners, while their territorial implementation entailed the displacement and reconfiguration of numerous local communities and rural landscapes. This point should be underscored, as it is crucial to understanding the deeper historical significance of this period, as thoroughly analysed by, among others, Gutiérrez Molina (2004), Preston (2012), Rodrigo (2012), and Duarte-Abadía (2023).<sup>24</sup>

### **A NEW LEGAL, POLITICAL, AND TERRITORIAL FRAMEWORK: THE RBOs IN THE EARLY DECADES OF DEMOCRACY (1978-2000)**

The death of the dictator in 1975 opened a process of transition towards a new political regime, which was legally born with the approval of a new constitution in December 1978. The country entered a new social, territorial, and political context, marked by fundamental changes that shaped the structure and dynamics of the CHs. The first was the social and political pluralism of the democratic state, which allowed new voices to emerge in debates on water management. The second was the semi-federal configuration of the state through the creation and progressive development of Spain's autonomous communities (hereafter regions), each with jurisdiction over their own sectoral policies. Unfortunately, this

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<sup>24</sup> Even today, the Guadalquivir River Basin Authority remains reluctant to adopt the term *Canal de los Presos* ('Prisoners' Canal') for the Lower Guadalquivir Canal, despite its widespread popular usage and its official recognition within the framework of historical memory initiatives.

encouraged the emergence of regional powers with conflicting interests in the management of river basins and in hydrological planning (López-Gunn, 2009). Finally, albeit slowly and to some extent contentiously, this period saw a modest shift towards demand management of water resources and a commitment to IWRM, despite the still-dominant social and political position of the hydraulic mission, most clearly expressed in hydrological planning (Saurí and del Moral, 2001; García-Mollá et al., 2019; Fornés et al., 2021). These three changes were articulated in various articles of the Water Act approved in 1985, which laid the foundations for a new legal framework for water management.

### The confederal model established by the 1985 Water Act

The socio-political plurality of the period made it possible to deepen and accelerate the trend, begun during the final decade of the dictatorship, towards restoring user participation in the CHs' governing and management bodies. As early as 1979, a general restructuring of the CHs was undertaken with the aim of "maximising the participatory instruments established in the founding Royal Decree of 5 March 1926" (MOPU, 1979). The *asamblea de usuarios* ('users' assembly') was reinstated, composed of representatives of water users (Menéndez Rexach, 1986). This type of participation, however – as has traditionally been the case – was restricted to elites, who exercised power across multiple scales (irrigation communities, river basin authorities, autonomous communities, and the state). This configuration largely persists to the present day.

The 1985 Water Act consolidated this opening. However, by limiting representation to permitted water users in proportion to the volume of water used (or the importance of the usage in that particular basin), it maintained the hegemony of the traditional hydraulic bloc (dominated primarily by irrigators except in northern basins, where other uses predominated). This bloc largely acted as the custodian of the developmentalist ideological legacy of Regeneracionismo (Melgarejo, 2000; Espluga et al., 2011). The act also incorporated representatives of the regions into the governing board of the CHs and into the newly created basin planning boards, the *Consejos del Agua* ('Basin Water Councils'), made up of representatives of the central government, the regions, and users elected by the users' assembly in each CH (Varela and Hernández-Mora, 2009).<sup>25</sup>

In 1994, a further step forward in this reopening process took place: A royal decree reorganised user representation and incorporated, for the first time, new actors into RBO planning boards. Environmental

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<sup>25</sup> Since the approval of the 1985 Water Act, the functions of the confederations' bodies have been as follows: 1) The president represents the organisation and exercises management and executive functions. They chair the governing board, the users' assembly, the reservoir release commission, and the water council, holding broad powers that include the granting of concessions and authorisations over the hydraulic public domain and the application of the fiscal regime. 2) The governing board is responsible for preparing the budget, proposing the action plan, declaring over-exploited aquifers, and preparing matters to be submitted to the water council. It operates within a participatory framework, with representation from the central state administration, the autonomous communities, and water users. At least one-third of its members represent different types of water uses, elected from the users' assembly according to each use. 3) The river basin water council is the participatory body for hydrological planning. It is responsible for submitting river basin management plans and their revisions to the government, as well as addressing general issues related to regulation, operation, and protection of the hydraulic public domain. It may act in plenary or through committees, and it includes representation from the state, the autonomous communities, and users, who occupy at least one-third of the seats. 4) The users' assembly is composed of all users represented in the operating boards and aims to coordinate the operation of systems, works, and resources in the basin. It elects user representatives to the governing board, the reservoir release commission, and the water council. 5) The operating boards, participatory in nature, coordinate the operation of hydraulic works and resources in specific territorial areas, respecting concessionary rights. They are chaired by the technical director and composed of representatives of the various types of registered or pending users, including water supply, irrigation communities, hydropower companies, industrial users, and others. 6) The reservoir release commission makes proposals to the president on reservoir and aquifer filling and release regimes, which are binding when there is unanimity, technical feasibility, and respect for concessionary rights. It includes representatives of the administration and users, ensuring the presence of all holders of reservoir rights. 7) Works boards may be established, at the request of future beneficiaries, to receive information on the execution of approved hydraulic works, with representation by affected users, whose composition is determined in each case by the governing board.

organisations and trade unions, who represented emerging environmental values and social demands, became members of the water councils (MOPTMA, 1994), albeit with a minimal share compared to the representatives of major users and a public administration historically aligned with their interests (De Stefano, 2020). Although their formal entry was gradual and often conflictive, this regulatory change was a first step in the still-ongoing process of CH transition towards more plural structures, sensitive to a broader range of collective interests. Unfortunately, the effectiveness of this inclusion remains very limited today, even within the planning processes derived from the implementation of the WFD (FNCA-OPPA, 2022).

The 1985 Water Act also adjusted the internal structure of the RBOs and expanded the powers of their highest representative: the president, a political appointee designated by the government who was placed at the head of the institution. It was the president who, in turn, appointed the four key positions within the structure of each river basin authority: the water commissioner, the head of the planning office, the technical director, and the secretary general. In parallel with the approval of the act, the water commissioners' offices were reintegrated into the CHs, with the aim of overcoming "the fragmentation of legal competencies among various territorial bodies and entities" (Royal Decree 1821/1985), thereby bringing together under a single institution all the responsibilities related to water planning and management of the hydraulic public domain. In this way, the CHs regained their foundational principles of unity in management. This principle was reinforced in the Water Act through a major change in the legal status of water rights, whereby all the state's waters were deemed public, ending the historical division between surface waters (public) and groundwater (private), although without retroactive effect (Molinero et al., 2011; Sanchis-Ibor et al., 2022).

Unfortunately, the extension of the hydraulic public domain to groundwater generated a profound administrative overload for the CHs, which were then required to inventory, register, and control hundreds of thousands of previously private wells without the institutional capacity, hydrogeological information, or administrative procedures necessary to do so effectively (Hernández-Mora et al., 2013; López-Gunn and Martínez-Cortina, 2015). The resulting delays and conflicts surrounding the registration and legalisation of groundwater uses persist today.

The Water Act also introduced a profound financial reorganisation of the CHs. From their creation until the approval of the 1985 Water Act, they had operated essentially as decentralised managers of state expenditure. Public funding covered most of the investment, operation, and maintenance costs of the hydraulic infrastructure, while users' contributions were very limited, unsystematic, territorially asymmetric, legally imprecise, and did not respond to any general principle of cost recovery. The 1985 Water Act redefined the CHs as autonomous bodies and established a new system of revenue, structured around the *canon de regulación* ('regulation levy') and the *tarifa de utilización del agua* ('water use tariff'). These instruments made it possible to charge users a limited share of the costs associated with hydraulic works and services (although still far from reflecting their real costs), thereby introducing the notion of economic co-responsibility which, although part of the original confederal project, had never effectively been implemented and had been abandoned under the state interventionism of the Franco regime.

The new model did not entail the disappearance of the state's fundamental role (since it continued to finance actions deemed to be of general interest), but it did involve the adoption of a mixed system, combining public funding with the (incomplete and still insufficient) recovery of water costs (Corominas et al., 2017).<sup>26</sup> As Embid Irujo (2016), as well as del Moral et al. (2017) describe, part of the technical and financial responsibilities for implementing hydraulic works declared to be of general state interest were detached from the CHs and transferred to several state water companies, created between 1997 and

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<sup>26</sup> Various studies point to very low levels of cost recovery – barely around 20% – even when considering only the construction and maintenance costs of large-scale hydraulic infrastructure (reservoirs and main canals). See, for example, the case of the Melonares reservoir on the Viar River, in the Guadalquivir basin (Corominas et al., 2020).

2001 within the territorial scope of each RBO. Some of these companies never became fully operational, and in the following decade a process of mergers reduced them to the three that operate today: AquaEs, AquaMed, and Canal de Navarra.<sup>27</sup> These state-owned companies are governed by a board where only the national government is represented, and thus other interests or political actors are excluded from the functional decision-making process regarding an important and foundational function of the CHs: the development of hydraulic infrastructures.

### **The complex insertion of the confederal model into Spain's new semi-federal structure**

The emergence of regional powers made the distribution of responsibilities between the regions and the central state administration both complex and conflict-ridden, giving rise to a political landscape more prone to territorial tensions (Hernández-Mora and del Moral, 2015a). The constitution granted the regions powers over hydraulic works "of interest to the autonomous community" (TC, 2024) and reserved to the state exclusive jurisdiction over the "legislation, regulation, and granting of hydraulic resources and uses when waters flow through more than one autonomous community" (TC, 2024). This implied the coexistence of two types of basins: those of rivers flowing only within one autonomous region (intra-regional basins) and those formed by rivers crossing more than one region (inter-regional basins). Regions gradually assumed water-related responsibilities, including the planning and regulation of the urban water cycle (a municipal remit) and flood control in urban areas, as well as full responsibility for planning and management in intra-regional basins, either directly or through newly created RBOs. The management and planning of inter-regional basins remained under the political control of the central government and continued to be carried out by the CHs.

The transfer of fully intra-regional basins to the autonomous communities first took place in Catalonia (1985), followed by Galicia (1993), the Basque Country (1994), and later Andalusia (2005 and 2006).<sup>28</sup> In this new context, the regional authorities adopted a challenging stance, and indeed many of the regional constitutions (specifically known as 'statutes of autonomy') incorporated formulations expressing the autonomous communities' intention to assume powers that exceeded those envisaged in the Spanish Constitution (Delgado, 1988; Embid Irujo, 1993).<sup>29</sup> Moreover, several regions expressed dissatisfaction with the distribution of their jurisdictions in water matters, particularly due to the lack of coherence and the difficulty of coordinating their exclusive powers in areas closely related to water (agriculture, industry, spatial planning, urban development, and tourism) with the control exercised by the CHs over water resources (Embid Irujo, 2007). del Moral and Hernández-Mora (2016), as well as De Stefano and Hernández-Mora (2018), have shown how, in other cases, conflicts emerged between neighbouring regions over the distribution of power within the CHs in shared inter-regional river basins and,

<sup>27</sup> Between 2005 and 2010, AquaMed integrated the companies operating in the Mediterranean basins, and between 2010 and 2012 all those in the Atlantic and Cantabrian basins were merged to form AcuaEs. The state-owned Canal de Navarra company has the specific purpose of developing the works of that canal.

<sup>28</sup> Catalonia assumed this remit early, in 1985, and created the Catalan Water Agency (ACA) in 1998. Galicia followed in 1993, although it did not create the autonomous body Aguas de Galicia until 2010. The Basque Country assumed its remit over hydraulic resources and uses in 1994 and created the URA/Basque Water Agency in 2006. In 2011, it obtained full jurisdiction over water management and planning authority (excluding the granting of water rights). A specific joint technical body was established in 2012 to provide technical support for this cooperation, and staff from both RBOs have since worked towards integrated water management (De Stefano and Hernández-Mora, 2018). Finally, Andalusia assumed jurisdiction over the intra-community basins included in the former Southern CH – renamed the Andalusian Mediterranean Basins – in January 2005 and over the Andalusian Atlantic Basins (the Tinto, Odiel, and Piedras, previously part of the Guadiana CH, and Guadalete-Barbate, previously assigned to the Guadalquivir CH) in January 2006. The Basque model more extensively hybridises environmental and hydrological functions, has more articulated social participation, and displays greater functional interdependence with the CH than that practised in Catalonia, Galicia, and Andalusia.

<sup>29</sup> A Constitutional Court ruling was required to confirm the provisions of the 1985 Water Act, using a geographical criterion to distinguish between intracommunity basins, under the jurisdiction of the autonomous communities, and intercommunity basins, under the jurisdiction of the state.

consequently, over the planning processes carried out by them. This is illustrated by the dispute between Castile-La Mancha and Valencia in relation to the political and territorial control of the Júcar River.<sup>30</sup>

Figure 4. Map of the RBOs following the approval of the 1986 Water Act, overlaid with the map of the autonomous communities and showing the early transfer of jurisdiction over the internal basins (IB) of Catalonia (formerly the *Confederación Hidrográfica del Pirineo Oriental*) to its regional government



These territorial conflicts also became visible when, in 1993, the government presented a draft National Hydrological Plan proposing an ambitious interconnection of the main river basins through large interbasin transfers, going beyond the classic Regenerationist proposals (Saurí and del Moral, 2001). This initiative, ultimately unsuccessful, likely had the opposite effect from that intended: It not only triggered strong opposition from several regions (particularly Aragon, Catalonia, and Castile-La Mancha), but also fuelled academic and environmentalist demands for a profound revision of the hydraulic paradigm that had dominated twentieth-century water policies in Spain (Fornés et al., 2021). This broad rejection was

<sup>30</sup> In recent decades, the delimitation of the Júcar River Basin Confederation has generated a jurisdictional conflict between Castile-La Mancha and the Valencian Community, linked to the proportional representation of each region in the collegiate bodies and control over inter-basin water transfers. The Júcar basin includes both intercommunity and intracommunity rivers and sub-basins spanning five autonomous communities, and the inclusion or exclusion of certain sub-basins directly affects each region's weight in decision making (De Stefano and Hernández-Mora, 2018). The conflict intensified in the 1990s with the Júcar Hydrological Plan (R.D. 1664/1998), which incorporated intracommunity basins from both regions, prompting a legal challenge by a Castilian-Manchegan entity before the Supreme Court. This challenge opened a complex judicial battle, leading to successive adjustments in the inclusion and exclusion of territories within the management scope of the confederation (del Moral and Hernández-Mora, 2016b).

accompanied by demands to complete, prior to any national plan, the drafting of the river basin management plans (RBMPs), in line with the legal requirements established by the 1985 Water Act.<sup>31</sup> It was also accompanied by calls for the formulation of a national irrigation plan aimed at rationally defining expectations for the expansion of irrigated areas, which had previously been assumed uncritically within hydrological planning.

### **The onset of the era of river basin management planning**

The Preamble of the 1985 Water Act also established that the availability of water for different uses "must be achieved without degrading the environment in general, and the resource in particular", which requires "prior water planning". In article 39, lawmakers specified that "hydrological planning shall have the general objectives of achieving the best possible satisfaction of water demands and of balancing and harmonising regional and sectoral development, increasing the availability of the resource, protecting its quality, promoting its efficient use, and rationalising its uses in harmony with the environment and other natural resources", and that "planning shall be carried out through river basin management plans and the National Hydrological Plan". This requirement marks the beginning of a new phase in the evolution of RBOs, in which hydrological planning gradually gained prominence, complementing and supporting the continuation of the hydraulic mission while timidly introducing environmental considerations into their decision-making processes. By the end of the century, the planning bodies of the different CHs presented their RBMPs, which were jointly approved on 24 July 1998. Although there were significant differences among them, they shared several common features:

- Overestimation of available water resources, stemming in many cases from the use of long-term rainfall series. Studies have observed decreases of between 25% and 30% in surface runoff in headwater areas since the 1980s (Miró et al., 2023; Estrela et al., 2024).
- Continuation of irrigation expansion policies, justified by the inflated hydrological estimates, by the construction of new regulation infrastructures, and by an overconfident expectation of water savings resulting from irrigation modernisation measures – mainly drip and sprinkler systems (López-Gunn et al., 2012; Berbel et al., 2019; Pérez-Blanco et al., 2021; Sampedro-Sánchez, 2022).
- Partial and still-incipient integration of environmental considerations. Although, for the first time, environmental and water quality aspects were included in national legislation and planning, the identification of aquatic ecosystems and the estimation of their water requirements were neither systematic nor carried out with the necessary technical rigour.

### **THE WATER FRAMEWORK DIRECTIVE: ADJUSTMENTS, CHALLENGES, AND WEAKNESSES OF THE CONFEDERACIONES HIDROGRÁFICAS**

In, 2000; the EU Water Framework Directive (WFD) was approved, and it was transposed into Spanish law in December 2003. The directive marked a paradigm shift – at least in legal terms – by establishing (article 1) "a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater".

The protection of water bodies became a primary objective of water planning – one that had to coexist with the need to meet water demands for different socioeconomic uses. It also raised basin unity by integrating water resource management, cost recovery, and public participation and elevating them to the status of fundamental principles. Six months after the approval of the WFD, the Spanish Parliament adopted the 2001 National Hydrological Plan (NHP), still imbued with a significant dose of Regenerationist principles and water works, although reducing the number of planned interbasin transfers from the 1993

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<sup>31</sup> The 1985 Water Act clearly established the National Hydrologic Plan as a coordinating instrument built upon river basin plans, which constitute the primary unit of basin planning.

draft NHP to only one: from the Ebro basin to the southeast Mediterranean basins (Albiac et al., 2003; Arrojo, 2003; Biswas and Tortajada, 2004).

The NHP generated intense territorial conflict between donor and recipient regions of the proposed Ebro transfer, as well as a clash between defenders of the hegemonic hydraulic paradigm and those who, in line with the shift marked by EU policy, advocated recognising water as an eco-social asset (Gil Olcina and Rico, 2007; López-Gunn, 2009; Hernández-Mora et al., 2014; Martínez-Fernández et al., 2020). In 2004, the NHP was amended to remove some of its most controversial infrastructure proposals, particularly the Ebro transfer, although the list of planned hydraulic works (annex 2 of the NHP law) remained unchanged and is still in force. The amended plan also sought to satisfy, at least partially, the aspirations of regions demanding additional water resources through a strong commitment to desalination – though the exact role and significance of desalination in Spain at that historical juncture remain contested in the literature (Swyngedouw, 2013; Swyngedouw and Williams, 2016; del Moral et al., 2017).

In this context, the CHs faced several challenges. First, a demanding process of internal renewal gave them new responsibilities related to water quality and ecosystem monitoring – tasks for which most of their technical teams were not sufficiently prepared. Second, they needed to uphold and consolidate the principle of river-basin unity in the face of active contestation by regional authorities. They also faced pressure to improve transparency and open participation channels beyond traditional mechanisms and interlocutors, which had historically been limited to water users and public administrations. Finally, they were required to promote planning approaches aligned with the principles of the WFD, notably its economic principles and associated instruments (polluter pays, cost recovery, and pricing policy), which were often in tension with the interests of traditional sectors.

The expansion of functions required by the WFD needed to be accompanied by a proportional strengthening of organisational, human, and strategic resources (Carles-Genovés et al., 2008). This gradual reshaping of CHs began in 2005, when access to technical posts within the CHs was no longer restricted to civil engineers (MMA, 2005). This political decision – together with the appointment of a biologist as the first woman to preside over a CH – prompted a public protest to the Minister of the Environment by the Professional Association of Civil Engineers, who lamented their loss of influence in these institutions and claimed that the change entailed a decline in scientific and technical rigour (El País, 2004).

However, alongside this broadening of technical profiles, the CHs have experienced a notable reduction in staff in the context of the financial crisis of 2008 and the resulting budgetary constraints, which in some cases – such as those of the Tagus, Ebro, Guadalquivir, or Júcar – amount to a decrease of around 27% between 2010 and 2025. This has not only overloaded existing civil servants and encouraged the outsourcing of tasks and functions but has also weakened their real capacity to design, implement, and coordinate public policies in a coherent and effective manner. As a result, CHs face a context characterised by highly complex problems and by the difficulty of reaching consensus among the social actors within each river basin district. This places significant constraints on their ability to act. This situation cannot be attributed solely to political decisions but is also due to a broader context of financial weakness that, starting during the 2008-2013 Great Recession, has affected the Spanish public sector for over a decade and eroded its capacities (de la Peña and Mondragón, 2024).

### **River-basin unity in question: Territorial tensions and institutional conflicts**

It could be assumed that Spain, given its long-standing tradition of the CHs, started from a comparatively advantageous position in the European Union's quest for river-basin unity, and that the WFD would strengthen the position of the RBOs vis-à-vis regional authorities. It is true that, a quarter of a century after the approval of the EU Water Framework Directive, this principle is well established in Spain, yet it has been repeatedly contested. The main threat to its consolidation stems from the persistent tension

between the authority of the central state and the autonomous communities, exacerbated by the conflicts surrounding the approval of the 2001 NHP.

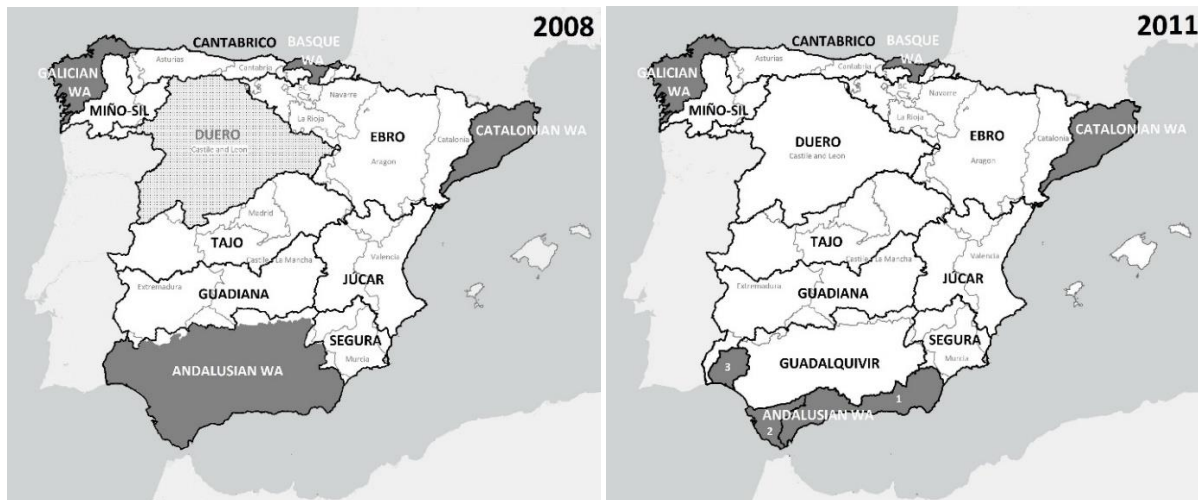
It was in this context, as del Moral and Hernández-Mora (2016b) and De Stefano and Hernández-Mora (2018) describe, that several autonomous communities undertook reforms of their statutes of autonomy during the first decade of the twenty-first century. These were aimed at expanding their powers in water matters and gaining greater control over water allocation and management (Delgado, 2007; Embid Irujo, 2007; Corominas, 2011; FNCA, 2011-2012). For example, in 2007, the autonomous community of Andalusia assumed in its new statute exclusive jurisdiction over the waters of the Guadalquivir River basin, while Castile and León did the same for the waters of the Duero. (Andalusia contains more than 90% of the Guadalquivir basin, while Castile and León encompasses roughly four-fifths of the Spanish portion of the Duero basin.) In the case of Andalusia, the statute reform led to the creation of the Andalusian Water Agency, which temporarily absorbed functions and resources from the Guadalquivir CH. However, these legal provisions were challenged before the Constitutional Court by the neighbouring region of Extremadura and were declared unconstitutional in two rulings. In Andalusia, the ruling resulted in a complex process through which jurisdiction, resources, and staff were transferred back to the Guadalquivir CH (Thiel, 2015; del Moral and Hernández-Mora, 2016a).

The culmination of the hydraulic mission, particularly interbasin water transfers, also intensified territorial tensions among the autonomous communities. Valencia, Aragon, and Castile-La Mancha used their statutory reforms to improve their positions with respect to the interbasin transfers proposed under the 2001 NHP (in the case of the Ebro) or already in operation (in the case of the Tagus-Segura), although these provisions were ultimately withdrawn during parliamentary approval on the grounds that they exceeded constitutional limits (Embid Irujo, 2007; La Roca and La Calle, 2022).

In 2011, the socialist government promoted a further decentralising reform by transferring to Andalusia, Aragon, and Catalonia the remit for policing the hydraulic public domain in interregional basins, a function that until then had been exercised by the water commissioners' offices of the CHs. This reform generated broad opposition, as it once again called into question the principle of unity of management. In defence of that principle, an unusual coalition emerged, bringing together interest groups that were often in conflict with one another (including environmental NGOs, farmers' associations, trade unions, and the Professional Association of Civil Engineers), but which on this occasion were united in their opposition to the reform. Following the national elections held that same year, the new conservative government repealed the measure and returned these functions to the confederations (del Moral and Hernández-Mora, 2016a). It also strengthened the recentralisation of the CHs by lowering the administrative rank of the confederation presidents, who became mere deputy director-generals, below the rank of the Director-General for Water in the national ministry.

Conflicts between the CHs and regional and local administrations have often been fuelled by the fact that in interregional basins legal water competence lies with the former, while urban planning, territorial management, and other sectoral policies (such as water supply and sanitation, agricultural policies, or the management of natural areas) fall to the latter. In the case of urban development, the state in 2007 amended the Water Act to require a report from the CHs for the approval of urban development plans by regions or local authorities whenever these plans entailed new demands for water resources. However, in a context marked by a major real estate bubble, several regional governments approved more than one hundred urban development plans despite negative reports from the RBOs, prompting a 2009 European Parliament resolution (the Auken Report), as these actions could jeopardise the implementation of the WFD (Avellà Reus et al., 2009; Crespo Pérez, 2016). In 2012, a ruling by the Spanish Supreme Court established jurisprudence in favour of the CHs, and since then more than 90 urban development plans have been annulled by the courts (Ramos Medrano, 2017).

Figure 5. Changes in RBOs induced by regional pressures (2008) and subsequent backlash (2011-present)



Notes: In 2008; Andalusia assumed exclusive jurisdiction over the Guadalquivir River basin, and Castile and León over the waters of the Duero River (although the latter was not implemented in practice). In 2011; control of the Guadalquivir and Duero basins was returned to the CHs, re-establishing a legal strict division between interregional basins (managed by the CHs) and intraregional basins (managed by regional agencies). As a result, since then, the map of Spanish RBOs has consisted of nine interregional basins and four intraregional agencies. The Andalusian Water Agency operates in three management areas, as numbered on the second map: the Mediterranean basins (1), Guadalete-Barbate (2), and Tinto-Odiel-Piedras (3).

As De Stefano (2026) points out, the importance of effective interadministrative cooperation becomes evident when examining the distribution of budgets and responsibilities for implementing river basin management plans across different levels of government. According to a 2023 budgetary snapshot for interregional basins, regional governments were responsible for between 39% and 46% of the RBMPs' total budgets for programmes of measure, compared with 35-46% for the central government and 5-10% for local governments. Likewise, when considering all administrative divisions (both inter- and intracommunity basins), regional governments were responsible for the largest share of measures (43%), followed by the central government (34%) and local governments (19.4%).

In compliance with the coordination requirements of the WFD, a specific coordination body – the Competent Authorities Committee (CAC) – was created in 2007 in interregional river basin districts to facilitate integration and coordination across political-administrative scales and sectoral policies (De Stefano and Hernández-Mora, 2018). CACs are composed of between four and eight representatives of the central administration (depending on the river basin), one representative from each autonomous community with territory in the basin (regardless of the area of the basin in their jurisdiction),<sup>32</sup> and one representative of the local authorities. However, as several authors have noted (Delgado, 2007; La Calle, 2008; Corominas, 2011; FNCA, 2011-2012; De Stefano, 2020), the CACs represent a missed opportunity, and their structure, functions, and operation have not been adequate to achieve the intended coordination. The Green Book on Water Governance in Spain (MITERD, 2020) acknowledged the limitations in CAC functioning, noting a "broad consensus regarding the lack of effectiveness of the CAC in fulfilling its mandate", since the CAC "meets only occasionally and with little scope for generating in-depth debate on the issues within its remit. There is a lack of sustained and substantive interaction and dialogue among the authorities responsible for sectoral policies related to water". The same document proposed a reform – still pending implementation – that includes: (1) the creation of thematic working

<sup>32</sup> This unbalanced representation is evident, for example, in the CAC of the Guadalquivir, where Andalusia – which occupies 90% of the basin – has the same weight as Castile-La Mancha, which occupies only 7%.

groups composed of staff from the different competent authorities to jointly analyse specific issues; (2) proportional regional representation; (3) an increase in the representation of local administrations; and (4) assigning the CAC the function of submitting the river basin management plan to the Council of Ministers (MITERD, 2020).

### Public participation and access to information

The WFD also places public participation in water planning among its basic principles. While participation in Spanish legal tradition was mostly limited to permitted water users, the WFD introduced a more ambitious approach, requiring access to information, public consultation, and participation processes for the public at large, including users (article 14, WFD). This has translated into steady improvements in transparency and in the establishment of more structured and open consultative processes, particularly during the preparation and revision of river basin management plans.

In terms of information, the legal requirements stemming from the WFD were reinforced by public demands for greater transparency and by the approval of the national Transparency Act in 2013 (MP, 2013). An assessment of the availability of relevant information on the CH websites showed a positive evolution between 2010 and 2015 (De Stefano et al., 2011, 2012; Martínez-Fernández et al., 2020). As del Moral et al. (2014) highlight, the expansion of the internet and the development of increasingly powerful technologies to collect, process, and visualise data have enabled CHs to make large amounts of data and documentation available online and to respond to increasingly higher requirements for data and information sharing.

The Ministry for Ecological Transition and the Demographic Challenge (MITERD) now provides centralised access to a substantial volume of monitoring data. Nevertheless, ministry staff acknowledge that further efforts are needed to adapt information to different target audiences, according to their levels of interest and technical capacity, as some individuals or groups become 'lost' in the volume of administrative documentation available (Sanchis-Ibor et al., 2023). Moreover, important blind spots remain, particularly regarding key and sensitive issues such as water rights inventories, actual water uses, and regulatory infringements. A survey of water-related citizen organisations (Hernández-Mora et al., 2015) showed that digital communication and data-sharing tools had strengthened the ability of previously underrepresented actors to access information and organise collective action. However, it also found that their influence on final decision-making remained very limited. As Pedregal et al. (2015) underscored, "The potentialities of ICTs as transformative tools are linked to the regeneration of the context within which decisions are made, that is, the democratic process itself".

Regarding consultation and public participation, CHs have gradually adapted to the requirements of the WFD, although this process has been constrained by factors such as the limited training and experience of basin managers in facilitating participatory processes<sup>33</sup> and the lack of clear mechanisms for incorporating social contributions into the final plans.<sup>34</sup> An assessment of public participation in the 2012-21 planning cycle concluded that participatory processes consisted mainly of formal consultations, with rigid deadlines and limited interactive channels, which hindered the integration of local and sectoral perspectives (FNCA, 2018). Even with some improvements, this has remained true for the following planning cycle (FNCA, 2022): The public participation provisions introduced by the WFD do not

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<sup>33</sup> During the first cycle, some RBOs developed more ambitious and inclusive processes than others, particularly in areas where civil society was more organised or where, due to scale and technical approach, more deliberative and in-depth participation was possible (Espluga et al., 2011; Kochskämper et al., 2018).

<sup>34</sup> Regarding the first planning cycle (2009-2015), Pedregal et al. (2011) highlight both the advances and the significant limitations of participatory processes under the Water Framework Directive, pointing to the persistence of structural imbalances in representation and influence. In this sense, while participatory mechanisms were formally expanded, their capacity to alter decision-making outcomes has remained constrained, often reproducing pre-existing power asymmetries within water governance.

substantially alter strategic decisions. This is partly due to the hierarchical structure of planning and the emphasis on technical and legal criteria. Several authors (Hernández-Mora and Ballester, 2011; Ballester and Mott Lacroix, 2016) have pointed out that participation nevertheless strengthens the legitimacy of the process and contributes to social learning. In this context, however, the networks of traditional hegemonic actors (primarily irrigators and hydroelectric interests) have retained a privileged position in the participatory bodies and processes of the CHs (del Moral and Hernández-Mora, 2016b).

As acknowledged by MITERD (2020), environmental interests have a merely symbolic presence in CH's Water Councils – being only two of the 70-90 members – which is inconsistent with the importance of the environmental objectives defined by the WFD. Other social representatives or groups, such as neighbourhood associations or consumer and user advocacy organisations, are also notably absent (De Stefano, 2020). Strengthening ongoing, non-formal participation mechanisms is therefore necessary to involve social actors more consistently in water-related decision-making. To support this, both CH staff and MITERD have highlighted the importance of incorporating participatory governance specialists into basin authority teams (MITERD, 2020; de la Peña and Mondragón, 2024).

### **Persistent pressures and institutional constraints in achieving WFD objectives**

The implementation of the WFD, together with the legal developments adopted at the EU level since the early 2000s, has pushed the CHs to reorient their role and responsibilities. Since the transposition of the WFD into Spanish legislation, water planning must reconcile the protection of water bodies with meeting water needs for different uses. However, despite nearly three completed planning cycles (2010-2015, 2016-2021, and 2022-2027), progress towards the WFD's objective of achieving 'good' status for its water bodies remains limited. Official diagnostics from the third planning cycle indicate that 42.6% of surface water bodies and 44% of groundwater bodies in Spain still fail to reach the 'good' status overall (De Stefano, 2026) and point to the likely impossibility of meeting the environmental objectives set for 2027.

This failure is particularly evident in territories where human pressure on water resources is intense and persistent. Several authors have analysed the eutrophication of the Mar Menor coastal lagoon (Boix-Fayos et al., 2023; Cabello and Brugnach, 2023; Rashidian et al., 2025), where it is especially challenging to find lasting solutions due to the shared responsibility for different economic sectors and governance levels; the misalignment of local, regional, and national policies; and the differences in perceptions of the problem. The scholarly literature also describes the conflicts related to land and groundwater use in Doñana (Hamilton, 2022), the subsidence of the Ebro Delta (Roca and Villares, 2012; Zografos, 2017), the hyper-eutrophication of the Albufera wetland (Martín Moneris et al., 2021; Sanchis-Ibor et al., 2024), or the water table declines in the Upper Guadiana aquifers (Closas et al., 2017) as cases of water problems that have been entrenched for decades.

In such contexts, river basin authorities have attempted to promote different strategies, yet no substantial improvement has been achieved since the 1980s, when these problems began to emerge. In those cases – mostly linked to groundwater management and, to a lesser extent, to river flows (both liquid and sediment, in quantity and quality) – CHs face the difficult task of enforcing the law while still seeking the cooperation of stakeholders in the implementation of river basin management plans. Their ability to balance these two remits is further constrained by their budgetary limitations in staffing and investments, as well as by their institutional position within a fragmented system of jurisdictions across subnational administrative levels characterised by diverging priorities. This divergence extends beyond the subnational scale. National ministries – such as those responsible for agriculture or economy – also play a central role in shaping water-related policies and frequently pursue objectives that are not fully aligned with environmental goals. Similar tensions and policy inconsistencies are likewise present at the EU level.

Table 1. Status of the Spanish water bodies across the three WFD planning cycles (from De Stefano, 2026).

Water Body Type	1 <sup>st</sup> Planning cycle				2 <sup>nd</sup> Planning cycle				3 <sup>rd</sup> Planning cycle			
	(% water bodies with 'good' status)				(% water bodies with 'good' status)				(% water bodies with 'good' status)			
Surface water	<i>Chem.</i>	<i>ND</i>	<i>Ecol.</i>	<i>ND</i>	<i>Chem.</i>	<i>ND</i>	<i>Ecol.</i>	<i>ND</i>	<i>Chem.</i>	<i>ND</i>	<i>Ecol.</i>	<i>ND</i>
	57.55	37.1	41.02	17.7	87.49	6.14	55.6	2.1	89.85	3.1	57.8	0.86
	<i>Global</i>		<i>ND</i>		<i>Global</i>		<i>ND</i>		<i>Global</i>		<i>ND</i>	
	25.44		32.15		53.14		3.22		55.05		2.36	
Groundwater	<i>Chem.</i>	<i>ND</i>	<i>Quant.</i>	<i>ND</i>	<i>Chem.</i>	<i>ND</i>	<i>Quant.</i>	<i>ND</i>	<i>Chem.</i>	<i>ND</i>	<i>Quant.</i>	<i>ND</i>
	67.32	0.42	72.49	1.4	64.83	0.13	75.72	-	67.29	-	74.75	-
	<i>Global</i>		<i>ND</i>		<i>Global</i>		<i>ND</i>		<i>Global</i>		<i>ND</i>	
	57.40		1.12		56.17		0.13		56.09		-	

Note: 'ND' = 'No data'.

The limited achievement of the WFD's environmental objectives cannot be explained primarily by technical or institutional shortcomings, but rather by deeper socioeconomic and governance constraints on the effectiveness of river basin planning and management. There are persistent pressures, partly rooted in the historical trajectory of the hydraulic mission, that have a much more decisive influence on the failure to achieve these objectives: Agricultural intensification and the expansion of irrigated areas remain major drivers of water consumption and diffuse pollution, while rapid and often poorly coordinated growth in urban tourism and industrial activities – particularly in Mediterranean regions – has generated additional demands for water resources and new sources of pollution.

Behind these drivers lie broader processes of capital accumulation across multiple productive sectors, most notably the agrarian sector, where both regional and global investment flows have intensified. This is particularly evident, though not exclusively so, in regions with a strong agricultural industry such as Andalusia, Extremadura, and Castile-La Mancha. In these territories, modernisation processes have accelerated and entailed profound transformations in production systems – most notably the expansion of super-intensive olive groves, pistachios, and irrigated vineyards – while the growing involvement of financial corporations has made them increasingly influential actors in the reconfiguration of agro-hydrological systems. Meanwhile, other basins such as the Ebro and the Duero continue to experience agricultural intensification and the expansion of irrigated areas (Soler and Fernández, 2017; López García, 2023; del Moral Ituarte et al., 2024).

In territories characterised by more mature water economies – particularly along the Mediterranean coast – a different but equally significant dynamic is taking shape. Residential, leisure, and tourism sectors continue to expand, while irrigated land decreases or specialises in high-value crops (e.g. subtropical fruits) alongside emerging investment dynamics linked to technological and energy sectors. Yet even as agriculture loses relative weight, powerful agrarian lobbies retain a decisive influence over water governance, shaping regulatory frameworks and securing continued access to subsidised supply infrastructures in ways that keep irrigation interests politically untouchable (Rodríguez-Ros, 2026).

The rearticulation of water use within broader circuits of capital accumulation extending beyond traditional agrarian demands is, in this sense, a feature common to these differentiated regional trajectories. Within this context, CHs have become largely subordinate, assuming an instrumental role within development trajectories shaped, directed, and governed at higher scalar levels. In some cases, these dynamics unfold in a fragmented and even extra-legal manner. Rather than redirecting and steering them, water administrations tend to accommodate and naturalise these processes, framing them as inevitable through simplified narratives imbued with a supposed 'common sense' (FNCA-OPPA, 2021).

This contributes to the depoliticisation of water governance, obscuring underlying conflicts over resource allocation and control. CHs have thus largely lost their capacity to define and steer strategies of territorially integrated development. And according to del Moral Ituarte (2011, 2022), the current situation is marked by a deeper vacuum: the absence of any effective integrated territorial planning, with water governance increasingly subsumed within fragmented and market-driven logics.

It is precisely within this vacuum that the limits of water administration become most visible. Reducing the existing pressure on water bodies will require a substantial reorientation of the existing socioeconomic model of water use – a reorientation that is not currently on the political agenda and that would require the active engagement of the public administrations responsible for driving such change. Instead, during the past two decades, water authorities and the administrations responsible for other water-related sectoral policies have explored and implemented different approaches aimed at reducing quantitative pressure on water bodies through technical fixes or regulatory solutions such as desalination (Swyngedouw, 2013; Swyngedouw and Williams, 2016), irrigation modernisation<sup>35</sup> (Berbel et al., 2019), reuse (Jodar-Abellan et al., 2019; Villacorta-Ranera et al., 2025), or water markets<sup>36</sup> (Gómez-Limón and Calatrava, 2016). In this context, caught between the enormous pressures exerted by economic water users and their associated lobbies – reinforced by renewed productivist discourses – and the social demands and legal frameworks aimed at protecting nature and conserving water resources, it must be acknowledged that the daily work of much of the CHs' technical staff is increasingly demanding and in some cases entails significant personal costs.<sup>37</sup>

## DISCUSSION

### A look at the past: The plasticity of the confederal model

The creation of the confederaciones hidrográficas was undeniably a pioneering innovation, one that has long conferred upon them an aura of prestige partially associated with their longevity (Hijós and Sancho, 2026). Yet what emerges from this review is not a story of institutional continuity but of successive organisational arrangements responding to shifting political, economic, and territorial rationalities. Their durability derives from a capacity to be reshaped in accordance with changing priorities – driven both by external interventions from lawmakers and by the RBOs' own adjustments to changing contexts – consistent with patterns observed in other places where basin management has been advanced as a universal technical solution (Huitema and Meijerink, 2017). Revisiting the main ideological projects

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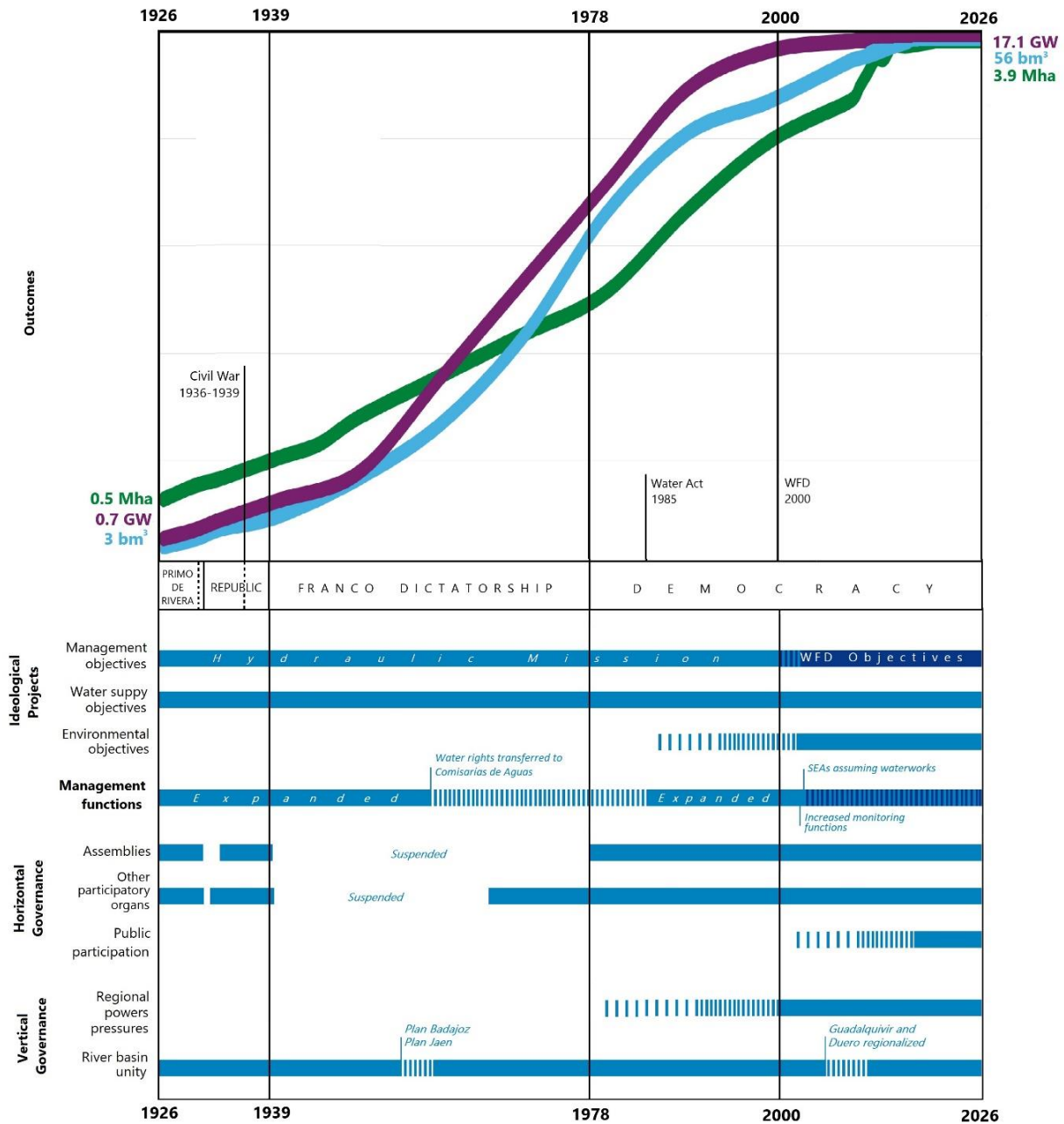
<sup>35</sup> Infrastructure solutions such as desalination, reuse, and irrigation modernisation have been driven primarily by the state water companies or by the agricultural departments of regional governments, yet CHs have nonetheless played a crucial supporting role. In the Guadalquivir basin, for instance, planning documents have explicitly encouraged the use of hypothetical modernization savings to expand irrigated areas (Sampedro, 2022). Similar dynamics can be observed in the Júcar (Sese-Mínguez et al., 2017) and the Segura (Rodríguez-Ros, 2026), where river basin authorities have promoted modernisation as a means to 'free up' water resources or to cushion the impacts of irrigation expansion while disregarding rebound effects. Only recently, and uniquely in the Júcar basin, has the CH begun to consider the environmental implications of modernisation, introducing compensatory measures for the ecosystems affected (Sanchis-Ibor et al., 2024).

<sup>36</sup> The CHs have played a key role in the management of water markets, as they have assumed responsibility for authorising, supervising, and ensuring that transfers and other exchanges of water rights comply with the concession regime and do not harm either third parties or the status of water bodies. The literature on water markets in Spain reveals a debate between those who advocate the use of these economic instruments to introduce greater flexibility in the allocation of water resources (Berbel et al., 2016; Palomo-Hierro et al., 2016) and those who view them as a form of commodification that may encourage speculative behaviour and the concentration of water rights (Hernández-Mora and del Moral, 2015b). Nevertheless, both perspectives coincide in highlighting the limited competition within these markets, the lack of transparency surrounding these operations, and the modest development of such exchanges after their legal regulation.

<sup>37</sup> A clear example can be found in the challenges and dilemmas associated with balancing river restoration and dam removal objectives against flood defence requirements (Ollero et al., 2009; Ollero, 2020; Hommes, 2022). These interventions are carried out in a context of considerable social and political tension, recently intensified by the impact of the 2024 Valencia floods.

pursued through the CHs and the two types of governance, vertical and horizontal, reveals the extent to which these have been strategically reconfigured over time by successive governing coalitions (Figure 6).

Figure 6. Institutional characteristics and outcomes of the CHs during the last century



Note: Above the time axis are shown the evolution of national storage capacity ( $\text{bm}^3$ ), the extent of irrigated lands (Mha), and installed hydropower capacity (GW). Values are indexed to 2026 = 100. Below are shown the configuration and evolution of the main institutional features.

First, at the ideological level, the hydraulic mission operated for many decades as the principal programmatic and technical constant. From its Regenerationist origins to the hydrological planning frameworks of the late twentieth century, the physical transformation of rivers consolidated itself as the structuring axis of CHs' actions. And as in other contexts characterised by hydraulic state-building (Mollinga et al., 2007; Molle and Mamanpoush, 2012), the CHs served as the organisational vehicle for a nationalist project of socio-natural construction (Swyngedouw, 1999; 2015), functioning as instruments for the regulation of river systems, the expansion of irrigation, and the organisation of hydroelectric production. Under Francoism, the hydraulic mission entrusted to the CHs facilitated large-scale expansion of these productive sectors while reinforcing the dominance of the engineering corps and a technocratic rationale.

The advent of democracy in the 1970s did not entail an immediate rupture with this productivist logic. Although the 1985 Water Act introduced organisational and jurisdictional adjustments, as well as the introduction of environmental and quality considerations, hydrological planning in the 1990s retained a pronounced expansionist orientation, attesting to the socio-political embeddedness and resilience of the hydraulic mission.

Only with the adoption of the WFD in the 2000s did a new normative horizon emerge, initiating a far-reaching process of organisational, functional, and teleological recalibration within the CHs. This new phase requires RBOs to combine their original mandate of supplying water for socioeconomic development with the obligation to achieve and maintain a 'good' status for their water bodies, which often implies reconciling inherently conflicting policy goals. At the same time, this legal framework has intensified polycentric dynamics, heightening demands for interadministrative cooperation and for the coordination of sectoral and cross-cutting policies (De Stefano and Hernández-Mora, 2018). The transition towards this model has proven particularly complex, unfolding amid heightened political polarisation and territorial disputes, with water governance often occupying a central position in electoral and intergovernmental contests. Moreover, the approach to meeting water demands for socioeconomic uses – a main focus of the hydraulic mission – has gradually shifted away from the construction of dams and interbasin transfers towards the strengthening of alternative water-supply options, including the increase of water availability through irrigation modernisation, desalination, water reuse, or water markets.

Second, the level of social participation (horizontal governance) in a given CH offers the clearest lens through which to discern the plurality of models that have coexisted under the confederal label. Initially conceived as a basin-scale extension of collective irrigation management, it was soon diluted and, for decades, subordinated to authoritarian and corporatist arrangements. Comparable trajectories can be identified in other settings where basin organisations, originally envisaged as instruments of territorial integration, ultimately operated with circumscribed authority and limited functions (Connell, 2007; Movik et al., 2016). Under democracy, the reactivation of collegiate bodies and the inclusion of new actors in some participatory forums have created a somewhat more plural institutional environment. Yet, asymmetries in the internal distribution of power and the persistence of entrenched networks have curtailed the transformative potential of this opening.

The pattern recently observed in Spain – formalised and procedural participation without substantive redistribution of power – mirrors dynamics identified in numerous basin organisations established under the policy discourse of IWRM (Molle et al., 2009; Movik et al., 2016). In the Spanish case, however, this parallel is closely linked to a distinctive feature: the enduring weight of irrigation communities, which not only served as the initial organisational template but were also pivotal actors in the creation of the CHs, in their re-legitimation during the late Franco period, and in subsequent democratic debates and conflicts. Yet this continuity should not be mistaken for democratic representation: As Bourguignon et al. (2024) have shown, the figure of the *regante* ('irrigator') has been historically constructed to naturalise specific class interests as technical and institutional common sense, reproducing hegemonic arrangements across successive political regimes.

This persistence of internal asymmetries and consolidated networks can also be read through the influential analysis of Pérez-Díaz et al. (1996),<sup>38</sup> who characterise Spanish water policy as dominated by a water policy community: a relatively closed and stable configuration of actors – the hydraulic administration, engineering corps, major agricultural users and irrigation interests, construction companies, hydroelectric producers, and political-economic elites – sharing interests, diagnostic frames, and a supply-oriented understanding of scarcity. Although they anticipated a possible evolution towards more open and plural issue networks, the trajectory since their book's publication suggests a more hybrid scenario: The entry of new actors and discourses, driven by the WFD and the growing salience of environmental concerns, has partially eroded the monopoly of the hydraulic core without displacing it. The result is a policy community that is broader and more diversified, yet still strongly structured by historical hydraulic cultures, institutional traditions, and the persistent influence of organised irrigation lobbies.

In the most recent phase, there has also been a significant opening to the wider public, driven by the information and consultation requirements of the WFD and, more recently, by the widespread digitalisation of water data collection and sharing. However, as some authors (e.g. Parés, 2010) have argued, the WFD participatory processes have not fundamentally shifted power equilibriums. Rather, "by promoting governance approaches (...) activists are 'de-activated' and compelled to replace acts of contestation and political (antagonist) protest by processes of collaboration with the state", leaving preexisting power structures in place. On the other hand, CH authorities are slowly but increasingly considering these new actors – such as NGOs and trade unions – as potential allies. While they represent an insignificant minority within formal participatory bodies, they may nevertheless possess considerable social and political potential.

Third, the administrative tensions between the centralisation and decentralisation of the CHs' governing and decision-making (their vertical governance) have been less visible but equally significant. The relative autonomy initially granted to these institutions was swiftly curtailed under Francoism, when they were subjected to stringent hierarchical control from the central hydraulic administration. Although a degree of autonomy was formally restored with the enactment of the 1985 Water Act, subsequent developments suggest countervailing tendencies. The downgrading in 2011 of the presidents of the CHs to the administrative rank of deputy director – placing them directly under ministerial oversight – constitutes a telling indicator of renewed centralising impulses. At the same time, the MITERD plays a coordinating and enabling role<sup>39</sup> by conducting technical studies on issues relevant to the CHs and by promoting the exchange of knowledge and experience among technical staff across river basins.

Other administrative levels beyond the central government have disputed the legal competence of the CHs. The principle of the river basin as the basic unit of management has been challenged since an early stage: initially, albeit more subtly, by provincial interests and projects, and subsequently – particularly following the establishment of the autonomous state under the 1978 Constitution – by the claims and aspirations of regional governments, as has likewise occurred in other decentralised states. However, such tensions have gradually weakened, because case law favourable to the river basin unit principle has been established, and the option of using interbasin water transfers to redistribute water across territories has receded.

Across the three dimensions – ideological projects, horizontal governance, and vertical governance – what emerges is a century-long demonstration of institutional plasticity: The CHs have endured not

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<sup>38</sup> Pérez-Díaz and Mezo (1998) and Pérez-Díaz et al. (1996) conceptualised water policy communities as closed and stable networks of actors sharing interests, values, diagnostic frames, and resources, with high influence and restricted access. In contrast, issue networks exhibit more porous boundaries, greater diversity and conflict, and less expert control over policy agendas.

<sup>39</sup> As well as being the CHs' representation before the European Commission.

*despite* political upheavals but *through* them, repeatedly reorienting their remits, reinterpreting rules, and adjusting practices to serve successive and often contradictory political projects.

And yet, plasticity is not a virtue in itself (Cleaver, 2012). The same malleability that enabled the CHs to persist through authoritarian, developmentalist, and democratic regimes now raises the question of whether the institution is once again being reshaped – and, if so, in whose interest and towards what ends. Indeed, underlying this plastic institutional continuity is an almost constant feature: the sustained transfer over time – through different mechanisms – of resources, not only natural but also financial, towards the water policy community (Pérez-Díaz et al., 1996). This enduring pattern is consistent with analyses highlighting the close relationship between flows of water, capital, and power (Linton and Budds, 2014; Swyngedouw, 2015; Boelens et al., 2016).

### **Looking ahead: The challenges of multi-level governance under conditions of uncertainty**

Water management is articulated across multiple scales – local, regional, national, and European – and substantive decisions are distributed among actors with divergent goals and priorities. In this context, the CHs no longer concentrate the strategic authority they once held. They have moved from being nation-shaping institutions – originally conceived as instruments occupying a central position in the territorial and economic construction of the state – to becoming, in the present century, bounded institutions, with authority and functions constrained by overlapping remits and by the erosion of their human capital and financial resources.

This structural shift is clearly visible in the recent functional reconfiguration of CHs. Having originally served mainly as infrastructure-building bodies in support of the hydraulic mission, their role now appears to be broadening to include a technical function of environmental control – monitoring, assessment, coordination, and validation – and water planning, within a more fragmented and less hierarchical system of multi-level governance. Due to the growing number of responsibilities and shrinking staff levels, they often rely heavily on the support of public and private consulting companies in carrying out this function. CHs still decide on major waterworks within their areas of competence, but they now often delegate their design and construction to several *sociedades estatales del agua* (SEAs, 'State Water Societies'), which depend on the MITERD. Moreover, in the current political system, regional governments and municipalities are expected to make a significant contribution to the achievement of water-planning objectives through their projects and investments. Furthermore, governance, institutional reform, and other non-engineering investments represent a low percentage in the budget.

One of the most visible features of this new phase is the growing centrality of data and information. The expansion of monitoring networks, data digitalisation, and the reporting obligations associated with the WFD have reinforced the role of RBOs as producers and custodians of hydrological knowledge. Their capacity to measure flows, model scenarios, and assess ecological status is now far greater than in previous decades. Yet this technical sophistication does not automatically translate into enhanced intervention capacity.

This gap is most apparent when one considers the formal responsibilities that CHs retain. River basin planning has become a formal core activity of the CHs, which, within their fragmented system of multi-level governance, has been combined with other key prerogatives such as granting, reviewing, or revoking water use licenses, monitoring the status of water bodies, enforcing legal instruments to protect the public hydraulic domain, and operating and maintaining public water infrastructure. The effectiveness of water planning, however, depends also on numerous decisions adopted beyond the CHs' direct remit. Regional governments shape pressures on water resources through agricultural, spatial planning, and industrial policies; sectoral ministries prioritise energy or food agendas; and the European Union establishes objectives whose implementation entails significant political costs.

RBOs have lost their demiurgic capacity and possess only limited tools to correct processes such as agricultural diffuse pollution, the intensification of irrigated agriculture in water stressed regions, the

expansion of illegal wells, or the capping of the groundwater rights overallocated in 1985. These limitations are not merely administrative. Rodríguez-Ros (2026) has shown, for the Segura basin, that chronic overallocation is not an accidental outcome but a politically stabilised condition – structural water scarcity – in which entrenched interests are systematically translated into policy and planning cycles that confirm the deficit without recalibrating its drivers. The gap between formal responsibility and effective capacity for action is widening.

Taken together, these developments point to the possible emergence of a fifth period in the historical trajectory of the CHs: one characterised by institutions that guarantee traceability, data quality, and the technical coherence of the system, rather than its strategic orientation. In this transition, key capacities of the CHs – investment prioritisation and the direction of major programmes – are weakened by regional sectoral policies and the increasing presence of multinational corporations in the water sector; legitimacy increasingly rests on transparency and procedural compliance. This is compounded by human decapitalisation, with the resulting increase in reliance on consulting companies to conduct the technical work and the growing presence of large corporations in key domains – desalination, advanced wastewater treatment, digitalisation, modelling, infrastructure, and in agricultural and livestock production itself, which accounts for the largest share of water consumption and degradation (COAG, 2019). Such dynamics favour the outsourcing of functions and the repositioning of CHs towards supervisory and technical validation tasks. The capacity to define which interventions are prioritised tends to concentrate in actors with greater financial and technological capabilities (in the case of agriculture, through new models of corporate financialisation that exceed the patterns of large landownership prevalent just a few decades earlier). These often intervene outside of the established participation organs and processes, thereby reconfiguring the traditional river basin management model and weakening accountability in water management and allocation decisions.

Moreover, the new paths emerging in this period rely on an increasingly intensive use of energy and raw natural materials (e.g. for desalination, intensive irrigated agriculture, or the large-scale storage and processing of water-related data), whose sustainability is questionable in the face of the volatile global geopolitical context. The European Union's framework introduces an additional layer of uncertainty. Although the WFD remains the cornerstone of EU water policy, the medium-term horizon reveals potential regulatory retrenchment linked to 'simplification' initiatives or to the prioritisation of strategic raw materials, both of which may jeopardise water quality protection and aquatic ecosystems. These tensions reflect a broader context in which industrial and geostrategic priorities may gain relative weight vis-à-vis environmental objectives. Should this trend consolidate, the capacity of RBOs to promote measures aimed at achieving 'good' status for their water bodies could be further constrained – and the WFD objectives become increasingly unreachable.

In the context of climate change and intensifying intersectoral competition for water, the accumulation of data and technical capacity is indispensable – but insufficient. The near future appears to point towards the CHs' confinement to a quasi-notarial role, with a reduced relative weight within a complex system of multi-level governance. This role is not inherently regressive. The capacity to monitor water body status, validate compliance, and produce hydrological knowledge is a necessary – if not sufficient – condition for the implementation of the WFD, and in basins where anthropogenic pressures are lower or better regulated, it may constitute a meaningful contribution to environmental governance. Yet the quasi-notarial function carries no guarantee of environmental outcomes, and the same technical apparatus can equally serve to certify and legitimise chronic overallocation rather than to contest it (Rodríguez-Ros, 2026). Spain's RBOs seem to be consolidating as technically robust yet politically circumscribed institutions: primarily instrumental, tasked with measuring and reporting a reality whose transformation is increasingly decided beyond the river basin and its formal decision-making bodies.

## CONCLUSIONS

The historical trajectory of the CHs resists any reading of institutional continuity as evidence of model stability. What persists across one century is an adaptable organisational shell, repeatedly refashioned to serve divergent political rationales. This review has analysed this persistence through the prism of institutional plasticity: the capacity to absorb successive governance paradigms and political instrumentalisations while maintaining formal continuity; mediating shifting vertical governance arrangements and largely procedural horizontal governance; and channelling changing ideological projects without breaking the organisational shell.

Revisiting one hundred years of institutional evolution (1926-2026) reveals a trajectory that overlaps with – yet does not fully map onto – the century of the hydraulic mission in Spain (from the 1902 Gasset Plan to the 2000 WFD). This paradigm, remarkable for its endurance and ability to cut across political divides, articulated a hegemonic discourse of modernity and enabled alliances across otherwise distant power blocs.

The WFD has substantially challenged the longstanding hydraulic mission in Spain. It has reoriented the objectives guiding the CHs, which have adopted new functions while progressively relinquishing to other state bodies the remits historically associated with the hydraulic mission, illustrating the decoupling between organisational continuity and political purpose that underlies the evolution of the confederal model.

Under the influence of these ideological projects and across the four periods examined, significant oscillations have occurred along both the horizontal and vertical axes of governance. Horizontally, participatory mechanisms have expanded or contracted at different moments without redistributing authority, leaving limited room for counter-hegemonic actors and perspectives. Vertically, regional governments have challenged basin unity on the basis of territorial interests and the disruptive effects of interbasin transfers. Yet the CHs have survived these pressures, reconfiguring their structures to alternately open or close themselves to such demands depending on the political moment.

This systematic review of one century of institutional evolution has necessarily engaged with uneven historiographic terrain. The republican interlude (1931-1939) remains understudied and, for that reason, receives particular attention in this review. For the most recent decades, official documentation has been essential to substantiate the growing gap between formal mandates and effective governance capacity. These gaps point to a further research agenda for the CHs' long-run institutional history, grounded in primary sources and capable of clarifying how organisational continuity has interacted with shifting political projects over time.

Looking ahead, the CHs appear to be consolidating their role as technically capable yet politically circumscribed institutions, increasingly oriented towards monitoring, reporting, and procedural validation. They may thus be entering a fifth stage in their history: one defined less by a programmatic mission than by technical and procedural functions within a fragmented governance architecture, where strategic decision-making could be increasingly concentrated in private actors with greater financial and technological resources. In a context of climate uncertainty and intensifying resource competition, the drift documented in this review raises fundamental questions about their ability to contribute meaningfully to sustainability transitions in Spain, requiring governance arrangements capable of exposing (and maybe counterbalancing) the power asymmetries embedded in the confederal model and confronting the entrenched interests that continue to shape it.

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