



# Article Fabricating Irrigators: Contested Hydrosocial Territories and Subject-Making in Spain's Tagus–Segura Interbasin Transfer Arena

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**Abstract:** This article explores how irrigation farmer (*regante*) subjectivities are constructed in direct conjunction with the production of modernist–capitalist hydrosocial territories across the Tagus and Segura river basins in central and south-east Spain. We explore the complexities and contradictions of how, at various scales of governance, authorities establish and seek to realize ideal *regante* subjects across time and space. We mobilize a hydrosocial territory approach, combined with feminist political ecology and hegemony literature, to explore how such ideal subjects are built through Spanish and regional legislation and policies from 1866 to 2023. Through interviews with *regantes* in six irrigation communities, we identify different ideal and actual *regante* subjects in territories interconnected by the Tagus–Segura Aqueduct. We analyze how policy shifts lead to multiple and contradictory roles and responsibilities for *regante* subjects, which are linked to plot modernization, agricultural professionalization, and farmer rejuvenation. These sharpen divisions between smallholders and emerging large capitalist actors. Counterhegemonic territorial proposals resist these pressures by embodying alternative values and imaginaries. We conclude that through such counterhegemonic struggles, subject construction is enriched, identifying real-life existing and future alternatives for more just hydrosocial territories.

**Keywords:** subjectivities; hydrosocial territories; Tagus–Segura Aqueduct; water; irrigation; Spain; hegemony

# 1. Introduction

Irrigation farmers in Spain, known as *regantes*, and the irrigation communities they are part of, face pressures from above and below. From above, there are increasing regulatory requirements from multiple scales of authorities, such as the European Union's (EU) Common Agricultural Policy (CAP) and those emerging from the State and decentralized regions. Next, they face pressures from supermarket certification processes; competition from non-EU markets; water variability in both quantity and quality; and the climate crisis [1]. From below, the crisis related to the transfer of land from one generation to the next limits the entry of young and new *regantes* into irrigated agriculture [2]. Young people are unwilling or unable to enter the sector, and there is an increasing demand for diverse knowledge (mechanical, chemical, administrative). Within this situation, the drive for on-plot modernization as a policy choice upends traditional arrangements and creates new requirements and challenges.

*Regantes* and their relation to water have undergone profound challenges and changes throughout Spain's recent history. The material and discursive link with water(s) is deeply embedded in the Spanish national imaginary [3] and in Spanish irrigation farmer



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**Copyright:** © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). subjectivities [4–6]. Irrigation plays an important role, historically and currently, in a country with uneven rainfall such as Spain. As of 2021, irrigated agriculture accounts for 22.6% of the cultivated surface, from 18.7% in 2002 [7]. The crops grown under irrigation have fueled the export and livestock sectors compared to rainfed crops. The history and role of *regantes* in rural development has likewise shifted and changed, with current trends in Spanish rural depopulation [8] making their position even more important. Technological and infrastructural advancements have also multiplied water sources (from surface and groundwater to deeper groundwater, wastewater, and sea water), their geographical reach through intra and inter-basin transfers [9], the capital and technical knowledge needed to realize these, and with them, growing complexity and interscalar socionatural relations between *regantes*, water, and territory [10–12].

The challenges and shifting structures, conditions, and realities that *regantes* face imply that the profile of the regantes is also shifting. They shift from traditional irrigation practices in historical riverside minifundia to large family enterprises and agribusinesses, the emergence of contract farming, and the rental and ownership of irrigated land by new urban owners and investment funds, managed by service industries [13,14]. These changes and profiles happen at different paces and in different ways across different territories, however, and alternatives exist where *regantes* continue traditional minifundium-based irrigated agriculture—in hinterlands; in historic, centenary institutions; or when resisting takeovers and expansion by agribusinesses or implementing new models [15,16].

'Farmer', 'irrigator', 'regante'—these are people who grow our food, many of whom live in rural areas and interact with land and water to coproduce landscapes and territories. However, the public imaginary of the farmer, and in Spain of the *regante*, is oftentimes unidimensional and idealized [17], and authorities at multiple scales—regions, the State, the EU—encourage a circumscribed model *regante* subject to be governed [18,19]. Ignoring the multifaceted and complex lives of regantes and how regantes as subjects are crafted risks ignoring the diversity of territories and histories of the principal water users of the country. This poses misguided policy prescriptions and guidance for land and water resource governance and the conflicts and contestations surrounding them. Assuming one *regante* subject ignores the multiplicity of values and rationales—tied to local histories and territories [20]—behind irrigation farming. Likewise, unpacking the *regante* subjects allows for an examination of the role of power and politics in shaping generations of regantes. Hegemonic power is enacted in different times and with different outcomes across the scales of regional governments, the State, and up to the EU, through policy actions. These shape and are shaped by values and imaginaries, their insertion in irrigation system governance, and the subsequent shaping of subjects and territories. From a policy perspective, it institutes limited expectations about how regartes actually behave when confronted with changing circumstances (such as drought, technological innovation, or regulatory demands) [21].

In this article, we explore how *regante* subjects are produced and mobilized through European, national, and regional hydrological and agricultural policies within the context of the Tagus–Segura Aqueduct (TSA) interbasin transfer in Spain. We also explore how *regante* subjectivities are produced by *regantes* themselves, in relation to each other, in relation to *regantes* across basins and infrastructural/technological options and choices, and in relation to historical, present, and imagined water sources.

These subjectivities are framed and embedded in specific territories and represent sets of both hegemonic and counterhegemonic imaginaries [22]. This article, therefore, poses the question of how *regante* subjectivities are constructed in relation to the (contested) configuration of the particular hydrosocial territories in which they are assumed to take part. We explore the complexities and contradictions of authorities establishing ideal *regante* subjects across time and space and to what extent these ideals are realized by *regantes* themselves. We cast light on existing hegemonic, non-hegemonic, and counterhegemonic territorial imaginaries, the latter veering from the ideal *regante* subject. This can inform the search for more equitable and just water futures.

# 2. Materials and Methods

# 2.1. Theoretical Framework

The conceptual aim of this paper is to problematize and question the construction of the *regante* as a modernist water user in irrigated agriculture with the politics behind the production of the techno-capitalist irrigation farmer as subject. It explores the construction of the ideal *regante* subject as envisioned and deployed materially and discursively by various levels of authority—from the regional level, to the State, to the European Union (EU)—and how *regante* subjectivities are in practice realized, whether these conform to or subvert the ideal, and the relationship these subjects have with the territories they manipulate and inhabit.

Feminist political ecology contributions to the subjectivity literature provide ways of thinking about human-environment relations and the co-creation of socionatures embedded in material realities. This literature focuses on subjectivities and natural resource use intersecting social categories of difference [23–25]. Acknowledging that subject creation has long been a concern of the social sciences [26], feminist contributions are inspired by, for instance, Butler's [27] performativity of gender, which sees gendered subjectivities as constructed and informed by power relations and their environment [28]. Subject performance is not limited only to gender but equally involves other social categories of difference such as class, race, or age, which combine intersectionally [23,29,30]. Through this, subjectivity is studied, amongst others, as a process through which people are "disciplined by and identified with certain discourses and practices" [31] (p. 33). The subjects are produced through multi-dimensional aspects of power, which are exercised and internalized, commonly with unexpected consequences [28]. Through power, subjectivities oftentimes develop processes of social differentiation and hierarchies. Mainstream narratives and processes of subjection tend to shape individualized modes of identification; subjectivities that relate to neoliberalized natures break away from forms of communal resource management [32]. In this way we can visualize the link between subject formation, power, and Foucauldian governmentality as a form of dispersed everyday rule through strongly individualized practices and contained perspectives that legitimize particular knowledges [33,34].

Theoretical insights by Nightingale [25] provide a particularly relevant understanding of subject creation and subjection and the power relations linked to resource users and the environments they are embedded in. She explores the creation of fishermen subjects in Scotland and argues that the construction of specific subjects, as outsiders, as 'good' or 'bad' fishermen is linked to the method and technology at fishermen's disposal, to their connection to community, to perceptions of 'sustainable' fishing, and to the construction of fishermen subjects by policymakers when the governed subjects comply or resist. She invokes three developments made by feminist geographer Longhurst [35] when theorizing the subject. First, subjects are always placed; that is, they perform in specific places and spaces. Second, subjectivities are embodied and, therefore, material; that is, they are constituted by physical acts. Finally, and mirroring the arguments made by Hommes et al. [20], resistance to subjection entails moments of reframing and breaking away from modes of established meaning making and self-identification as territorial subjects.

The hydrosocial territory literature emerges with a strong focus on the construction of subjects through governmentality and contested modes of territorialization [36]. We consider multi-scalar hydrosocial transformations and their impact on subject-making, ranging from on-plot and the irrigation community scale to basin and interbasin exchanges and scales. We also enroll the concept of hegemony grounded in Gramscian thought, where dominant ideas and discourses espoused by the State and other institutions vested with power [34,37] are constantly rearticulated to stabilize the hegemony. They become accepted as dominant and unquestioned facts and relationships with implications for how social groups perceive problems and possible solutions [22,28,37,38].

On-plot technological transformations were documented by Sanchis-Ibor et al. [13], who explored the role of privatization as a subtle technology transfer and modernization issue, shaping new subjectivities and identities involving the moralization of technology

and counter-moralization strategies (see also [39]). We take on the transformation of *regante* subjects through these strategies, where different authorities not only encourage the adoption of on-plot technologies to create model *regantes* but they also create *regante* others, that is, those water users who continue traditional forms of irrigation. Not only are authorities complicit in creating these subjects but irrigation farmers themselves are quick to name 'good' and 'bad' examples of *regantes*, and these are intimately tied to place and water use based on the type of irrigation practiced.

This brings in arguments brought forth by Hommes et al. [20], who explored the hydrological infrastructures' role in (re)constructing territory, imaginaries, and subjectivities through governmentality endeavors. Imaginaries informed by science and technology are never apolitical, and their realization through (hydrological and hydraulic) infrastructure contains their own prescriptions and norms. Whether specific subjects subscribe to this dominant imaginary or not, the subjects stand in relation to its truth claims. New subjectivities emerge when circumstances and relations shift, such as when infrastructure is constructed and technologies are implemented that change the subjects' ways of living and operating in socio-technical systems. The ideals of the imaginary also contrast between expected (normative) and actual (lived) experiences of subjects and their self-perception regarding expected and actual access and control over the material environment. The materialization of infrastructure as "hardened morality or materialized power" [20] (p. 5 cf. [40]) nonetheless does not guarantee a fixed path over how infrastructure is actually used, governed, or abused. The clash between normative and lived subjectivities can give life to new imaginaries and identities, where "fugitive energies" [20] (p. 6) can propel new subjectivities, generating new imaginaries that challenge and change existing hydrosocial territorial configurations anew.

The notion of territories within a territory (territorial pluralism) [36,41] positions multiple entangled and hybridizing territories where territorialization contributes to "conducting subject populations' conduct" [33,42]. This also finds expression in, for instance, the construction of "river-as-subject" [43] by authorities, *regantes*, and the imaginaries deployed to do so.

Interbasin water transfers (IBWTs) such as the TSA problematize water resource governance by piercing across water basins, these being discrete water governance units as encapsulated in the integrated water resource management paradigm [9,44,45]. Of continuing interest here is how the TSA as a conduit and infrastructural artifact mediates and constructs *regante* and river subjects on either side of the TSA. As argued by Boelens et al., "A socio-ecological river expresses being/becoming subject through the meaning ascribed to it, which in turn shapes the river and those ascribing the meaning at the same time" [43] (p. 15). Here, it is not only humans or presumably dehumanized river ecologies that are subjectified, but in an integrated manner, this also includes the IBWT infrastructure itself, being bestowed with new and often contested meaning. *Regantes* in the Tagus and Segura basins cannot materially or discursively understand their own place, self, or waters without recourse to the TSA, to *regantes* within their own communities and basins, or in the other basins that now become connected [19,46,47].

#### 2.2. Methods

In terms of methodology, the results explore two dimensions. The first section outlines the evolution of the construction of ideal *regante* subjects as envisioned by authorities across five distinct periods from 1866 to 2023 through an analysis of the hydrological, agricultural, and rural development legislation and policies at the levels of the State, the EU, and from two regions—Murcia and Castille–La Mancha. The source material includes a literature review of the scholarship examining Spanish hydraulic and agricultural policy, as well as legislative and policy documents (see Supplementary Materials).

The second section explores the lived *regante* subjectivities and is based on interviews and group meetings (interviews were anonymized and pseudonymized) with 27 individuals in six irrigation communities: two in the Tagus basin and four in the Segura basin—with the TSA as a backdrop. The interview selection considered, whenever possible, gender, age, and farm size (based on number of hectares of irrigated land owned) as selection criteria. Semi-structured interviews with *regantes* were conducted to share their experiences, histories, and accounts of technological changes in their communities, as well as perceptions of water use and sustainability in other communities within and across the aqueduct-connected basins. The following Table 1 provides a breakdown of the irrigation communities in question.

Basin	Region	Irrigation Community	Year Established	Water Sources	Irrigated Surface (ha)	Members
Tagus	Castilla- La Mancha	Canal Bajo del Alberche	1957	Surface	8879	3000
Tagus	Castilla- La Mancha	Alcolea de Tajo	2000	Surface	3632	373
Segura	Región de Murcia	Campo de Cartagena	1952	TSA; groundwater; Residual TSA:	42,255	9699
Segura	Región de Murcia	Trasvase Tajo- Segura de Totana	1979	Groundwater; Treated residual; desalinated	10,780	4500
Segura	Comunidad Valenciana	Juzgado Privativo de Aguas de Orihuela	1275	Surface; Transfer; Treated Residual	6793	11,270
Segura	Castilla- La Mancha	Las Fuentes de Letur	1986	Surface	351	400

Table 1. Irrigation communities in the Tagus and Segura River basins.

Note: Source: [22].

Based on the fieldwork conducted in 2022, the establishment of hegemonic and counterhegemonic irrigated territories in river basins connected by the TSA is based on the history and relationship with dominant, hegemonic visions of irrigation practice and territorial transformation. Combining hegemony with the hydrosocial territories approach revealed particular relationships from *regantes* with their immediate territories and irrigation communities to hegemonic discourses and practices.

Following this framework, the hegemonic core territories are those where their transformation is most aligned with the hegemonic imaginaries on the State's ideal irrigation territory [22]. Next, the so-called frontier hegemonic territories also feature transformations moving towards the hegemonic ideals of irrigation, though these are only partially realized. Finally, so-called counterhegemonic territories are those that do not subscribe to or even reject the hegemonic ideal and present configurations of alternatives to hegemony [38] and potential pathways for water justice [48]. The following Figure 1 places the irrigation communities visited in Table 1 within the hegemonic territories within the territory framework discussed above.



**Figure 1.** Hydrosocial territories and irrigation communities in the Tagus and Segura River basins and the location of the TSA in Peninsular Spain. Source: [22]. Hegemonic core hydrosocial territory is in red, hegemonic frontier hydrosocial territory is in orange, and counter-hegemonic hydrosocial territory is in green.

# 3. Results

#### 3.1. Shaping the Ideal Regante Subject—Hydraulic and Agrarian Legislation and Policy

The historical construction of the regante subject by hegemonic authorities has changed markedly since the Spanish State declared water as part of the public trust in 1866, thereby putting *regantes*, as the principal water users in Spain, under the jurisdiction of State power. The time from 1866 to 2023 is broken down into five historical periods where the ideal regante's portrayal shifts, and these fall under the general sociopolitical epochs of Spanish history from the late 19th into the 21st centuries. The first period, regeneracionismo, began in 1866 with the declaration of water as part of the public trust and ended in 1938 towards the end of the Spanish civil war when the Francoist regime began undoing the II Republic's agrarian reform and began centralizing power. The early dictatorship period, starting at the closure of the civil war, ended in 1952 when the regime ended its period of international isolation, and agrarian reforms began encouraging the training of farmers and *regantes*. The late dictatorship ended its period with Franco's death, leading to the democratic restoration period, from the passing of the 1978 Spanish constitution to 1998. This period is marked by the redistribution of power to the Spanish regions, the development of regional autonomy, and the insertion of EU legislation. The current democratic regionalization period is named as such due to the establishment and push of regional agricultural and rural development plans, with regional governments flexing their power and visions accorded through their autonomy from the central government. It started in 1999 with the modification of the 1985 water law, and the development of regional CAP-funded development plans gave more power to the regional governments and stakeholders in directing their vision of *regantes*. The following Table 2 summarizes the *regante* ideal from each period, as laid out in the analysis in Supplementary Materials.

Historical Period	Regante Ideal
<i>Regeneracionismo</i> (1866–1938) Hegemon: State	<i>Regantes</i> as petty-bourgeois, small scale, independent, democratic, modern, and competitive [3] (p. 74) [4,49]. Combination of expansive supply-side hydraulic policy to make water available for irrigation expansion and internal colonization creating communities of smallholders with agricultural experience to create agricultural surplus. See also [50–55]
Early dictatorship (1939–1951) Hegemon: State	Colonist <i>regantes</i> in new irrigation schemes deemed peasants (campesino), though aimed to be modern food producers and serving as an example to large landowners to attract land sales and private investment in the new colonies and irrigation schemes [56]. They would settle new territories declared in the national interest through the sale of the land of large landowners. The figure of campesino denotes the smallholder peasant farmer. As a social class in and of itself, the campesinado, or peasantry, was the subject of the Second Republic's agrarian reforms to have them and landless peasants own land and, by Francoist agricultural policies, to provide them the land without jeopardizing the status and political will of the large landowners who were the regime's supporters [57–59]. See also [3,60–62]
Late dictatorship (1952–1977) Hegemon: State	Continuation of the early dictatorship's ideal, with more expectations of knowledge transfer and professionalization vested through the agricultural extension services [11]. Expansion of the number of colonists serving the ideal. See also [63,64]
Democratic Restoration (1978–1998) Hegemon: State, EU	No explicit mention of a <i>regante</i> ideal, though farmer ideals are characterized. Emerging contradiction between EU and State policy envisioning farmers and their roles. EU begins with the professionalization of the figure of the farmer, who would receive CAP finance, including technical assistance and support, support to small firms, and rural tourism, as ways of reducing out-migration [65,66]. The Spanish legislation on water reinforces the rationality and scarcity view of the water resource [67]. Agricultural policy views traditional irrigation as irrational and wasteful: it identifies the contradiction of traditional agriculture as strong in populating rural areas but changing it on competitivity principles requires modernization [12]. By identifying the limits on competitivity, the ideal farmer (and <i>regante</i> ) would have larger plots, be young, have access to land and the means of production, and access markets [68–70]
Democratic Regionalization (1999–2023) Hegemon: State, Regions, EU	The ideal <i>regante</i> runs an economically efficient agri-enterprise with a modernized, water-efficient irrigation system. The <i>regante</i> is most likely male, preferably young, professional, and has the technical and general knowledge to work with increasingly complex and innovative irrigation distribution and on-plot application systems and technologies, as well as increasing protocols and requirements to be environmental stewards and produce exporters [13]. <i>Regantes</i> would also be the facilitators of economic change, job creators, and reinvigorating rural communities [70–75]. The regional variants of the <i>regante</i> also emerge. The Murcian <i>regante</i> ideal is young, knowledgeable of various issues, incorporating multiple water sources for irrigation, and exporting produce outside of Spain. The Manchegan <i>regante</i> is modernized, saving water and aiding in the establishment of new irrigation schemes and gaining new technical knowledge [20].

**Table 2.** Ideal *regantes* by historical period—1866–2023.

Note: Source: own elaboration.

Compared to the previous historical periods, the current democratic regionalization period has multiple sources of authority establishing legislation and policy, which makes the reading of time and authority complex. The following Figure 2 provides an outline of the timeline and scales of the policies in this period.



**Figure 2.** Timeline of agricultural (green) and hydraulic (blue) legislation and policies at the European, State, and TSA-connected regional (Castille–La Mancha and Murcia) levels between 1999 and 2023. Source: own elaboration (see Supplementary Materials).

In the current democratic regionalization period, the Water Framework Directive was incorporated into Spanish legislation, and one if its key policies—shifting river management to the basin level—already found Spain managing water at the river basin level through its River Basin Authorities (RBAs) [75]. Its focus on environmental criteria, attention to the quality of bodies of water, and increasing the participation of stakeholders was a novelty in the Spanish context [44], which had RBAs until then being governed alongside technocratic, supply-side criteria, and with a near-monopoly of the hydroelectric and irrigation sectors in the governance boards. The competent authorities designated in Spain under the WFD are the RBAs and the ministry for ecological transition and demographic challenge [76]. The regional governments play a role in RBA governance, with representation in their governing boards assigned according to the proportion of the territory and population that the regions have in the river basin, alongside the user associations [44]. Among many other hydrologically related functions, the RBA user-participatory boards decide annual allocation quotas [76].

Within the agricultural sector, the introduction of river basin management plans as required by the Water Framework Directive, which, in turn, would inform the National Hydrological Plan, saw these focusing on increasing water-use efficiency through the modernization of the irrigation systems. Nonetheless, these pose problems, since water consumption has not decreased but surface water and aquifer recharge has [77]; furthermore, crop production has intensified and water concessions were not revised post-modernization and impact the social cohesion of the traditional irrigation communities [58]. It should be noted that the last National Hydrological Plan of 2001 aimed to transfer water from the Ebro basin to the Segura basins, representing the last attempt of large-scale transfers within Spain's hydrological paradigm. Following significant opposition, this was cancelled, even if the Water Framework Directive was contested by the supporters of defending Spain's "singularity", which backed transfers to southeast Spain for urban and irrigation development [75].

### 3.2. The Actual Regante Subject

Following the presentation of ideal *regantes* across historical periods, this section presents the results of interviews with *regantes* and how they act and are in the different territories. We follow Longhurst's three categories of analysis for understanding subjects—that subjects are always in place, they are embodied and material, and subjection and re-subjection reproduce dominant discourses [35]. We apply these across the territorial categorizations of hegemony, frontier hegemony, and counterhegemony, thereby linking subjectivity with water and territory.

#### 3.2.1. Hegemonic Territory Subjectivities

The hegemonic territories in Totana and Cartagena have their own histories of irrigation and power relations over water, conditioning the current perceptions of water and land. Totana's link to a nearby river that is historically irrigated with muddy waters was not included in the perimeter designed for the TSA water until 2019. This and the local elites' historical ownership of wells that auctioned irrigation water at exorbitant prices condition hydrological relationships to this day. The semi-arid nature of the region also invokes descriptions of place as desert turned green due to the TSA. There are high levels of on-plot modernization and professionalization of *regantes* setting up agribusinesses, growth of large, locally based agribusinesses, and smallholder and medium-sized *regantes* purchasing and leasing plots from an emergent crisis of generational handover.

In this way, hegemonic territories display a close alignment with policy discourses describing ideal *regantes* (see Table 2). The development of distribution systems and onplot modernization infrastructure and technologies is perceived to be among the most technologically advanced and innovative in the world, with the principle of absolute control over resource inputs to grow crops shared by irrigation community leadership, as well as smallholders. Traditional flood irrigation is questioned at best: "they [water] are scarce resources. We don't understand how there are still areas where flood irrigation is practiced" [78]. Even those critical of the TSA, who question water scarcity discourses justifying the continuation of the TSA, point to technology to secure alternative water sources. At the same time, *regantes* face significant uncertainty due to water availability, increasing demands from regulatory authorities, requirements to receive subsidies, and increasing certification requirements from supermarkets. Smallholders also criticize contradictions in policy support, which they argue goes to richer *regantes*.

In hegemonic territories, there is a distinction between *regantes*, those that do things "the old way", and those that are technologically developed. The latter are dependent on engineers, technicians, and service providers. This is accentuated by the distinction between who is considered a *regante*, those that own plots of land, and the professional agricultor farmer, likewise a regante by virtue of owning irrigated land. Professional farmers are those engaged in production for international markets. "Here most of us ... there are small areas where there are still regantes with small plots for self-consumption, but very little ... Most farmers and *regantes* have an average of, well it depends, there are farmers with more than 100 ha, farmers with between 100 and 50 ha, and then there are many that have 10, 15, 20, 5 ha. Around there. But most farmers sell their products with cooperatives, enterprises ... and it's true that it could be 5% of farmers that do it for leisure, that have a job and have a small plot to grow on, and they may take it to a cooperative, but at a small scale" [79]. Following national and European protocols and requirements, as well as certifications to sell to supermarkets, can be onerous and requires the *regante* to pay service providers to ensure that these are met. A second distinction is based on plot size: medium and large landholders, and smallholders. Smallholders argue that they, not multinationals, would be the ideal *regantes* in a sustainable future since they are the ones connected to territory, to land and water, and who have a connection to their local environment and can safeguard it. Traditional irrigation practices in the basin that have historical concessions are seen as destined to disappear.

#### 3.2.2. Hegemonic Frontier Territory Subjectivities

Frontier hegemonic territories were established during the early dictatorship and as late as the democratic restoration period. Historically, and under directives of the then ministry of agriculture and National Institute of Colonization, both the Alberche and Alcolea communities were directed towards specific crop choices by national and regional authorities. The irrigation community surrounds the city of Talavera de la Reina, with urban expansion eating into the irrigable perimeter and the Tagus RBA not permitting expansion of the perimeter. The plots of land were originally small, around 4 ha, and when the cattle sector became dominant, all farmers had under 10 heads of cattle, considering themselves self-sufficient. Nowadays, there are farms with over 100 heads of cattle that can be considered viable. Investment funds are entering the irrigation community and buy land to cultivate high-value tree crops. This increases land prices but complicates the individual regantes' ability to expand. This also reduces alfalfa production, worrying regantes with livestock. The Alcolea community's relationship with the river has been lost due to contamination and eutrophication. Residents could bathe in the river and canals, but now, regartes deal with contamination, eutrophication, and stench. Nonetheless, water is seen as giving life, and the transformation from rain-fed to irrigated agriculture is symbolized by the shift in colors, from brown and yellow to green.

In hegemonic frontier territories, the entrance of investment funds as actors in the Alberche and Alcolea communities drives land purchase and concentration. The purchase of land by the funds and the planting of tree crops lasting potentially up to 30 years is making it increasingly difficult for local *regantes* to rent land. In the Alberche community, there has been no investment in the maintenance of the community's distribution network. In the Alcolea community, water quality is a concern. *Regantes* check visually and by smell the state of the water in the water source. When there is strong eutrophication in summer, *regantes* must be careful that algae do not foul their distribution systems.

The frontier hegemonic territories consist of *regantes* attempting to keep in line with hegemonic discourses, yet they face challenges from the entry of new actors and an acute crisis of the generational handover of land. The establishment of the Alberche community responded to the dictatorship's policy of "internal colonization" to expand irrigation, increase food production, and encourage the establishment of smallholder communities. This is reflected in the establishment of a local agrarian training center and low interest credit provided for the purchase of machinery that covered full costs. Such policies encouraged young farmers in the 1950s and 1960s to settle. Nowadays, similar subsidies cover a fraction of the required machinery costs, effectively barring young farmers from accessing land unless they inherit it. *Regantes* do not see their children continuing in agriculture, since they consider the uncertainty of economic viability to be an impediment, and individuals trained in agriculture cannot purchase their own land. The entry of investment funds has local *regantes* worried that it will accelerate the end of the locally based, smallholder professional regante. Local regantes expect the future to be based in agribusinesses and service providers, including irrigated land management services. The Alcolea community, on the other hand, reflects policy decisions of the current democratic regionalization period. The local National Institute of Colonization spurred the transition to livestock in the area, while the requirement to practice drip irrigation is reflected in regional policy.

The hegemonic frontier *regantes* see themselves as educated, trained through local demonstration plots and by agrarian training centers. The technical knowledge needed to be able to grow crops in conditions allowing sales to supermarkets means they must master multiple disciplines and navigate administrative processes. Lately, there has been more interest from people new to the sector, from Madrid, in training as farmers. However, as mentioned earlier, it is very difficult to obtain land, and new farmers can only work for other *regantes*, service providers, or agribusinesses. The current policies and administrations are seen to only favor large agribusinesses, exacerbating the generational handover crisis and creating a distinction between two *regante* subjects, those locally based *regantes* who

still own land and live in the community and absent *regantes* owning land but using service providers.

## 3.2.3. Counterhegemonic Territory Subjectivities

*Regantes* in counterhegemonic territories are intimately linked with centuries-old irrigation systems. In Letur, they seek to maintain their territories as they are, resisting changes and keeping open-air canals fed by springs. The irrigation system is perceived as the result of a centuries-old process of trial and error and an example of sustainable water use, resisting social, political, and economic changes, as well as shifting food system models. In Orihuela, the irrigation system is dependent on the cycle of "live and dead water", recycling irrigation water—which relies on flood irrigation [80]. It dates to 1275 through a royal privilege declaring that the beneficiaries "irrigate and irrigate as much as they did in times of the moors and more if they can" [81] (p. 290). This is a historical recognition by the Castilian king Alfonso X of the irrigation improvements brought to and developed by Muslim Arabs in Islamic Spain. Traditional agriculture up to the 1970s involved women and men watering their fields with buckets, wooden mills, and mules. According to the data provided in 2023 by the secretary of the Orihuela tribunal [82], approximately 95% of the system still practices flood irrigation. The land in the system is highly distributed, described as "a brutal minifundium" [82], with average holdings not reaching a hectare.

The material acts in counterhegemonic territories focus on maintenance and intervention in systems and resistance to actions from authorities that impact their systems. In Letur, the network is constantly worked on and repaired. The leadership of the irrigation community passed bylaws ensuring the canals remain uncovered, "that the water can be seen, and that it can continue being enjoyed as it has been for centuries, and that Letur remains the same" [83]. The community has mobilized to stop the drilling of artesian wells close to the springs and to reject the installation of water counters. In Orihuela, smallholdings meant that before mechanization was introduced, *regantes* would water by hand. The arrival of the TSA saw the transformation of rain-fed lands uphill of the valley floor dedicated to fruit trees. In the 1980s, the canals feeding the traditional system were impermeabilized with concrete, which affected the collection of dead water after irrigation.

*Regantes* in counterhegemonic territories present resistance, as well as ambivalence, towards hegemonic discourses. The Letur community perceive themselves as outsiders of agricultural development policies. The policies require covering canals, installing water counters, or shifting to drip or spray, which are resisted. The community perceived that they are constantly under the threat that the Segura RBA could tap and exhaust their aquifer. The Letur leadership claim policy should "support those who truly take care of water, not only of those who destroy it" [83]. While Letur is not immediately impacted by the TSA, they argue the transfer created supply expectations that became a real, unsatisfiable demand: "Now there is a giant monster consuming water in the Segura basin, in large part thanks to the transfer, and that monster wants water, wants water, and it has an enormous political and economic power, and we are nothing compared to [that monster]" [83]. In the Orihuela tribunal, there is a perception of total abandonment by authorities towards traditional agriculture and the Segura River. The agricultural development policies are perceived as benefiting large farms and irrigation communities. This is seen as hypocritical when there is similarly a policy push for ecological agriculture, zero-kilometer food production, protection of the environment, and reduced contamination. The arguments for modernization are refuted by traditional *regantes*. The reuse of water and its cycling through the system cannot be carried out with drip irrigation, and policies mark the end of the small-scale farmer. The TSA is described as "a monster, a seven-headed hydra" [82].

Counterhegemonic territory *regantes* see themselves as defenders of the environment, of territory, and of water. Cooperation in both Letur and Orihuela is crucial for the functioning of their systems. In Letur, irrigation systems respect biophysical and territorial limits, with no expectations of expanding the irrigable perimeter. The constant flow of

water provides for the local ecosystem, the landscape, and communities downstream. Few individuals live off agriculture exclusively; most *regantes* are retired or part-time farmers for self-consumption or for additional income. Farming is valued not only economically but there is also joy and satisfaction in tilling soil or sharing produce with family members. In Orihuela, specific on-plot technologies are not seen as superior or inferior to one another but depend on crop choice. Sustainable water use is that which uses the right amount to optimize crop growth. The traditional model is compared to intensive irrigation models that create landscapes of plastic greenhouses. As stated by the tribunal's secretary, "In terms of traditional irrigation's water sustainability, examining the numbers well, it beats the [TSA] transfer['s irrigation model] totally. If you are speaking about economic performance, they [the TSA transfer's irrigation model] wipe us [the Orihuela tribunal's traditional irrigation model] clean. Without a doubt" [82]. Future outlooks of the smallholder *regante* are perceived to be bleak because there is no policy support, and there is a suspicion that is what is desired by the regional and national authorities.

#### 4. Discussion

# 4.1. The Contradictions of Realizing Ideal and Real Regantes

Early policies and legislation, from *regeneracionismo* through the dictatorship, set the legislative, policy, and infrastructural agenda for hydraulic development that aimed to not only transform territories through supply-side infrastructure but also begin crafting a social category of farmer, regante, to do so. A specific imaginary [20] of water control is developed and institutionalized, with the State putting surface water under the public trust in 1866, RBAs being established in 1926, and planned infrastructural works, including the TSA, being proposed in 1936. The State's vision of total hydraulic transformation [3,34,37] responded not only to make Spain self-sufficient in food production but also responded to political pressure to resolve the agrarian question of providing peasants with land by populating the interior of the country and expanding irrigation schemes, as seen in hegemonic frontier territories. The end of international isolation sped the construction of hydraulic infrastructure, with the TSA being approved in 1955, construction commencing in 1968, and transfers being legally approved in 1971. It is with the arrival of the TSA that hegemonic territories transformed and counterhegemonic territories entered a discursive and material relation with the TSA and hegemonic discourses and policies through the reintegration of the Segura RBA, such as by impermeabilizing the live water-dead water network of Orihuela.

The transformation of *regantes* occurs in parallel to hydraulic developments. The 1932 irrigation works law constituted the colonization boards, later continued under the dictatorship's National Institute of Colonization in 1939, which intervened in the hegemonic frontier territories of the Tagus basin as late as the 1980s. As in the 1950s, with policy reform and the institution of agricultural extension services, there is the beginning of a modernizing discourse [56] and an explicit conducting of subject populations ([36,47] cf. [84]). This aimed to professionalize *regantes* and their knowledge base, not just a policy of the populating territory, reflected in the ideal regante subjectivity of the late dictatorship (Table 2). As seen in credit policies that hegemonic frontier territories experienced positively, *regantes* look back at this period as one where the minifundia model allowed them to make a living for their families. The minifundia model is also present in hegemonic and counterhegemonic territories, but this period is remembered in the hegemonic territory of Totana for the unjust distribution of water through private wells. The arrival of the TSA coincides with the beginning of scalar policies, including the EU, which, alongside hydraulic policy, prescribed ideal visions of *regantes*, which included the modernization of their plots (the 1985 water law) to rationalize water use and their professionalization and importance in fixing populations and leading a rural regeneration (the 1995 law on modernization of agrarian units).

It is in the democratic regionalization period that the policy focus on modernization, professionalization, and rejuvenation of *regantes* deepens, establishing multiple roles and

heightening contradictions between the ideal and actual *regantes*. Revisiting Figure 2 highlights the multiple scales of authorities and their policy actions that prescribe the ideal *regante* when confronting the challenges of modernization, professionalization, and rejuvenation in all territories. The push for hegemonic principles [22] as normative moral frameworks [13] collides in different ways in hegemonic, hegemonic frontier, and counterhegemonic territories. The multiple scales of authorities also imply that the frames of reference to which *regantes* are subject and respond to [25] multiply. While EU policy does not discursively build a clear *regante* subject, national and regional policies build various ideals.

At the EU scale, the common agricultural policy provides the financial means for territorial transformations through the European Agricultural Fund for Rural Development since 1999, dedicated to modernization, agri-environmental, and rural development measures [85]. At the State level, the 2000–2006 Regional Development Program, the 2002–2008 National Irrigation Plan, the 2007–2013 National Strategic Plan for Rural Development, and the 2014–2022 National Rural Development Program lay out broad visions for *regante* ideals. As seen in Table 2, it is at the regional level that policies articulate somewhat different roles for the ideal *regante*. While the ideal Murcian *regante* focuses on mastering various knowledges, mobilizing various waters, and exporting internationally, the ideal Machegan *regante* is to modernize their fields, aid in saving water, and mobilize further land to put under irrigation where possible.

The realization of ideal *regantes* in hegemonic and frontier hegemonic territories lays bare several contradictions and struggles in attaining this realization. First, when *regantes* perform the ideal *regante* subject [25,86], they experience precariousness and a loss of autonomy [13] that contributes to perceptions from *regantes* that their children do not want to follow in their parents' footsteps. Dependence on service providers, pressure to adopt technology and knowledge upgrading, competition and search for markets, increasingly demanding certification processes, and the uncertainty of water provision in sufficient quantity (through the TSA in hegemonic territories) or quality (from the Tagus in part of the hegemonic frontier territories) are all factors causing stress and contributing to the generational handover crisis, since older *regantes* cannot or choose not to keep up.

Second, policy drives have led to a principal contradiction over *regante* subjects. Local large agribusinesses in hegemonic territories and investment funds in hegemonic frontier territories have caused land prices to rise, and new, young farmers cannot enter the sector. Ironically, the realization of ideal subjects in the contemporary period occurs in contexts where it is feared that agrarian communities will die out, and in their place, ideal subjects strive for an individualized but dependent existence where other human relationships are increasingly mediated through the paid services mentioned above (and increasingly, paid natures for new water sources such as desalinated and treated wastewater), echoing, in part, Harris's argument on subject individualization in neoliberalized natures [32].

Finally, inter- and intra-community land size differences and tensions emerge in hegemonic and hegemonic frontier territories, linked to access to subsidies, water, land, and to the roles of reproducing rural life. Contentious relations between smallholders and large businesses in hegemonic territories reflect the dissonance between lived histories and struggles over securing water resources. In Totana, histories of the local irrigation with muddy waters and the extractive control of groundwater by local elites in the pre-TSA period that are remembered to this day are contrasted with the current attempts to recognize extinguished historical water rights that smallholders push to have recognized vis-à-vis large landholders and businesses that have water access. In the hegemonic frontier territories of Alberche and Alcolea, the irruption of investment funds purchasing land, and water concessions with it, change the social and administrative structure of who works the land and of the rural communities embedded in the territory. These differences and tensions in both hegemonic and hegemonic frontier territories point to various issues that an ideal *regante* would resolve. However, this hegemonic ideal masks multiple issues that actually exist. Nonetheless, land size differences are also a reflection of power relations within the

community, which limits the array of potential solutions and experiences [22,32,37] that are presented.

This collapse of rural areas, combined with the issue of land and rural rejuvenation in hegemonic and hegemonic frontier territories in the current democratic regionalization period, reveals one of the principal contradictions in the development policies regarding the role of the ideal *regante* in constructing ideal territories. Namely, they are expected to be the motor of attracting and fixing populations in rural areas, which contrasts with what is really happening. These territories were singled out by policy and interventions from regeneracionismo through to the democratic restoration period, creating a minifundio model of smallholder and medium-sized farms in irrigation schemes that were able to support *regantes* and their families. While policies point to irrigation as being far more successful than rain-fed agriculture in attracting and fixing population in rural areas, irrigation community dynamics are leading to smallholders dying out and selling or leasing their land—land that is singled out for subsidies and that has potential water concessions when within the irrigable perimeter of the irrigation community. The demand for irrigable land and prices for its lease or sale often puts it out of the range of smallholders and encourages agrarian social differentiation. This is why regantes in hegemonic and hegemonic frontier territories foresee an end to smallholder agriculture and the rise of agribusiness and investment-fund-led land ownership in these areas.

The policy ideals lay out the mechanisms by which hegemony spreads materially through the State, regional and *regante* action and through which *regantes* and spaces are co-constituted [20] in hegemonic and hegemonic frontier territories. As stated earlier, while there are variations at the regional level, the Murcian *regante* would ideally mobilize multiple waters, while the Manchegan regante would ideally modernize their plots and aid in spreading irrigated surfaces. The fact that the Murcian *regantes* in Totana and Cartagena are using multiple water sources—TSA, surface water, desalinated water, and treated wastewater—links the physical acts and embodies *regante* subjects with the various water sources, and through this, they subject themselves to policy directives describing the ideal regante [25,35]. Manchegan regantes similarly embody the territories they live in through irrigation practices. Nonetheless, they present two conundrums. On the one hand, an emerging *regante* subject is the legally present and physically absent landholder *regante* who enters the community through investment fund purchase. Second, *regantes* are expected to modernize their on-plot systems to enable water savings that allow for the expansion of irrigated surfaces in the Tagus basin, which abstracts their relations with water and territories well beyond the boundaries of their own lived communities. This abstraction likewise plays out the conflicts at the regional, national, and European levels of water management over the hegemonic hydraulic paradigm where drip irrigation is unquestioned, even if it brings its own problems and contradictions over water savings [77]. Frontier hegemonic ideal and existing regante subjects face contradictory movements where new regante subjects shake the foundations of existing ones and where moralizing strategies [13] lay bare policy contradictions between economic efficiency on the one hand—efficient irrigation farms maximizing resource use for cash crops—and rural community life on the other.

#### 4.2. Alternatives to an Ideal Regarte

These policies also outline which *regante* deviates from this ideal. These are traditional *regantes* and the schemes they work with are considered obsolete, working with old infrastructure or traditional earth channels and practicing flood irrigation. These *regantes* and their schemes are to be subjected to modernization drives, resulting in water savings, and trained in innovative practices for this purpose. The irony, compared to the performance of the ideal, is that *regantes* have not expressed precariousness and loss of autonomy. The TSA and supply expectations are imagined and experienced differently than intended in different territories [20], and subjects experience the inter-connected socio-ecological rivers through it differently as well [43,87]. There are concerns and worries linked to water availability or encroachment due to the "monster/hydra" that the TSA has produced in

increasing water demand. In response to hegemonic moralizing claims [13,22], the choice for on-plot modernization is pursued ambivalently, compared to *regantes* in hegemonic territories declaring that flood irrigation should be abandoned. Drip irrigation is seen as another tool that can help the *regante*, just as flood irrigation does. However, the values ascribed to traditional irrigation systems that drip or flood go beyond a single (economic) premise [11,15,16]. The values of water that focus on maintaining an ecological balance, using enough to ensure downstream users can have water, or keeping it visible for aesthetic reasons, do in part coincide with some of the policies' aims, particularly the ecological ones. Likewise, the values of water coincide with different visions that require a community effort in cooperation and coexistence to maintain these [19,32]. However, the method of achieving ecological balance is anathema to the scarcity-related values of water prescribed as the driving focus of policies.

Having mapped the space between ideal and actual *regantes*, we turn to the future and what the contradictions realizing these ideal *regantes* reveals. Hegemonic and hegemonic frontier smallholder *regantes* fear that smallholders will be replaced by an arrangement of agri-businesses and investment-fund-propelled arrangements by fund owners and service providers. This foretells a situation where regante subjects are legally present and physically absent and where *regante* labor is conducted by trained professionals to care and work irrigation systems and plots with no proprietary link to the land itself. What this means for the social fabric of rural areas is still unknown but evokes a familiar figure in Spanish agrarian history—the itinerant laborer. Alternative models such as cooperatives exist in hegemonic and frontier hegemonic territories; however, at least in hegemonic territories, they do not fully meet the multiple demands from their *regante* members and the demands from wholesalers and supermarkets.

Alternative territories and socionatural arrangements exist in counterhegemonic territories that point at more equitable and just arrangements for working with, conceptualizing, and visualizing water [48]. Whether it is open canals or a system of live and dead water, both require coordination and a divergence of ideal visions of institutions vested with power [34,37]. Similarly, the position of smallholders in hegemonic territories to strive for a more just water future has involved constant activism and the research into historical rights that are fought to be recognized as a way of maintaining a hydraulic and agricultural heritage that looks not only at economic viability but also at a community viability in rural areas that considers other dimensions such as social and environmental health care, reciprocity, co-created and entwining vernacular and modern knowledges, and multi-scalar alliances [11,19,88,89].

# 5. Conclusions

This article has laid out the historical construction of the ideal *regante* subjects and how they have been attempted to be realized, resisted, or ignored in various territories interconnected by the TSA. The territories and individuals are subjected and crafted together through power relations [34,37], emulating the ideal demanded by powerful interests or despite said ideal [19,38]. This hegemonic ideal has shifted over the long duration of Spain's hydraulic and agricultural policies and political structures. Today, multiple levels of authority lay out differing visions, whether as hard infrastructure or soft governance [20], and this multiplicity also leads to multiple and often contradictory demands on *regantes*. As demonstrated throughout this article, hegemonic power is challenged through these contradictions, particularly when an overriding aim—water savings and modernization—is painted with a broad brush stroke to also coincide with the contrasting policy aims of maintaining social cohesion and rural vitality. In this revelation, the existing and new counterhegemonies offer alternatives against technocratic approaches.

The intersection of constructed and interlinked hydrosocial territories [36] through IBWTs, the spread of new on-plot technologies, and the particular histories and relations with hegemonic practices that different territories are subjected to create different *regante* subjects. This article demonstrates the value of broadly examining multiple territories and

interrogating multiple experiences of power to break down unquestioned subjectivities. By utilizing Longhurst's [35] approach to understanding subjects, place, subject material acts, and the relationship between subjection and resubjection in relation to hegemonic discourse and policies, we have demonstrated that multiple subjectivities emerge that are embedded in territory and in relation to the regantes inhabiting them, as well as to regantes inhabiting other interconnected territories. Hegemony, as experienced through the implementation of hydraulic and agricultural policy, also embeds a moralizing discourse [13] to identify regante and practices that need to change. Nonetheless, the current hegemonic visions require ideal regartes to fulfil multiple and contradictory roles—job creators, private entrepreneurs, fixers of rural populations, quality assurers, and food producers. Intersecting issues of class and land—holding, generational handover crises, and youth in agriculture are all present in the interconnected territories but experienced very differently depending on how the hegemonic discourses are accepted. In that respect, the precariousness and individualization [32] of the *regante* in hegemonic and hegemonic frontier territories are not as salient in counterhegemonic territories, pointing to water just alternatives [43] and models that embody different and multiple values [88,90-98].

What does this mean for broader questions of water management in Spain and beyond? Above all, large-scale hydraulic infrastructure such as the TSA has impacts beyond water redistribution. It creates conditions, new subjects, and new relationships that governing institutions at multiple scales may not be able to react to quickly enough or have existing powers entrenched in [9,99–104]. Likewise, the spread of on-plot irrigation modernization has become a silver bullet in policy, but different subjects react to it in very different ways, producing not only varied imaginaries but, with them, different territories. Most importantly, water governance and water policies have to be seen in conjunction with other policies and sectors, particularly agriculture, since water subjectivities are entwined, embodied, and placed in lived and loved territories [105–107].

This argument opens various possibilities for future research. From a theoretical standpoint, the combination of feminist understandings of subjectivity with that of hydrosocial territories points to fruitful engagements in other empirical material. Second, this article engaged with multiscalar empirical material that hydrosocial territorial literature can expand on. While sacrificing richness of detail, interconnections open new avenues of interrogation that stand-alone case studies cannot engage with. Furthermore, deeper questions on the implications of looking at multiple interconnected territories hegemonically and the subjects created because of or in spite of hegemony opens inquiries into scalar impacts on water governance and institutional forms of irrigation that the policies may try to flatten or simplify. Finally, there is a focus on the *regantes* obviated attention to these same subjects' other and equally important, multiple identities, including particular gender, class, and ethnic relations and modes of belonging. Next, they interact with other subjects of agrarian life—e.g., (migrant) laborers or small-scale entrepreneurs. Investigating their roles as both subjects and inhabitants of hydrosocial territories would provide important dimensions to understand the changing and interconnected irrigation systems.

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