

Historical period	Scale	Regante ideal
Regeracionismo (1866-1938)	State	<p><b>Regante ideal:</b>  <i>Regantes</i> as petty-bourgeois, small scale, independent, democratic, modern, and competitive [3] (p. 74). 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</p> <p><b>Key legislation and policies</b>  1879 water law - Surface water under the public trust, provided through an administrative concessionary system</p> <p>1907 law for colonization and internal repopulation<sup>1</sup> - establishment and administration of colonies, possibility of break-up large agricultural properties. Beneficiaries would be “families of poor laborers and suitable for agricultural work”<sup>2</sup></p> <p>1911 large irrigation schemes law<sup>3</sup> - State-led large-scale hydraulic projects</p> <p>1932 irrigation works law<sup>4</sup> - combined hydraulic and colonization policies, specified specific areas to be irrigated that could be served by large scale hydraulic works [50]. Gave State authority to expropriate irrigable, obliging land to be irrigated by colonists [55].</p> <p>1936 National Plan for Hydraulic Works<sup>5</sup> - reduce agricultural imports for internal consumption and boost agricultural exports by further irrigation development. First proposal of IBWTs. National assessment of regional water availability and needs based on a unitary (national) hydraulic vision of integrated river basin management [3, 50, 51].</p>
Early dictatorship (1939-1951)	State	<p><b>Regante ideal:</b>  Colonists were deemed peasants<sup>6</sup>, 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].</p> <p><b>Key legislation and policies</b>  1938 National Service of Economic and Social Land Reform<sup>7</sup>; 1940 land devolution law<sup>8</sup> - parcellation and concentration of the land of</p>

<sup>1</sup> Own translation: Ley de colonización y repoblación interior de 1907 [52]

<sup>2</sup> Own translation: “Tienen derecho a los beneficios de esta ley las familias de labradores pobres y aptas para el trabajo agrícola.” [52] (p. 975)

<sup>3</sup> Own translation: Ley de Grandes Regadíos de 1911 [53]

<sup>4</sup> Own translation: Ley de Obras de Puesta en Riego de 1932 [54]

<sup>5</sup> Own translation: Plan Nacional de Obras Hidráulicas de 1936

<sup>6</sup> Own translation of *campesino*. The figure of *campesino* denotes the smallholder peasant farmer. As a social class in 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 land without jeopardising the status and political will of large landowners who were the regime’s supporters. See [57–59] for more information on the Spanish *campesinado*

<sup>7</sup> Own translation: Servicio Nacional de Reforma Económica y Social de la Tierra de 1938

<sup>8</sup> Own translation: Ley de 23 de febrero de 1940 Sobre devolución a sus propietarios de las fincas ocupadas por el Instituto de Reforma Agraria con arreglo a las Leyes de 1932 y 1935 [61]

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		<p>family holdings, rationalizing farming systems, instituting improvements, and irrigation expansion, though in practice undid expropriation of land occurring through the Second Republic's agrarian reforms.</p> <p>1939 National Institute of Colonization<sup>9</sup> and 1939 Law of Principles for the Colonization of Large Areas<sup>10</sup> - Large-scale irrigation expansion, purchase land from private landowners for irrigation and colonization projects to increase food production and foster the settling of territories that were declared of the national interest.</p> <p>1949 law on colonization and distribution of property in irrigable areas<sup>11</sup> - Encouraged landowners to pay for the installation of irrigation works through the sale of 'excess lands' to peasant colonists [56].</p>
Late dictatorship (1952-1977)	State	<p><b><i>Regante</i> ideal:</b></p> <p>Continuation of the early dictatorship's ideal, with more expectations of knowledge transfer and professionalization vested through the agricultural extension services. Expansion of the number of colonists serving the ideal.</p> <p><b>Key legislation and policies</b></p> <p>1953 law of manifestly improvable farms<sup>12</sup> - expanded irrigation in private holdings, catalogue of improvable agricultural exploitations that could lead to expropriation of private land. Creation of an agricultural extension service [56].</p> <p>1952 Badajoz plan; 1953 Jaen plan – construction of dams for water and hydroelectricity, networks of canals and irrigation ditches, and construction of colonies and small irrigation fields, using the excess land format of the 1949 law on colonization and distribution of property in irrigable areas.</p> <p>1955 council of ministers approval of the construction of the TSA, construction did not start until 1968.</p> <p>1959 establishment of water commissioners - under State control, administered the assignment and management of water concessions, their policing, and the allocation of irrigation water, effectively directing RBAs [3].</p> <p>1971 law on use of the TSA<sup>13</sup> - approved the transfer of water from one basin to another with water transfer limit fixed at 600hm<sup>3</sup> per year [3].</p>
Democratic Restoration (1978-1998)		<p><b><i>Regante</i> ideal:</b></p> <p>No explicit mention of a <i>regante</i> ideal, though farmer ideals are characterised. Emerging contradiction between EU and State policy</p>

<sup>9</sup> Own translation: Instituto Nacional de Colonización

<sup>10</sup> Own translation: Ley de 1939 de Bases para la Colonización de Grandes Zonas [60]

<sup>11</sup> Own translation: Ley de 21 de abril de 1949 sobre colonización y distribución de la propiedad en las zonas regables [62]

<sup>12</sup> Own translation: Ley de 3 de diciembre de 1953 de fincas manifiestamente mejorables [63]

<sup>13</sup> Own translation: Ley 21/1971, de 19 de junio, sobre el aprovechamiento conjunto Tajo-Segura [64]

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		<p>envisioning farmers and their roles. EU begins with the professionalization of the figure of the farmer, which would receive CAP finance, including technical assistance and support, support to small firms, and rural tourism, as ways of reducing out-migration. Spanish legislation on water reinforces the rationality and scarcity view of water resource. Agricultural policy views traditional irrigation is irrational and wasteful, and identifies the contradiction of traditional agriculture as settling rural areas but changing it on competitiveness principles requires modernization. By identifying the limits on competitiveness, 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.</p>
	EU	<p><b>Key legislation and policies</b></p> <p>Council Regulation 2328 /91 of 15 July 1991 on improving the efficiency of agricultural structures - Professionalization of farmer emerges as a figure with definition of “farmer practising farming as his main occupation”<sup>14</sup></p> <p>CAP financial instruments funding LEADER I (1991-1994) and LEADER II (1994-1999) programs. LEADER I funded technical support for existing activities, measures supporting small firms, and rural tourism as ways of diversifying farm activities to prevent out-migration and landscape management. [66]</p>
	State	<p><b>Key legislation and policies</b></p> <p>1978 Spanish Constitution – competencies in hydraulic and agricultural policy between State and Autonomous Communities (regions) divided. River basin plans in interregional basins including actions on irrigation schemes and hydraulic works must include basic norms for irrigation improvements or transformations, and are limited to a proposal that is a better or more rational use of surface waters without invading competencies considered agricultural in nature [70].</p> <p>1985 Water law – Water considered “a scarce natural resource, indispensable for life, and for the exercise of the immense majority of economic activities.”<sup>15</sup> Includes groundwater as part of public trust. Governance of water between the State and regions through RBAs, distinguishing inter- and intraregional basins, and planning occurs through a recurring National Hydrological Plan, informed by River Basin Plans created by RBAs [3]. Administrative concessions motivated and adopted in function of the public good, and are competitively decided with preference given “to those with the most rational use of water and a better protection of the environment.”<sup>16</sup> The principle of rational use and water declared a scarce natural resource presupposes a preference for irrigation practices that prove to be more rational.</p>

<sup>14</sup> Council Regulation (EEC) No 2328 /91 of 15 July 1991 on improving the efficiency of agricultural structures [65] (p. 8).

<sup>15</sup> Own translation: “El agua es un recurso natural escaso, indispensable para la vida y para el ejercicio de la inmensa mayoría de las actividades económicas” [67] (p. 25123).

<sup>16</sup> Own translation: “aquellos que proyecten la más racional utilización del agua y una mejor protección de su entorno.” [67] (p. 25130).

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		<p>1993 Royal decree of public works to improve and modernize traditional irrigation schemes<sup>17</sup> – traditional water distribution infrastructure can be impermeabilized and rationalized to reduce water losses and would benefit society as a whole. Would lead to water price reduction for <i>regantes</i>, and involves <i>regantes'</i> own knowledge of territory.</p> <p>1995 law on modernization of agrarian units<sup>18</sup> – Recognition that “the dominant agrarian model maintains the basic family farm model, which, even if it constitutes a guarantee for the colonization of territory and maintaining rural social fabric, it also implies the continuation of structural deficits that need correcting.”<sup>19</sup>, Solve issues linked to small farm size, ageing of agrarian populations, rigidity in land markets, limited flexibility in the means of production, and limited structuring of the sector and commercial organization by prioritizing specific farms to ensure their economic viability and justify the concession of policy support. Ageing farmers and small plot sizes identified as limiting agricultural modernization.</p>
Democratic Regionalization (1999-2023)		<p><b>Regante ideal:</b> 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, since it is only towards the end of the period that there are clauses pointing at directing support to disadvantaged groups, including women. He is 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, and increasing protocols and requirements to be environmental stewards, and produce exporters. <i>Regantes</i> would also be the facilitators of economic change, job creators, and reinvigorating rural communities. The regional variants of the regante also emerge. The Murcian regante ideal is young, knowledgeable of various issues, incorporating multiple water sources for irrigation, and exporting produce outside of Spain. The Manchegan regante is modernized, saving water and aiding in the establishment of new irrigation schemes and gaining new technical knowledge.</p>
	EU	<p>2000 Water Framework Directive CAP 2000-2006 funding period 2003 CAP reform CAP 2007-2013 funding period 2013 CAP reform CAP 2014-2020 funding period 2020 CAP reform negotiations</p>

<sup>17</sup> Own translation: Real Decreto 678/1993, de 7 de mayo (3 de junio de 1993), sobre obras para la mejora y modernización de los regadíos tradicionales [69].

<sup>18</sup> Own translation: Ley 19/1995, de 4 de Julio de Modernización de las Explotaciones Agrarias [68].

<sup>19</sup> Own translation: “el modelo agrario dominante ha permanecido el carácter básicamente familiar de las explotaciones que, si bien constituye una garantía de colonización del territorio y de mantenimiento del tejido rural, también implica la pervivencia de deficiencias estructurales que es preciso corregir.” [69] (p. 4).

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	State	<p>1999 modification of the 1985 water law<sup>20</sup> - introduced government-supervised, market-based mechanisms to either temporarily or permanently reallocate water among users and sectors.<sup>21</sup> Allowed Tagus basin <i>regantes</i> to sell water to Segura basin <i>regantes</i> under drought conditions and with enabling legislation in place. The law also recognized the protection of the environment as an operational condition.</p> <p>2000-2006 Regional Development Programme<sup>22</sup> - rationalize water resources, improving the viability of farms, and rejuvenating their ownership. Water management considered poor. Through the consolidation and expansion of irrigation schemes, introducing water saving technologies, and encouraging the entry of young entrepreneurs into irrigation, the policy expected water savings, a professionalization and technological innovation of farmers, and the encouragement of fixing populations and jobs in rural areas.</p> <p>2001 White Book on Water [70] – Ministry of Environment publication reinforced understandings of surplus and deficit river basins independent of socioeconomic, historical, geographical material realities that reinforce water demand and where scarcity is produced [3].</p> <p>2001 National Hydrological Plan – announced Ebro river transfer to the Jucar and Segura basins and the Catalonia internal basins, which followed the logic encapsulated in the white book.</p> <p>2002-2008 National Irrigation Plan<sup>23</sup> – Irrigation in Spain required improvement, modernization and consolidation, particularly to achieve reductions in water use only in existing irrigation schemes. No expansion of irrigation proposed. Reconceptualizes irrigation farming as social and multifunctional – fixing rural populations, structuring territories, and maintaining rural spaces. The plan's objectives focus on increased labor productivity and farm revenue, territorial structuring to avoid population loss, water use reduction, rationalization and contamination reduction through modernization of distribution and on-plot irrigation systems, and the incorporation of environmental criteria in irrigation water management systems. <i>Regantes</i> are expected to be co-responsible for policy implementation, to receive training alongside technicians on environmentally friendly and innovative irrigation systems and practices, increase labor productivity and engage with markets, become more competitive, and be environmental stewards. Through these actions water use would reduce while reinforcing <i>regantes'</i> competitiveness and become local job creators. Young farmers were expected to be able to take on these roles more than older generations. Described unwanted practices and territories, stating "it is unthinkable that the effort and sensibility of <i>regantes</i> in old irrigation communities or irrigable areas are sufficient</p>

<sup>20</sup> Own translation: Ley 46/1999, de 13 de diciembre, de modificación de la Ley 29/1985, de 2 de agosto, de Aguas [71]

<sup>21</sup> [71] (p. 43105)

<sup>22</sup> Own translation: Plan de Desarrollo Regional España

<sup>23</sup> Own translation: Plan Nacional de Regadíos [72]

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		to take on the modernization projects, without which the changes to the legal framework can be successfully applied". <sup>24</sup>
		2004 reform of the 2001 National Hydrological Plan – Cancelled the Ebro transfer, focused on the modernization of hydraulic infrastructure serving irrigation schemes in various recipient basins as urgent measure
		2005 AGUA programme – Develop desalination plants, particularly to guarantee water supply to Tagus-Segura Aqueduct recipient basins.
		2007-2013 National Strategic Plan for Rural Development – incorporated regional plans. Continuation on overall focus on irrigated farming. Sustainable irrigation was to be achieved through improvements to reduce water consumption and water distribution losses, with these improvements understood as optimizing water effectiveness and achieving technical and economic efficiency in on-plot water delivery and application. Identified traditional irrigation systems to be protected and supported as part of Plan's environmental objectives and in line with European directives. <sup>25</sup> Focus of training of farmers and on youth continued, and young farmers encouraged to become landowners through measure to encourage obtaining their first property.
		2014-2022 National Rural Development Program – identifies two irrigation-related needs – irrigation system expansion and modernization. Expansion would only occur in areas declared of the general interest that have not yet gone through irrigation transformation. Modernization would occur through a variety of infrastructural improvements, while decisions made by individual regantes would include innovations in crop choices and cultivars, and technification of on-plot systems. The program also indicated that savings in water would lead to improved environmental conditions through increased ecological flows.
Regions	<b>Castilla-La Mancha</b>	
		2007-2015 rural development program – Principal aim to reduce water consumption. focuses on irrigation modernization to reduce water consumption and the contamination of soil and aquifers, in line with the WFD, though measures to be financed are at the level of delivery systems, not on-plot modernization.
		2014-2022 rural development program – focuses on irrigation system modernization, water savings, and the achievement of good status of water bodies (both surface and underground waters). Proposes establishing new schemes by reorganizing water concessions in basins where water savings have been achieved or in areas where aquifers are considered lower than good quality. Investments include on-plot improvements in drip or sprinkler irrigation. Regantes expected to engage in hands-on training, irrigation communities are expected to

<sup>24</sup> Own translation: Resulta impensable que el esfuerzo y la sensibilidad de los regantes en las comunidades o zonas regables antiguas sean suficientes para acometer los proyectos de modernización, sin los cuales los cambios de nuestro marco legal son de imposible aplicación." [73] (p. 8)

<sup>25</sup> [74] (p. 110)

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		<p>have technicians who are to be trained, and in newly irrigated areas the role of the regante will be to raise incomes, attract population, and create jobs.</p> <p><b>Murcia</b></p> <p>2007-2015 rural development program – include support for on-plot modernization, and aims at a total rationalization of hydrological systems, including from new sources such as desalination and treated wastewater. The program foresaw training of <i>regantes</i> to introduce new water-saving practices and technologies, to market their products to the EU, on mechanization and pest control, among others. The modernizing push would ideally be led by young farmers.</p> <p>2007-2015 rural development program – identifies various needs in the irrigation sector, including, innovation and links strengthening amongst stakeholders, training in areas outside of technical knowledge (such as administrative procedures, environmental knowledge), the modernization and restructuring of farms, encouraging generational transition of farms, improved efficiency in water use and reduce uncertainty in its provision, and creating employment in rural areas. prioritizes training, qualification and rejuvenation of the professional farmer, maximum efficiency in resource use, and increasing the economic efficiency of farms. Measures within these priorities continue to be irrigation modernization and investments that create water storage and distribution. Water savings measures would also include knowledge transfer focusing on drought resistant cultivars, environmentally friendly agricultural practices, and climate change mitigation and adaptation.</p>