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Colonizing rural waters: the politics of hydro-territorial transformation in the Guadalhorce Valley, Málaga, Spain

Bibiana Duarte-Abadía (Da and Rutgerd Boelens (Da,b,c,d

^aCEDLA Centre for Latin American Research and Documentation, University of Amsterdam, Amsterdam, the Netherlands; bDepartment of Environmental Sciences, Wageningen University, Wageningen, The Netherlands; 'Faculty of Agricultural Sciences, Universidad Central del Ecuador, Écuador; d'Department of Social Sciences, Pontificia Universidad Católica del Perú, Lima, Peru

ABSTRACT

This paper explores how, historically, the utopian thinking built into Spain's water policies has legitimized profound transformations of the Guadalhorce Valley's hydro-social territory (in Málaga), also justifying water transfers from rural to urban areas. It analyzes how the 'regenerationist hydraulic utopia' has been materialized through different 'governmentality strategies'. This intensified during Francisco Franco's dictatorship, decaying gradually into dystopias that, to this day, express profound socio-environmental impacts: dispossession, displacement, uprooting and breaking up local water governance institutions and practices. Meanwhile, the urban and tourism industries in Málaga have been strengthened by giving them priority for water supply.

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Introduction

Málaga, located on Andalucía's sunny coast, is one of Spain's most visited cities because of its beautiful beaches, golf courses, water parks and excellent weather most of the year. Many tourists, mostly from Northern Europe, find this a very attractive place to live temporarily or for a vacation. In summer, Málaga's population soars; as does its demand for domestic water. Most water is taken from rural area uses in the Guadalhorce River valley, labelled as 'for human consumption', which is a priority use pursuant to Spanish legislation. However, much of this water also supplies profitable and recreational uses, such as watering gardens, showering on the beach, washing cars, private industrial uses and, partly, the boom in golfers' housing developments (cf. Delgado & Del Moral, 2016; Villar Lama, 2013). As we document, water demands for urban uses and tourism are met at the expense of rural inhabitants of the Guadalhorce watershed, who have to ration irrigation water during droughts and, in emergencies, lose their crops and fruit trees.

To understand this situation, beyond rhetoric about 'national interest' or 'top priority for human consumption', this paper analyzes Spain's hydro-territorial policies historically, with specific attention to rural-urban water transfers from the Guadalhorce Valley to Málaga over the last 100 years (cf. the introductory paper to this issue, Hommes, Boelens, Harris, & Veldwisch, 2019). Therefore, we first describe 'the regenerationist dream and hydraulic



utopia', intellectually led by Joaquín Costa, beginning late in the 19th century. It proposed to revive the nation by giving top priority to expanding hydraulic works and governance through watersheds (e.g., Fernández Clemente, 2000; Mendoza, 1992; Swyngedouw, 2007, 2015). Second, we examine how this regenerationist water-based utopia is materialized in the Guadalhorce Valley through the different governmental strategies implemented in the 20th century. We analyze the famous engineer Rafael Benjumea's hydraulic works, later intensified under the Francisco Franco dictatorship (1939–75) (see also Boelens & Post Uiterweer, 2013). The Política Hidráulica re-ordered the Guadalhorce territory and its inhabitants' lives to undertake projects on behalf of the national interest: urban electrification and water needs for industrial and domestic uses.

We analyze how Joaquín Costa's hydraulic dream has gradually become a dystopia for many. This paper compiles historical information, technical reports, hydrology plans, biographical narratives, articles and scholarly studies. We articulated this information with field visits and interviews, conducting 49 semi-structured interviews and 12 collective meetings with key stakeholders (14 interviews with farmers, 10 with official agents, five with water inspectors, five with residential tourists, five with displaced families, four with design technicians and six with elderly inhabitants). Next, we recorded several in-depth life stories of the Guadalhorce Valley's inhabitants. The research included in total seven field visits throughout the period 2015–17. We triangulated our data using the above-mentioned diversity of research methods and interviewing different categories of actors. Further, the researchers have guided 12 student groups collecting data and validating and updating the growing data set. Finally, the research data and conclusions were discussed and checked with officials and the Guadalhorce Valley water users.

The next section discusses the conceptual approach toward analyzing the problems of rural-to-urban water transfers. Applying a political ecology approach, our analysis focuses on understanding the Guadalhorce Valley as a hydro-social territory (Boelens, Hoogesteger, Swyngedouw, Vos, & Wester, 2016). The third section documents how integrated management of Guadalhorce's land and water harks back to Arab times – with *huerta* homesteads and croplands, customary irrigation systems and self-governed communities. This socio-technical, idealized background constitutes the historical fundament for configuring 20th-century utopian-modernist imaginaries and dreams as well as Fascist hydro-territorial planning policies. We explain hydraulic utopia's rootedness in the national political context, and show the valley's hydro-territorial transformations throughout history: its foundation being the damming and diversion of the river to modernize and bring progress. The fourth and fifth sections illustrate the otherness of hydraulic utopia: the dystopias that many rural people have experienced, and sometimes still have to face. Here, Spanish scalar politics are steamrollered by 'national well-being and public interest' (for comparison, see, for instance, Harris, 2002; Hommes & Boelens, 2018; Kaika, 2006; and Swyngedouw & Williams, 2016). These latter imaginaries and discourses legitimize rural water transfers not only to domestic users but also to capital generating sectors: the tourism industry and urban elites. Diverse 'governmentality strategies (Foucault, 1978/1991) will be analyzed to understand how these water transfers from rural zones are normalized, accepted and legitimized. Nevertheless, recent hydromodernist transformations in the Guadalhorce Valley are also contested, in particular by citizens' alliances and alternative territorial modes of valuation.



Hydro-territorial transformation and governmentality: a utopian/dystopian conceptualization

This paper examines how utopian hydraulic policy 'for all' (rural and urban uses) ends up prioritizing powerful urban interests, turning it into a water control dystopia for some rural livelihoods. Since Plato constructed the ideal State in The Republic (380 BC) and above all Thomas More's Utopia (1516), there has been a longstanding philosophical and literary tradition resulting in hundreds of manuscripts with policies and designs that seek to materialize 'the art of utopian governance'. These utopias characteristically claim to rescue society from its structural chaos and deep-rooted crisis. They project ideals evoking imagined worlds for a better future (Achterhuis, Boelens, & Zwarteveen, 2010). A major historical case is the sociopolitical, intellectual movement of 'Regenerationism' in late 19th-century Spain. After losing its last colonies in the Philippines, Puerto Rico and Cuba in 1898, Spain ceased to be a global empire. This profound crisis - culturally and symbolically imagined, economically perceived and politically constructed - resulted in the quest for a new national identity and political/economic modernization. The regenerationists' movement promoted the ideological foundations for Spain's new cultural, political and economic direction (Maurice & Serrano, 1977; Mendoza, 1992; Ortí, 1984; Swyngedouw, 2007). Formed by idealistic intellectuals, writers, politicians and also deeply influencing technocratic and culturalist modernizers, this broad progressive, modernist movement used apocalyptic predictions to sustain its desire to radically reshape society for national improvement, importantly based on, among others, the following axes: hydraulic mastery; an increase in agricultural production; attention to local knowledge systems, customary laws and practices; and decentralized management (Boelens & Post Uiterweer, 2013).

Achterhuis (1998) defines utopia as a 'feasible' society that can be changed and neatly perfected by its creators and founders. Therefore, 'utopia' does not relate to individual dreams and lives but to overall constructs of a 'new society'. Both literary works and historical political experience have shown that, worldwide, founding and creating a 'utopia' requires radically breaking with the past and with the existing order to undertake a new present – to build the desired society (Achterhuis, et al., 2010, p. 29). In practice, these breaks are framed in designing drastic reconfiguration, violent interventions, exclusion and repression of dissenting speech and thinking, and destroying the old society's structures and cultural norms (Gray, 2007; Kumar, 1987; Levitas, 1990). Usually, building the desired society, materializing utopian ideals, results in violent dystopias.

This paper addresses the 'hydraulic utopia' pursued by the regenerationist movement and its successors in Spain (Boelens & Post Uiterweer, 2013; Ortí, 1984; Swyngedouw, 2015). More specifically, our contribution is that we address the link between territorial planning and water governmentality endeavours: the socio-technical interactions aiming to control and transform the Guadalhorce Valley's dynamics to put in order 'hydro-social territory' and the inhabitants' ways of life – aiming to change humans and territory at once. By using utopian and governmentality theory, we show how human relations, customs, habits, ways of acting and thinking are manipulated to control water flows and adjust territories (Boelens, 2017; Duarte-Abadía, Boelens, & Du Pré, 2019; Lopez-Gunn, 2009).

Governmentality means understanding the ways in which technologies, truths, discourses and rationalities act and are made to act, consciously or not, as forms of power to conduct people's thoughts and practices. We shall explore three ways in which 'the art of governance',

or 'governmentality' ('government rationality'; Foucault 1978/1991, 2008), is expressed by developing utopian water policies. The first is sovereign, grounded in safeguarding common well-being and public utility by means of installing and claiming respect for laws and formal state policies. It is imposed by the sovereign entity that threatens with and applies the (self-) legitimized use of violence. The second is regulation through discipline, which normalizes thoughts, behaviours and practices through subtler, less visible moral mechanisms, assembled into a heterogeneous array of discourses, institutions, laws, technological designs, administrative measures, scientific truths and moral values (Foucault, 1978/1991). The third refers to neoliberal governmentality, creating structures for market forces to organize societal relationships; it enables market rationality to operate in different walks of society, generating free circulation of human and non-human commodities (Vos & Boelens, 2018). This motivates and manipulates individuals, viewed as individualistic, rational stakeholders, by creating economic incentives (Fletcher, 2010).

These strategies to drive behaviour ('the conduct of conduct'; (Foucault, 1978/1991) materialize utopian thinking and imaginaries socially and physically. Assembling financial resources, institutional practices, hydraulic infrastructure, legal frameworks and human behaviours shapes spatial configurations of territory and control over water (Baviskar, 2007; Meehan, 2013; Swyngedouw, 2015). Thereby, we use the notion of hydro-social territories, referring to the contested imaginary and socio-environmental materialization of spatially bound multi-scalar, socio-natural networks. Thereby, governmentality projects aim to mobilize and align hydraulic infrastructure, water flows, cultural institutions, political practices and economic relations to create 'convenient', dominant order: to control nature and societies, at once, through water (for conceptualization, see, for example, Boelens et al., 2016; Hommes & Boelens, 2017, 2018; Linton & Budds, 2014; Marks, 2019; Seemann, 2016; and Swyngedouw & Boelens, 2018). Hydro-social territories are continually disputed: hegemonic power shapes them, as do contestations by population groups that are excluded, marginalized or affected by the materialization of utopian projects.

History of hydro-territorial transformation of the Guadalhorce basin: modernizing water and people

In this section we outline regenerationists' hydro-political thoughts and plans to revive the country after Spain lost its last colonies and entered a deep crisis. They aimed to abolish oligarchic relationships and the deeply cumbersome living conditions of the peasantry, among others and in particular, through reorganizing water control. This national 'utopian hydraulism' landed in the Guadalhorce Valley through the hydropower dam and governance institutions introduced by politician and engineer Rafael Benjumea, later public works minister. He deeply transformed the Guadalhorce Valley's hydro-social territory and influenced the future of Spain's socio-natural/technopolitical development.

Joaquín Costa's hydraulic utopia: equitably sharing water, redistributing land and social justice

In the late 19th and early 20th centuries, continued land decommunalization and peasant marginalization intensified rural impoverishment constituted the background of the thought and works of the regenerationist movement, led by Joaquín Costa. Regenerationism reflected



his intense desire to restructure Spanish society, especially empowering small farmers by territorial reorganization, hydraulic modernization and water redistribution, to encourage agrarian productivity (Gómez Mendoza, 1992; Ortí, 1984).

Costa's hydraulic utopia viewed Spain as a shattered country of poverty and hunger, producing too little food and being politically stagnated because its power structures oligarchy and elitism – prevented any transformation (Costa, 1911, 1967). Deeply rooted in modernization ideologies, this crisis called for 'regeneration' based on simultaneously 'improving the land and the people of Spain', resulting in a 'new man'. This entailed a profound change in inhabitants' education and mindset.

Costa's educational proposal to install an irrigation doctrine and hydraulic reterritorialization relied on positivistic science. He considered hydrographic and orographic data to control water to be fundamental; along with folk wisdom whenever rationalized, unified and formalized as shared heritage (Maurice & Serrano, 1977). Along with new flows of water, such knowledge had to spread nationwide. The key regenerationist idea was rather than colonizing distant lands, to begin colonizing their own country. In this imaginary of 'inward colonization' to 'revive' the country, building water projects would play a fundamental role: to transform nature, regenerate soil fertility, foster human intellectual production and overcome economic difficulties (Boelens & Post Uiterweer, 2013; Swyngedouw, 1999, 2015).

This in-country colonization viewed the state as a representative of the public interest, an ideal entity for constructing a perfect harmony between the common interest and those of irrigators and the rural population. The state would be above the interests of political parties and social classes. Regenerationism promoted national hydraulic solidarity, aware that large landowners would have to make an effort to work for this 'common well-being' (Fernández Clemente, 2000). To end the feudal system, Costa proposed reforming the oligarchy and elite powers, moving toward the rule of law - not on the basis of a class struggle and Socialist revolution, but through consensus-based reform. The reformist intention was not to take away from the few to give to the many, but simply to give to [the] many, by distributing public lands and extending irrigation to all irrigable drylands. This would, in practice, obviously benefit large landowners (Costa, 1967). Therefore, water should be nationalized and state controlled, defending the common well-being and contributing to the nation's overall development (Ortí, 1984; Swyngedouw, 2015). Building canals, irrigation systems and reservoirs under Costa's hydraulic policy would enliven the country's economy from a social and technical standpoint.

To enact hydraulic policy, ironically, Costa and other regenerationists advocated a government of 'action men' to break the political stagnation caused by regional elite rule and the undemocratic monarchies of Alfonso XII and XIII. This claim for a shift in leadership sought to enhance participatory structures and agrarian collectivization - regenerationist ideology was strongly connected to the Republican democratic objectives, such as 'the free institution of teaching', committed to promote and strengthen the capacities of the peasant communities against the power of rural caciques (chieftainship) and oligarchy. Maurice and Serrano (1977) analyze this regenerationist demand for a strong chief of state to be both authoritarian and populist: authorized by the community at large, familiar with the people's anatomy, embodying common interests, representing the national identity and forging harmonious covenants with the people. This way, Costa introduced the need for a 'surgical policy, which must be wielded personally by an iron-fisted surgeon' (Costa, 1967, p. 86). However, he was also aware of the need to limit not just oligarchic but also state powers, for which he proposed forming political-administrative organizations to govern river basins, involving users in decisionmaking.

Controlling water to regenerate territory and humans: the count of Guadalhorce

The thinking of Costa and regenerationism greatly influenced 20th-century politicians and professionals. This included Rafael Benjumea, who directed the mega-dam construction on the Turón River in Guadalhorce (1914-21), and was Minister of Development (1926) and of Public Works (1937). To understand current water-territorial planning and water governance, this section details historically how the hydraulic utopia began transforming hydro-territorial relationships in the Guadalhorce Valley.

Crossing through Málaga province, the Guadalhorce River ('Wheat River' in Arabic) is 154 km long (Agencia Estatal, 1961). Before emptying into the Mediterranean Sea, on the 'Desfiladero de los Gaitanes', two major tributaries join, the Turón and Guadalteba rivers. From the eighth to the 15th centuries, Arabic culture left its legacy in irrigation canals. Some 4000 hectares were farmed by small landowners, rural communities and large landholders, until the mid-20th century. Boelens and Post Uiterweer (2013) document that farming communities in Guadalhorce managed their socio-hydraulic systems collectively; by rebuilding small rustic dams (azudes) every year, they maintained their small-farm irrigation. Communities were self-governing, with no official registration, and independent of public administration; they divided up roles and tasks to manage their irrigation systems and meet irrigators' needs. Collective water management required cooperative work, which generated values of cohesion and solidarity among Guadalhorce farmers.

However, contemporary engineers felt Guadalhorce was full of water uncertainties, too meagre or too torrential flows, even jeopardizing Málaga (Brotons & García, 1999; Martín-Gaite, 2003). Following the general national plan of irrigation canals and dams of 1902 (Cantero, 1995), a catalogue of 296 waterworks, Rafael Benjumea set about fixing these problems and stimulating internal development of Málaga society by waterworks (Fernández Clemente, 2000). Between 1903 and 1905, starting the Guadalhorce Valley's radical techno-political transformation - and emblematic for the country's new, modernist hydro-policy century - Benjumea built a large hydropower plant at El Chorro, supplying electricity to Málaga.

However, the Guadalhorce River's summer flow could not cover the expanding electrical demand, and in winter this facility did not protect the city from potential flooding, so Benjumea proposed the ambitious project of damming the entire Turón River (Figure 1). Nevertheless, this mega-project would be justified solely by intensifying agricultural production. When, in 1911, the waterworks development law was enacted - helping irrigator communities by paying half the costs of improving infrastructure and expanding irrigation - this made it possible to begin the large project.

For this reason, despite his main interest in meeting the citizenry's energy demand, Benjumea promoted a sensitization campaign to convince rural inhabitants of the project's benefits. However, in the Guadalhorce Valley, most farmers located in the upstream area were too small to co-finance and not interested because they already had their traditional, well-functioning systems. Nevertheless, Benjumea agreed with the large landowners, located downstream, to form an Agrarian Union to tap into the government funding and build the large reservoir (Mártin-Gaite, 2003, pp. 51, 52).

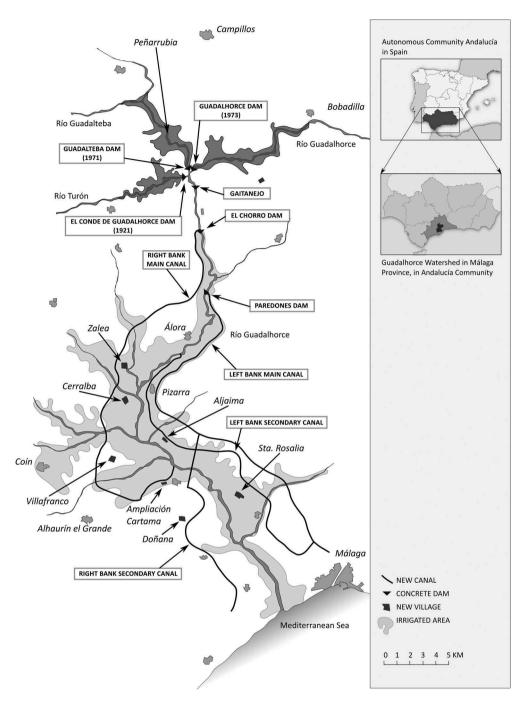


Figure 1. Guadalhorce Valley: reservoirs, irrigation system and rural towns. Source: Adapted from Boelens and Post Uiterweer (2013).

Built from 1914 to 1921, its main purpose was to supply electricity, buffer flooding and irrigate 13,000 hectares in the valley for towns in the Málaga basin. The majestic dam, 72.5 m high and 86 hm³ (86 million cubic metres) in capacity, was celebrated and

inaugurated by Alfonso XIII, who made Benjumea the 'Count of Guadalhorce'. This later became the name of the dam on the Turón River. In the 1960s, this damming project enabled the 'Coordinated Irrigation Plan of Guadalhorce'.

The reservoir stopped the river flow, but was unneeded for most small farmers' purposes because even in the dry summers they could water their crops by catching water by small dams on the Guadalhorce River that they made themselves (Boelens & Post Uiterweer, 2013). Even so, the reservoir was legitimized by playing a 'general interest' social function. Therefore, engineers' works performed a technical, social and patriotic mission (e.g., Brotons & García, 1999) that would forge Spain's way out of its crises, shedding a light in the darkness.

To continue regenerationist hydraulic policy, in 1926 Benjumea was appointed Minister of Development by dictator Primo de Rivera, and created the national water policy administration through the internationally acclaimed hydrographic union confederations (Confederaciones Sindicales Hidrográficas). These agencies understood river basins as the basic unit of water development and management, proclaiming a utopianinspired (participatory, democratic, autonomous, decentralized) approach (Mülberger, Vilaró, Tirado, & Domènech, 2007). These were in charge of connecting and integrating all water infrastructure, and territorial transformation, contemplated in the general plan of 1902. Hydrographic union confederations would materialize the regenerationist utopia through a participatory bottom-up structure aimed at abolishing the power relations between the feudal, rural oligarchy that obstructed the implementation of an agrarian reform and land distribution (Frutos Mejias, 1995; Sanchis-Ibor, 2012).

Hydraulic dystopia

Years later, for many rural inhabitants of the Guadalhorce Valley, however, building this hydraulic utopia became a hydro-social tragedy. Paradoxically, the regenerationist hydraulic policy dream was adopted by Franco's dictatorship and had contradictory effects to those initially proposed by Costa. This section will portray the diverse governmental strategies that have transformed the Guadalhorce hydro-social territory, leading to displacement, dispossession and relocation.

Materializing hydraulic utopia: Generalísimo Franco, hydraulic surgery and dystopian transformation of the valley

When the Phalangist nationalist front, led by Franco, won in 1939, this meant interconnected repression of water flows, freedom of thought and hydro-social identities of the Guadalhorce Valley communities. Seeking to align water and human currents under a single repressive system, the military government made the dreams and thinking of hydraulic regenerationism come true, be it with outcomes different from what they had hoped for.

The national hydraulic integration and unification was mobilized by power alliances among the military, Church, industrial bourgeoisie, large landholders and the government agency (cf. Swyngedouw, 2007). Illustratively, the Corps of Engineers came to occupy most political offices, directing different ministries. Large landholders supported the Franco regime, which promised not to change the property status quo and rather proposed to build new towns to put rural inhabitants into order and under discipline.

The media glorified the dictatorship, stating that the Fascist regime (1939–75) showed concrete results, implementing the long-awaited water policy – the 180 reservoirs in 1939 swelled to 800 by 1975 (Orti, 1984; Swyngedouw, 2007).

Meanwhile, the nation's hydro-territorial geography was redesigned through large-scale violence (Swyngedouw, 2015; Swyngedouw & Boelens, 2018); people with ideologies deviating from that of the regime were oppressed and many even enslaved – well known are those hydraulic works in other parts of Spain that were built by political prisoners, 'Franco's slaves' (Acosta Bono, Gutierrez Molina, Martinez Macias, & Del Rio Sanchez, 2004; Camprubí, 2013; Lafuente, 2002). Violent practices, as a whole, comprised the governmental strategies interconnecting the country's hydrological systems, also transforming the Guadalhorce Valley. For example, as a water inspector stated in an interview:

During the civil war towns such as Peña Rubia, located in the upstream of the Guadalhorce river, were emptied, people fled from the Nationalist and Republican front. Many were killed and shot in Alora, there was a lot of displacement among different towns in Guadalhorce. (7 October 2016)

Feelings of repression, suffering and – till these days – acts of silence and the wish to forget, in order to carry on, is the behavioural pattern observed in the older residents of this valley.

Forceful hydro-territorial transformation and land dispossession became generalized practices under Franco. Different from Lorenzo Pardo's 1933 more participatory National Water Plan, in 1939, the General Public Works Plan stressed state intervention to pursue and integrate waterworks and merge hydraulic policy with agricultural transformation through colonizing dry land, *marisma* wetlands turning them into irrigated cropland (Fernández Clemente, 2000). Later, in 1949 – the bitter legacy of the regenerationist dream of domestic colonization – the laws on colonizing and distributing property in irrigable zones and on forced expropriation were enacted. These entitle the government to expropriate to build waterworks. Expropriating included forming 'colonization towns' (*pueblos de colonización*) and a programme of agricultural indoctrination through The National Colonization Institute (INC).

The 1939 law encouraged new waterworks and territorial plans in the Guadalhorce Valley to further discipline river flows and rural residents and, above all, guarantee the water supply for the growing city of Málaga. As Luis Morales, former director of reservoir building and management, explains:

The dictatorship's technocratic governments began to see that this zone had great tourism potential, but required guaranteed water supply. On this basis, the Coordinated Irrigation Plan of Guadalhorce was created to regulate the Guadalhorce and Guadalteba Rivers. [...] The fundamental criteria were, first, to guarantee water supply for Málaga, with a legally allocated flow rate of 1500 l/s from the Guadalhorce River. But there was no infrastructure to handle it. This was the fundamental reason to build the Guadalhorce–Guadalteba dam. The second aim was to expand irrigation, followed by secondary goals such as electrical energy. At the same time, the colonization towns were built, seven or eight new towns. (9 October 2016)

The 'colonization towns' of Villafranco, Doñana, Cerralba, Zalea and Santa Rosalía (Figure 1) were to house the people displaced to build the new waterworks. Agricultural indoctrination programmes were brought to the Guadalhorce Valley to facilitate 'exchanges of knowledge': ideas that Costa had dreamed of and would lead to one of the nation's greatest agrarian transformations. The same occurred with the

hydrographic union confederations, whereby their participatory spirit was completely removed by the Francoist system to become controlled by top-down civil engineers' technocracy, re-named as hydrographic confederations (Confederaciones Hidrográficas). In this way, large landowners and energy enterprises' interests were protected.

Works on Guadalhorce and Guadalteba reservoirs began in 1966 and ended in 1973, with a total capacity of 328 hm³ to water new croplands. Nevertheless, the main purpose was to cover Málaga's drinking water supply. In the 1960s, most of the ditches were also made, but only 9000 of the planned 20,000 ha were irrigated (and from which 4000 ha were already covered by the traditional Arab systems). The design allocated 92.5 hm³ annually to irrigation (the amount varying, as available) and 9.5 hm³ (fixed and guaranteed) to supply Málaga (Calvo, 1973). However, Roberts (2002, p. 154) states that, after three decades, 50–60 hm³ annually are used for agriculture and 47 hm³ for domestic and commercial uses. When water is scarce, the water supply for Málaga has total priority.

The mega-reservoirs neatly fit with Franco regime's territorial reordering, based on 'development poles': Franco imagined that building reservoirs all over Spain would make it possible to generate enough hydropower to set up urban-industrial centres in 'backward regions'. Andalucía was to be the tourism development pole. The regime favoured urban-industrial development far more than agriculture (Del Moral & Saurí, 1999).

Governmentality and loss of collective control

Franco's policy gave prime urgency to the Guadalhorce and Guadalteba dams: engineers were given fewer than four months to submit construction plans. Luis Morales: 'In Franco's time, there was no opposition, so of course a minister's decision was irreversible' (9 October 2016). This allowed no suitable ecological or geological studies, resulting in works with geophysical faults that supply brackish water to this day, far saltier than allowed for drinking or even irrigation water. Further, the modern system loses too much water from its elevated, prefabricated concrete canals. They were made of inadequate materials; traditional ditches have better consistency. The former reservoir operations director says the scientific and technical errors committed in the Guadalhorce irrigation system resulted from the authoritarian regime commanding designers and builders: 'They were ruinous from early planning through the present day, technically, in totally inadequate infrastructure characteristics, and socially, with plots designed that were too small for a household's livelihood' (20 October 2016).

The less visible, dark side of the hydro-territorial transformation is obvious in what smallfarm irrigators received - and also in what they have lost. The Franco regime's water transformation meant destroying the rustic dams on the Guadalhorce River and small farmers were forced to join the large hydrographic confederation. These confederations ultimately combined the Corps of Engineers and official entities for the sole management of the watershed, replacing and governmentalizing local self-governance systems and their traditional collective authorities (Boelens & Post Uiterweer, 2013).

During the transformation, the private, market-based land tenure structure was strengthened, while dissolving collective arrangements and community areas: by building the waterworks, imposing discourses about general public interest, and by implementing irrigation doctrine, colonization laws and in-country repopulation. Fernández Clemente



(2000) says that the INC commonly bought land from large owners to implement waterworks, paying high prices, and letting them keep most of their properties. The colonization towns also assured them of plenty of cheap labour, disciplined by the Franco regime (see also Closas, 2018). Water interventions on the Guadalhorce River since the early 20th century have brought the watershed and its flow patterns under technical/technocratic domination, restricting freedom of access and river-based social relations. Juan Francisco Martín, a water inspector, explains: "The Guadalhorce River was chopped by the guillotine of the upstream dams and La Encantada" (22 June 2015).

In the upper basin, water is dammed in three large reservoirs, so the Guadalhorce's natural dynamics have vanished, and inhabitants' relational bonds with the river and each other have been trampled. These days, the banishment of these bonds is seen in irrigators' organizational difficulties in cooperating collectively to manage the irrigation system, after having been excluded from designing and planning it. In general, each user acts individually to obtain water, and many have lost their feelings of rootedness and belonging.

Gradually, the public assets of the Guadalhorce Valley have been fenced in: first, riparian and community areas were seized for 'public-interest uses', to build waterworks and expand irrigation; the agricultural failure was then rescued by the growth of capitalist residential tourism, generating further land subdivision, sales to foreigners and individualization of land and water. In the Guadalhorce Valley, English and German gated colonies have formed, interacting minimally with local inhabitants and knowing nothing about the water distribution operating rules. Many of them do not respect irrigation scheduling and, when they see water running through nearby ditches, they take it to fill their swimming pools or water their gardens. Morales: 'The water from the reservoirs, once regulated for irrigating trees, still waters some trees but fundamentally fills swimming pools. In fact, consumption peaks on Sundays, when people change out the water in their pools' (5 October 2016).

Building dams, displacement and rootlessness: efforts to continue living

The hydraulic dream works that were materialized under Benjumea, and then intensified under the Franco regime, adversely undermined the social justice aims of regenerationism's water utopia. In the Guadalhorce Valley, reservoirs have flooded rural communities, displacing families elsewhere. Colonization and forced expropriation laws, plus the agricultural indoctrination, removed people from their territories and destroyed their roots. As water inspector Martín puts it: 'The colonization towns are parallel to dam construction. The idea of the Guadalhorce irrigation system was to "fix" the population [...]' (22 June 2015).

His colleague, Manolo Rengel, confirms this: 'Territorial planning under Franco was to colonize, locating people strategically in the territory [...] whenever someone stood up against Franco ideology in one territory, they were neutralized and taken somewhere else' (22 June 2016). This way, Franco's strategy delocalized, governmentalized and disciplined territory, uprooting and exterminating culture, to mould a new society according to the dictates of the Fascist hydro-territorial regime. Cristina López, who lives in the valley, explains:

They brought many people from Valencia to the colonization settlements, supposedly to teach, but mainly I think to uproot people from their land. And since no protest was allowed, this weakened people ideologically and morally. Because normally, if you are not born in that particular place, if you have no roots there, no ancestors or relatives, you won't defend that place; you don't feel the same interest. (22 June 2016)

Literature, furthermore, agrees that Francoist inner colonization tried to create settlements loyal to the regime. These were strongly ideologized (Closas, 2018). Often, selected (very poor) people among the applicants (mainly peasants without lands or people forced to move because dam projects flooded their homes) became the members of these settlements. A 'good behaviour' certificate signed by a priest or a clearance certificate were regularly required (Lafuente, 2002).

Two life stories illustrate how the new hydraulic infrastructure changed the lives of Guadalhorce Valley rural families in a dramatic way.

The case of El Chorro: examining displacement from the inside

The Guadalhorce River cuts through the Penibetic peninsula, forming a narrow canyon called the Garganta del Chorro or Desfiladero de los Gaitanes. Past the canyon is the Tajo de la Encantada (or El Chorro) reservoir, with its main canal intake to supply water both to Málaga and to water the valley's crops (Figure 1). The reservoir and its pumping system is part of the Sevilla Electric Company power plant. This plant adds no generation capacity, but reflects capitalist competition between electric companies to produce peak-hour energy for the city rather than any actual need (Lara, 2002). The facility replaced the former El Chorro power plant and intake and flooded the local community. Utopian planning favoured urban downstream interest but created dystopia for the rural communities.

Andalusian families had lived there, growing dryland crops and irrigating their huerta multi-cropping gardens, and raising livestock. One was the Pérez and Rengel family. In the 1960s, brothers Antonio and Manuel Rengel married sisters Pepa and Teresa Pérez. The two brothers worked together, Antonio handling field activities and Manuel selling and distributing their produce. Manolo Rengel, the younger son of Teresa and Manuel, was born in Cortijo del Chorro in 1966, and remembers playing with his cousin, Miguel (son of Pepa and Antonio), while the ditch to catch water from the river was maintained. 'My father and uncle, with two or three other men, were cleaning the ditch [...] the azud dam was repaired, and they began from there every year, maintaining the first stretch of the ditch' (Manolo Rengel, 6 October 2016).

Different rumours warned that their land would be swamped one day, but were disregarded as unconceivable. Then, in 1972, employees of the Sevilla Electric Company turned up, offering to buy their homes. Cristina López, Manolo's wife, tells about that injustice: 'they expropriated for the "fair price", which was the price that the Government considered fair [...]' (22 June 2016). Aunt Pepa continues: 'we had no chance to negotiate the price - the Government came along, and said "this is worth this price, and you are leaving", regardless of what we said' (6 October 2016). Otherwise, they would receive no payment, and the machinery would demolish their homesteads anyway. Because of the dictatorship, there was no way to negotiate, much less protest. Aunt Pepa: 'There were never any complaints afterwards, because everything was settled for the Nation's best interests, for the hydropower industry' (6 October 2016).

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Manolo cannot get the memory out of his mind: 'In 1974 the expropriation began. I still remember when they came in with machinery to tear up the groves we had tended so lovingly. [...] The expropriation, dam-building, uprooting people from their land and customs, was all traumatic' (22 June 2016). This episode marked his childhood and his life. Manolo tells how they lost and longed for their land, when he lost his father, who was already ailing, but lost the strength to carry on.

The shared memories heavily impacted every family there, as Pepa states: 'I remember seeing the bulldozers there, waiting to clear out our trees, laden with lemons – it was so sad, and such sorrow. While the machinery razed everything, all the children cried like babies; it was terrible' (6 October 2016). Juanita, their neighbour at the time, says that: '[...] The Agroman construction company destroyed everything to build the project. They made the upstream dam for the power plant, too. They even destroyed all the archaeological Arab churches and homes, and the ancient Bobastro fortress' (5 October 2016).

Manolo's mother was 35 years old when uprooted from her country way of life. She has never gotten used to the new places where she has had to live, between Málaga and Alora. Teresa feels the dam was a way to divide and remove people who wanted to remain in El Chorro, especially when she was widowed with five children after the expropriation.

Coming to the city, where I knew no one, going into a house without any idea where there might be a school, or where anything was, forced me to wander the streets, looking [...] it was so hard to adapt to this new life, where everything was unknown – everything. (6 October 2016)

As Manolo put it, 'we were displaced in time and in space' (6 October 2016). Antonio, Manolo's uncle, after the expropriation, began suffering from nervous disorders because of the disorientation caused by the new place. Pepa and Antonio lived only five years in Málaga and in 1977 returned to the countryside, buying land in the Guadalhorce Valley, near Alora. Now Antonio is 84 years old and continues caring for the land they purchased. Manolo tells that 'like my father, anywhere my uncle was, he was displaced, disconnected' (8 October 2016). Even after so many years, he never recovered what he had worked for in the Chorro Alto fields: 'from a productive farmer, he was reduced to subsistence farming' (22 June 2016).

Teresa, who was paid the 'fair price' compensation, says the amount she was forced to accept could never replace what was taken away, which she has longed for all her life. When the El Chorro reservoir's waters recede, they uncover the past they flooded. Pepa feels grief when she sees this: 'sometimes it is very empty, and we can see the walls of our home [...] we see the bridge crossing the river, the ruins of the factory, the other homes here [...] they show what we had' (14 January 2017). Building the dam, to modernize the region, destroyed their future: 'it was unnecessary for us. We had everything: our groves, the fields where we planted and lived' (14 January 2017).

The Rengel and Pérez family still visits El Chorro. The home of Manolo's maternal grandparents was not flooded, so they gather there for family occasions. The displacement trauma affected their parents, but memories of this dispossession also have been passed down to the following generations. They identify profoundly with a town that no longer exists. Manolo feels that his land was flooded because his family's rights were seized and turned over

to outside interests, to faceless modernization. 'We have never been able to get back to what we had before. We wanted to recover it, to re-establish what we remembered, but it was impossible. That was all dramatically changed forever' (22 June 2016).

Now, Manolo is a water inspector for the Guadalhorce irrigation system. He distributes water among users who irrigate and townspeople in Málaga, from the intake at the Tajo de la Encantada reservoir, at the dam that flooded his family's dreams and part of their story. Day after day, he works to bring justice to small farmers in the valley, despite official priorities of 'water for Málaga'. His work helps provide the means for the livelihoods of farmers and labourers still living in the countryside. He is also a local player in the fight to 'bring the river back to life' by providing the minimum ecological flow that will keep the river and its landscape alive.

The case of Peñarrubia: the voices of those who were silenced

The State should have been more generous with these people whose lives it destroyed without even asking. Perhaps homes, land, and so on were paid for, but the moral damage, being able to say 'I was born in this town and grew up here, and I like it - why should I have to move somewhere else?', I think that value was never compensated for. (Luis Morales, former reservoir manager, 5 October 2016)

Peñarrubia was founded in 1500. In 1970, its population counted 1750 inhabitants; its area was 3845 ha, mostly for rain-fed agriculture, the people's livelihood (Figure 1). Most land was divided into small plots. Peñarrubia farmers had their own gardens for self-supply and rounded out their income by working as farmhands for large landowners.

The Guadalhorce River was fundamental for families' lives. They brought water to irrigate pastures along the river, watered their animals, washed their laundry, fished and everyone bathed in the river. In Peñarrubia they spent most days working in their fields and their leisure time also focused on their town. Juan Mora, displaced from there, tells us:

On Rosary Street, the courtyard with the same name had the grocery market. Every woman in town would shop there. At the market, Antonio sold meat, Paca sold fish, Rosarito around the corner sold vegetables and Rafaelito did, too, and Aníbal Mendosa sold the freshest fruit. [...] I loved our life in Peñarrubia. When we would get back from the fields, we would wash up, change clothes, and go up to the plaza. There was the church, city hall, Pepe's Bar, Juanito Corral's, Mendoza's, the movie theater, Cristóbal Pozo's bakery, the kiosk, and a place at the end of town where we loved to stroll. [...] It was like a fair; every woman in town would go shop there in the morning. A precious setting, which we have lost. (11 October 2016)

This is the town that Juan remembers, which still lives in his heart and mind, but which he had to leave when he was 21. He has Peñarrubia in his soul, and he has dedicated songs to his beloved town:

I was born in Peñarrubia and I'll remember forever / That pretty little town where I grew up, / Where I wish I could live, but that's impossible. / As you know, or even if you don't, Peñarrubia no longer exists. / In the name of progress, they made a swamp there / And flooded my lovely little town underwater. / I will always remember what they did with you, / Tearing you all up and then demolishing everything. / And as if that were not enough, they sunk you underwater. / I think about you, I will never



forget, and I don't want to forget. (a flamenco-style song written and performed by Juan Mora, 11 October 2016)

Juan was one of the last ones, so he witnessed how the Guadalteba dam's water smothered his town's life. No matter how much it hurt to leave their land, no one could protest, negotiate or complain. However, the Peñarrubia stories attest to how one's roots cannot be removed, and they drive resistance at least to never forget. Ever since they flooded his town, Juan keeps going back to Peñarrubia.

I left on 19 April 1972, and on May 8th I purchased a motorcycle to get to work in Málaga. Then, when I would finish my work on Saturday at noon, when I got home, I would shower, eat, get dressed, get on the motorcycle and come to Peñarrubia and sleep in the field. No one lived in the town anymore. [...] I would sleep in the field, alone, lying there Saturday night, Sunday, and then Sunday night I would head back to Santa Rosalía to get back to work on Monday. [...] I wanted to be back in my environment, on my land. (11 October 2016)

Now his town was an empty space. Each weekend, he would watch the water rise until the reservoir was filled, in May 1979, and his town was buried. Some years ago, Juan purchased a small house on the edge of his drowned town to spend all the time there that he can:

I was working in construction, then I got a job with a very good factory, bottling soft drinks, and I was making good money and not working so hard. But I am not thankful for that, because I wish I could spend my life here and I can't. I have to put up with living far from my land. (11 October 2016)

With the money they received for the expropriation, Peñarrubia's people were forced to move to the colonization towns, mostly Santa Rosalía, and to Catalonia. Land in Santa Rosalía was not as productive as in Peñarrubia. Agustín tells us:

When they fill a reservoir, the water covers the best land, the fields, the townsite - it never covers the poorer land. [...] Santa Rosalía here is not like Peñarrubia. There we had plenty of wheat, fava beans, barley, and chick peas. (13 October 2016)

Another old man, Juan Pozo, tells us with tears in his eyes: 'I still have the keys to my home there. [...] Half of my nights, I dream about Peñarrubia' (13 October 2016). Our interviewees tell us that many of the older neighbours did not survive the dramatic change. Juan Mora recalls: 'elderly folks, accustomed to wandering freely in our town, were stuffed into a big city, buried alive in a flat. They didn't last more than five or six months, and then died, of grief (11 October 2016).

Industrial and urban growth in Málaga generated employment opportunities for the displaced rural people. Most worked in construction. In Spain, under the hydraulic policy between 1950 and 1970, there are many towns like Peñarrubia that were forcibly expropriated by the state and then evicted by the Guardia Civil police force.

In 2010, Juan Mora Ríos dedicated his book to his town: Peñarrubia, Two Plazas and Nine Streets, with verse and prose giving a tour of every corner of his town, bringing the characters in their day-to-day business back to life:

Alongside a pretty river, on a small hill, in the plains surrounded by fig trees, fields, grainfields - there was my town: Peñarrubia was the greatest happiness I had in my life, since my childhood, a lovely Málaga town that no longer exists. (11 October 2016)

The town used to have almost 2000 inhabitants, but now the only family with their permanent residence in Peñarrubia is that of Antonio Escalante and Dolores Morgado. Antonio is a retired watchman who came to watch over the desolated town. They built their little home next to the dam, where their eight children were born, and have stayed there all their lives. Now they welcome visits by the people displaced from Peñarrubia with warm hospitality. 'This town was well-beloved. That is why people come every week to remember their past. Every year they celebrate their romería commemorations, gathering hundreds of families who shared their roots here more than 40 years ago' (Antonio Escalante, 3 February 2017).

Rural-to-urban water transfers, water-use priorities

Nowadays the main use for the Guadalhorce system's water is for the city, Málaga: 1500 l/s continually. The last reservoirs (Guadalhorce and Guadalteba) were supposed to provide 400 litres per person per day, for a population of 500,000 in 1973 (Calvo, 1973). However, the January 2016 census shows the province of Málaga with 1.629 million and a permanent population in the city of 558,287 (CAPMA, 2012), which multiplies during the tourist season. For example, in 2011, during the tourism peak months, the province reached 9 million.² From 2000 to 2007, 480,000 urbanization parks were built on the Costa del Sol, and Málaga featured the highest increases in tourist residences along its coastline (CAPMA, 2012). This shows how water from the Guadalhorce Valley is at the service of a floating population and a capitalist tourism model that agglomerates people on the coast.

During droughts, Málaga has priority for city water supply. For example, the mid-1990s' drought completely suspended irrigation and dried up the river completely, eliminating its biodiversity. In the mid-2000s, another extreme drought period, farmers got to irrigate only a few times with a minimal dotation. Meanwhile, the Málaga Municipal Water Company (EMASA) had no restriction on its supply from the reservoirs (van der Kooij, 2011). Spain's normative framework (as in almost all countries) gives priority for domestic water use, so water-supply companies such as EMASA do not have to compete with other usage rights. This norm is on the face of it important and legitimate. However, besides the water categorized and distributed as 'water for domestic use', EMASA also distributes water for 'industrial uses' (including recreational uses); and 'institutional uses' (such as hospital and offices) and green irrigation for public gardens. For example, official data for Málaga show five water parks, a botanical garden, six swimming areas, etc. (CAPMA, 2012). Next, 'domestic water' also fills swimming pools, waters private gardens, beach showers, washing cars and streets, etc. (e.g. Hazeleger & Boelens, 2003). Since 1989, in view of high urban consumption, especially during summer, EMASA has diversified its water supply sources. Nevertheless, this urban demand continues to extract most of its water from the Guadalhorce canal (CAPMA, 2012).

Hydro-territorial transformations in the Guadalhorce Valley described above reveal profound contradictions in water and economic policy. In the 1960s, this zone had plans for agricultural production as well as tourism in Málaga. Then, in the 1990s, the real estate boom built rural homes for tourists in the valley, enabling north-western European elites to settle in the most productive zones, demanding irrigation water for their own recreational purposes (Hazeleger & Boelens, 2003).

Ironically, the 'colonization towns' located in zones without irrigation became the buffer zones for migration by people whose lands were seized for hydraulic projects in the



Guadalhorce Valley. At this time, massive immigration by capitalist residential tourism is happening *inside the irrigation system*, funded by and therefore taking advantage of Spain's public monies. Further, these outsiders usually fence in their private farms, isolate themselves from community life, ignoring all irrigation customs and scheduling, thereby breaking down the last remnants of local water collectivity and culture.

Another very controversial political and social issue are the other totally elite water uses in Guadalhorce: the urbanization model based on golf courses (irrigation water and drinking water uses) (see also Villar Lama, 2013). The water system for Serranía de Ronda, in Guadalhorce, shows 76 golf courses with 56 clubs and, in the study area of influence, eight golf courses with five clubs (CAPMA, 2012, p. 109). Authorities estimate that the entire system consumes 22.3 hm³ annually (14.68 hm³ pumped from underground; 0.28 hm³ from surface water; and 7.34 hm³ from wastewater). Although since the end of 1980, Spanish law requires the watering of golf courses with treated wastewater (Espejo Marín y Cànoves, 2011), this is not enforced. Rural people say that the aquifer is affected and irrigation scheduling restricted during droughts partly to serve this urban elite activity. This situation deepens when territorial and urban legislation encouraged the possibilities to expand golf courses in rural areas of the valley as projects of 'tourist interest'.³

Here we see a change from governed-based disciplinary territorial transformation towards market-led neoliberal governmentality. Territorial planning runs wild – or, rather, is 'governmentalized' – according to market forces and incentives, powerful economic interests and urban real estate speculation. This knits together a network of interests: real estate developers, foreign investors, speculators and government agencies.

This means that water demand for Málaga's city water supply has drastically altered territoriality in the Guadalhorce Valley. First, historically, by eliminating community systems and local water self-governance during Franco's times, putting them all into an integrated, uniform, top-down system that actually shifted more water to where power was concentrated, the city of Málaga, at the expense of irrigation. Further, history shows that much bureaucratized irrigation water flowed not to poor small farmers but to large landowners; and now is reoriented toward elite residential tourism. Second, by building water mega-works designed to suit the city's interests, rural communities and families were uprooted and displaced from their territories. As an alternative livelihood, they were governmentalized into 'colonization towns. Third, irrigation water is continually reduced, to be transferred to the unbridled growth of urban and tourist industry. Del Moral (2009) explains that the prevailing urban development dynamics based on building scattered homes, under used with the predominant seasonal sun-and-beach model, means heavy consumption of water and territory. Meanwhile, groundwater extraction is increasing without any local and social regulation, meaning that rural tensions, also among irrigators, are on the rise.

Reflections and conclusions

By studying the history of (technocratic, regenerationist-progressive) hydro-territorial imaginaries and transformations in the Guadalhorce Valley, this paper has shown how materializing regenerationist hydraulic utopia during the past century has turned into a dystopia for many of the valley's rural families. Seeking a radical and simultaneous transformation of society and nature (people and land); expanding waterworks; nationalizing and spatially reorganizing water supply under expert rule; and bringing more

land under irrigation, the regenerationist hydraulic utopia aimed to bring shared benefits for all social classes. However, the imagined development through modernity's splendid benevolence and enlightened engineers led by an iron-fisted surgeon concealed the unimagined human and ecological disasters.

As a legacy of Joaquín Costa, and under the political leadership of regenerationists as Rafael Benjumea, the Corps of Engineers arose as the beacon for development in Spain and in the Guadalhorce Valley. Expert, positivistic knowledge, implemented through objectifying science, would have the power to 'colonize the country inwardly', lumping together local hydro-social territories to consolidate national water identity, controlling water distribution through river basin confederations. This meant that each dam was a governmental mechanism to discipline and standardize society-nature relations in each river basin.

Notwithstanding the regenerationists' hydro-social transformation dreams, as we have shown, the hydraulic utopia materialized and expanded only under Francoist violent governmental strategies. Forced mobilization of Guadalhorce's rural communities to 'colonization towns' heavily influenced and 'corrected' the valley's rural people's livelihoods and practices. The fear imposed during the Franco regime was the mechanism to induce obedience among the people, normalizing the damming and displacement of their waters and ideologies. Even during the transition to democracy, the cornerstones of hydraulic policy remained unquestioned. The monolithic foundations of productivity, neutrality and expert knowledge kept rural peoples' dystopia invisible.

This forced rural dwellers in the Guadalhorce Valley to see and feel the other side of the hydraulic utopia: of demolishing Arab waterworks, losing self-governance of their water systems, water grabbing first by large landholders and now by tourism when summers are dry. Hydraulic utopia 'in the national interest' meant accepting as normal that rural families had to sacrifice everything they had in exchange for the 'well-being for the majorities'. This emptied rural territories and played into the hands of energy and water demand for tourism and other urban power concentrated in Málaga.

Guadalhorce is now organized chaotically, subject to the whims of market laws and the dynamics of urban development speculation - neoliberal governmentality. Urban and tourist industry growth in Málaga is individualizing land and water management in the irrigation system, and reinforcing water transfers from Guadalhorce communities to the city. This configures a new hydro-territorial order in the valley in which water flows to suit urban and elite needs.

Even so, with their past underwater and their Guadalhorce transformed, the voices of resistance persist, through displaced neighbours' feelings of rootedness, keeping their memories alive, bridging the present with the past and future, encouraging and resignifying their hydro-social territory. Unfolding memory has meant liberation from the dystopias contained in this hydraulic utopia that swallowed their towns and walled in their river. Now their memories urge them back to the countryside, building alliances of solidarity and reviving their intimate linkages with the river and its lands. This way, they aim to revive and truly regenerate the river and peoples of Guadalhorce.

Notes

1. See http://www.laopiniondemalaga.es/malaga/2016/01/21/malaga-gana-poblacion-ano-pese/ 823083.html.

- http://www.elmundo.es/elmundo/2012/03/08/andalucia malaga/1331216401.html; http://www.juntadeandalucia.es/institutodeestadisticaycartografia/atlashistoriaecon/atlas cap 56. html.
- 3. https://www.juntadeandalucia.es/ciudadania/procedimientos?p_p_id = catalogoProcedimientos_ WAR catalogoProcedimientosportlet&p p lifecycle = 0&p p col id = column-2&p p col count = 1& catalogoProcedimientos WAR catalogoProcedimientosportlet idProcedimiento = 1506&_catalogoProcedimientos_WAR_catalogoProcedimientosportlet_cmd = detalle.

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ORCID

Bibiana Duarte-Abadía http://orcid.org/0000-0003-4203-050X Rutgerd Boelens http://orcid.org/0000-0002-8412-3109

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