

I. Equations

On the bank of the Tamega river, alongside the Cavez bridge, there is an old chapel of St. Bartholomew, where an annual pilgrimage takes place on the 23rd and 24th of August. The pilgrims believe that the water from the sulphureous springs there, collected on the 24th, before the sun sets, is an antidote to actual or possible diseases. This is why many bottles full of this water are taken, and children are dipped in it, and in this case the shirts of the sick should be thrown into the water.

—José Leite de Vasconcelos, 1938¹

Alvaro Domingues

Troubled Waters: An inquiry into water's modes of existence

Before science and technology could colonize modern thought with their rationalities and abstractions, there were no clear boundaries between the different ways that things existed and what could explain them. Water quenched thirst, but it also healed wounds, exorcized evil spirits, moved mills, and made bread. In founding mythologies of the world, water can be the beginning or the destruction of everything; fertility and creation; everything that existed before the ashes.

Holding unfathomable mysteries and infinite spaces, the sea is a shapeless mass that is permanently agitated in the fury of waves, in shipwrecks, in the uneasy calm, the still air, the constant sparkle of the sun scorching in the slightest disturbance of the water's surface. There was no sea in the delights of the garden of Eden. The sea is the memory of the flood, of the tremendous punishment of the gods that destroyed everything under the abyss of the waters that fell from the heavens. The unbridled vigor of the stormy sea is nothing but the breath of this pent-up fury, the great chaos, the cosmic tumult that inhabits the depths and blackness of this liquid mass, the monsters that devour ships.

On the contrary, fresh water, the moving waters of rivers and streams, the crystal-clear waters of lakes, the freshness of springs, are sources of life, abundance, and pleasure for the senses. Henry David Thoreau, for instance, described Walden, the lake around which his utopian manifesto of life away from the voracity of civilization is organized, as "blue at one time and green at another, even from the same point of view. Lying between the earth and the heavens, it partakes of the color of both. It is Earth's eye, looking into which the beholder measures the depth of his own nature... Nothing so fair, so pure, and at the same time so large, as a lake. Sky water."²

Such is the vastness of water's image and imaginary. There are so many uses for and ways of using water. At the same time, there is a simultaneous ease and difficulty of discerning the exact nature of issues and controversies



Sharing of water. Ruin of a water mill in the Tâmega river: buttress reinforcement of the exterior wall, 2022. © Alvaro Domingues.

that mobilize it from a political, social, and technological point of view, whatever the scale that is under consideration. This is perhaps due to the fact that the ways water is socially inscribed are in permanent flux, from the social collectives involved and their interests to the relevant geographical scope for resolving this or that situation, the nature of conflicts and the respective forms of regulation, the socio-technical systems that organize exploitation, distribution, and consumption, and the seasonal periods of scarcity or abundance. The variation of frameworks and the diversity of conflicts surrounding water prove its potential as a descriptor of social relations.

Three distinct ways of seeing water often run through and become entangled its varied situations. Viewed as a chemical substance—two atoms of hydrogen and one of oxygen—water can be addressed by drawing from scientific knowledge such as hydrology and hydrography, hydraulic engineering, climatology, physical geography, and the broader group of environmental sciences. Water can also be seen as a resource, and usually a “natural” one that is embedded in more or less complex social, political, and economic processes. Water is inscribed in political contexts and socio-technical systems—from hydraulic

technologies and infrastructure to socio-economic, geopolitical, or hydro-political structures—that presuppose an unequal distribution of power, conflicting uses, and modes of regulation. With its increasing utilization in industrial processes and consumption in domestic situations, water is also treated as a commodity, which increases pollution risks and creates situations of scarcity and unequal access.

During Portugal’s dictatorial political regime (1926–1974) and fragile modernization process that lasted until the end of the 1950s, a diverse biophysical and cultural regionalism prevailed throughout the Portuguese territory. In the dry southern Mediterranean regions, there were *latifundia*, wheat production, and extensive grazing; in the north, on the Atlantic coast, predominantly subsistence family-scale peasant economy prevailed; and in diverse mountain environments were poor soils, an economy of scarcity, and unequal distribution of land. The centrality of the agricultural economy meant that water played out in micro-geographies and modes of use and management that were highly dependent on traditional technologies and organization, such as collective management of *levadas* (irrigation channels).



Vertigo. Pressure pipeline for passage of water between reservoirs, 2022. © Alvaro Domingues.

Following World War II, however, a profound process of de-ruralization took place. While depopulating rural areas, the economic unit of the family, cultural references of peasantry, and the very landscapes whose physiognomy was dependent on the persistence of certain techniques of maintenance and cultivation all disappeared.

Electrification gained momentum in the 1960s, which led to the State-led development of hydroelectric production. After the Revolution in April 1974, and particularly after joining the European Economic Community in 1986, Portugal's geography became polarized: the territory remaining after de-ruralization was mostly characterized by depopulation and abandonment, and investments in large-scale water-related projects with an extractive profile, such as hydroelectric production, agribusiness, or tourism. This situation gave rise to new localisms, new contexts largely created by global dynamics.

Given these intersections of water's different modes of existence and the paradigm of "liquid modernity" it gives rise to, we may ask a series of questions.³ First, what is local? Following the deep erosion of previously existing modes of social coherence, of an economic base that is not dependent on income, salaries, or locally generated

production, of neighborhoods that do not necessarily imply sharing common references and worldviews, and where the mobilization of local natural resources is organized by private companies and global market logics, how can we identify and legitimize micro-geographic areas of action? Second, what is territory? Taking into account the diversity and unequal distribution of powers and interests, the coexistence of very different values and imaginaries, the complexity (and confusion) of territorial regulation mechanisms, the rapid evolution of sociotechnical systems and the way they reconfigure forms of social and territorial organization, the disengagement of local resident populations from issues related to land ownership or use, and the simultaneous presence of archaic ties of a collective nature, abstract public rights, diffuse private rights, and those belonging to deterritorialized global logics, how can we understand the social construction of geography? Third, how can we define collectives, communities, and the commons? Faced with the phenomena of individuation, fluidity, multiple belongings, and the fragmentation of society, how can we redesign common things, consensuses, priorities and hierarchies, the invisible connections between universal, national, and local rights?



Water channel for mini-hydraulics in Poi river, Ribeira de Pena, Summer 2022. © Alvaro Domingues.

II. Snapshots

Between a large granite rock and the ruin of a mill built of the same stone, the river Tâmega flows. Its water has been dammed a little upstream, but returns to the course of the river further down with the energy of the current not being used. Part of this water, diverted from its natural course, used to be a *levada*, which by virtue of gravity would irrigate terraced fields built between the riverbank and itself. As a source of energy and an indispensable resource, water has built society and territory. Sharing water defined codes of living together, rights of possession, use, and distribution; possibilities of having watering troughs for cattle, washing tanks for clothes, fountains for human supply, water for pigs, for corn, for vegetable gardens, and for the baptismal font.

In the long and rather stable time of *longue durée*, everything seemed quite clear and simple: the mutual relations between territory and society were confined to well-defined geographical areas, and from material culture to ways of life, economic organization, ways of doing and thinking, and traditions.⁴ Between the existence of water as a gift from nature or the gods and water that was mixed

with manure to make corn grow, there was no clear break: the natural and the supernatural coexisted in everyday life, with the violence of a thunderstorm's rain conjured up with prayers to the deities in the sky.

The persistence of norms on the collective use of water, from common lands, cattle herding, paths, ovens, and washhouses to ritual practices of belief, festivals, funerary ceremonies, marriages, and their moral and ethical codes all constituted powerful mechanisms of social regulation and stability. The transfer of knowledge related to techniques and methods of cultivation, the organization of labor, building, food preparation, objects, tools, and other artifacts contributed to the coherence of the whole, in the preservation of a collective memory, a way of being in the world, an identity. Of course, none of this implies or guarantees any scenario of egalitarianism or social justice. The sense of community is valid both for codes of solidarity and sharing, and for the legitimization of different places and social roles.

The reproduction of localisms—micro-societies and their respective territories of belonging—and the central role of neighborhood relationships depended on the durability



St. Aleixo irrigation canal, Ribeira de Pena, Summer 2022. © Alvaro Domingues.

and stability of these characteristics. As Arjun Appadurai states: "the long-term reproduction of a neighborhood that is simultaneously practical, valued, and taken-for-granted depends on the seamless interaction of localized spaces and times with local subjects possessed of the knowledge to reproduce locality."⁵ However, this geographic inscription, which is usually connoted with rootedness and is most often implicit in the qualities of the local, proves to be quite fragile. But processes of modernization radically destabilize local contexts. They cause mass population movements, call into question pre-existing sustainable economic logics, and disseminate normative values, lifestyles, and consumptive practices. As a result, the attribution of meaning to the local and the sense of self changes radically, as does the definition of collective interests and common things, along with their respective rhetoric and legitimization processes.

What is called the modernization process—the predominance of techno-scientific rationality, the role of the State, formal law and other social normative and framing mechanisms, commodification and capitalism, the growing complexity of social and technical systems—precipitates change, causes mass population

movements, calls into question economic logics based on self-consumption and self-production, and disseminates and generalizes or massifies consumptions, values, lifestyles. In short, it radically destabilizes local contexts. As a result, the attribution of meaning or the sense of self as local changes. So does the definition of collective interest and common things, as well as their respective rhetoric and legitimization processes.

In other words, with the loss of the cultural basis of traditional irrigation and collective water, the sense of local inscription has also been lost. One can be a resident in a certain place but be completely different from one's neighbor, even a stranger, acknowledging other belongings and other codes. Water is deeply embedded in varied contexts and in constant renegotiation over its ownership, management, and use, not only as a purely economic resource but also as a symbol of sovereignty, power, identity or citizenship.⁶ And community—the collective that decides upon and regulates what is common—cannot be reduced to a social group confined to a clearly delimited place. In contexts like Middle Tâmega, which was marked by de-ruralization and its abrupt metamorphoses and processes of mass

emigration, the issue is even clearer. Appadurai claims: "As groups migrate, regroup in new locations, reconstruct their histories, and reconfigure their ethnic projects, the *ethno* in ethnography takes on a slippery, nonlocalized quality... The landscapes of group identity—the ethnoscap—around the world are no longer familiar anthropological objects, insofar as groups are no longer tightly territorialized, spatially bounded, historically unselfconscious, or culturally homogeneous."⁷

In Portugal, the Water Law of 1919 emerged as part of the implementation of the First Portuguese Republic (1910–1926), of a new model of the State and the definition and regulation of public things. This included regulating ways of appropriating water for modern industrial purposes, urban supply, hydroelectric power production, and the construction of irrigation systems with modern techniques and materials to organize the collection and distribution of water.



Dividing walls in the marshes and pastures of the Daivões reservoir, Ribeira de Pena, Winter 2023. © Alvaro Domingues.

III. Vertigo

As the waters of streams, lakes and lagoons, as well as fluvial and underground waters, one of the most important factors of national wealth, whose development the Government must aid and foster ... it is of the utmost urgency to promote the agricultural and electric energy use of the waters of the hydrographic basins of our rivers, to reduce as much as possible the import of subsistence and fuel, whilst intensifying and valuing Portuguese labor.
—Portuguese Water Law, 1919⁸

Meanwhile, the old local systems, characteristic of pre-modern rurality, were already in transformation. After the turbulence of World War II, and in view of emigration opportunities to Europe, the USA or Canada, and Portuguese urbanization itself from the end of the 1950s, a profound process of de-ruralization took place. Beyond simple depopulation, de-ruralization touched on three key pillars of rurality: the predominant economic mode of family production; the progressive disappearance of cultural references to peasantry (tradition, family, community, religion, self-enclosure, conservatism); and the very landscapes whose physiognomy was dependent

on the persistence of certain techniques, products, and agricultural cultivation and livestock farming systems that were inscribed in the geographic variety of the Portuguese territory.

Although the National Electrification Act dates back to 1944, large-scale hydroelectric projects came in the 1950s and 1960s, when with the help of the Marshall Plan the State took the lead in power production and distribution, thus breaking the liberalism of private initiatives of previous decades. Today, however, the opposite is true, with disorganized global capitalism taking over the competencies and tutelage of Portugal's crisis-ridden, neo-liberal, drifting welfare state. Water, a resource long considered a public good, is being captured by a process that operates in the instability and continuous metamorphosis of capitalism, according to geopolitics and conflicts, fragility, and corruption, variability of tax systems (and paradises), very low wages, environmental and social dumping, as well as, on the contrary, prosperity and consumer power, highly skilled labor, poles of excellence in innovation, and ease of financing. Liquid capitalism has reached a remarkable degree of fluidity, circulating on the planetary roulette wheel, adapting itself, continuously innovating, neutralizing its contradictions, confounding its historical opponents, occupying the spaces of non-market social relations. The power of technological apparatuses and the socio-technical systems of which they are part multiplies, expands, colonizes, normalizes, and adjusts any mercantile system of production, distribution, and consumption. Let there be profit and a financial engine, and if there is no future, let there be future markets.

It would be very strange if, faced with organizations, technologies, and prostheses of such novelty and power that allow for uses and functionalities so different from those that existed before, society organized itself in the same way, reproduced the same way of spatially accommodating and territorializing itself. There are, therefore, no ready-made solutions waiting to be handed out indiscriminately. Instead, equations must be found, and knowledge must be built that can rebuild citizenry and citizenship in times of globalization and change. Social architectures and political geographies must be found that can make this possible.

Contrary to the slowness of the pre-modern past, localisms today only survive at the rapid speed required by their favorable exposure to everything that moves and circulates, wherever it comes from. This is also why the geographic outline of places change, widening or compressing themselves to the spatiality that is most adjusted to identify places, neighbors, invented communities, and their objects, imaginaries, practices, and mythologies. In light of the power of global energy markets and Iberdrola's new "Gigabattery" project—a major hydropower complex consisting of three dams over the Tâmega River—one example of this is the Alto Tâmega and Barroso Hydroelectric Enterprise (EHATB, EIM, SA).

Originally founded in 1989 by six municipalities, EHATB distributes and publicly invest profits from the production and sale of energy.

If *levadas* and *baldios* (wastelands) were pre-modern forms of self-organization and collective redistribution, EHATB is a hybrid form, sitting between the logic of global capital with public interest. The same catchment that delivers water to the turbines at the Bragadas power station (EHATB) also delivers water to a collective irrigation system. And at another power station, Alvadia, the water leaving the turbine is transformed into public irrigation before returning to the river. There is no connection between the origin of the water used by Gigabateria and the water from the levadas; the Gouvães reservoir (Iberdrola) is part of the water reserve for public supply (capture, treatment, and high-level public supply system). There are two ways of thinking about democracy: building consensus or managing conflict. The first is impossible, the other is an open challenge.



A wash-house, now supplied with piped water and practically unused, but a point of sociability chosen to place the public telephone, meanwhile also dysfunctional because the technologies and telecommunication devices have changed. Ribeira de Pena, 2023. © Alvaro Domingues.

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Álvaro Domingues is a geographer and Professor at the Faculty of Architecture of the University of Porto, FAUP, where he also is a researcher at the Centre for Architecture and Urban Studies CEAU-FAUP.

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