

Fluid logic

The effluence and the affluence behind urban water efficiency paradigms

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Human connectivity with water is complex, irrational, historically specific, ideologically shaped; intimate. "We are all bodies of water" (Neimanis, 2012: 2). Water use is a series of personal and political, material, corporeal, cultural, social and spiritual interconnections which shape ourselves as humans and our relations with other humans and the more-than-human. Water is power; our dependence upon it is irrefutable. As a result, the potable water resources which continue to underpin political economies relationally bind together public and private domains, our bodies and others' in complex hydrosocial entanglements increasingly bound up with the financialisation of capital (Linton and Budds, 2014). Understanding how these tropes of hydrosocial relationships continually remake themselves reveals the power dynamics which shape the control of capital across the globe (Swyngedouw, 2015).

This paper examines one element of this relationship through exploring the monetisation of the concept of waste prevention within current neoliberal practices of water provision. This is particularly pertinent for late-modern developed economies with established water resource management mechanisms. 'Water efficiency' embodies a holistic, ideational and ideological set of approaches, propositions and technologies which combine to evangelise 'doing more with each drop' of water. This includes improved irrigation networks in agriculture; digital sensors to monitor water movement within piped networks; reusing water in-situ through innovative recirculation of fit-for-purpose water qualities and, most importantly, pedagogic information campaigns with end-users to encourage pragmatic levels of consumption.

Within modern political economies water sector water efficiency initiatives are heralded as an essential component of demand-led water security. Guarding the inflows and outflows of water circulation are viewed as an essential component of national security. Further, climate change science is used to legitimise the surveillance, command and control and moralising narratives which combine to place water efficiency discourses within a post-political paradigm (Swyngedouw, 2007), creating what Molle (2008; 132) has termed totalizing 'nirvana concepts'. What this paper seeks to explore is the ways in which capitalism utilises the water efficiency paradigm to secure further profiteering. It is suggested here that water efficiency's focus on the responsibility of the end-user, the householder, the farmer, the industrialist, to use much less water distracts public discussions away from who actually controls the flows of water in modern economies. Certainly in England, where water supply is fully privatised, water provision is a vast profit making economic activity for an elite number of global shareholders. If the resource is under threat these shareholders will still want guaranteed returns on their investments. Water efficiency, as Molle's 'nirvana concept' suggests, enables the unit cost of water to rise over time, justified through both the cost of developing new auxiliary infrastructure and

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as a 'nudge' to change consumption practices. Compulsory water metering, a key technology of the water efficiency paradigm, is shaping new personal subjectivities (Loftus *et al.*, 2016): every drop counts – or rather, is counted.

Water efficiency is embedded within the English water management regime. Since 1993 each water company has had a duty under section 93A of the 1991 Water Industry Act to promote water efficiency to its customers. No clear definition of what water efficiency means has ever been stipulated, leaving the term open to interpretation. In essence the term seems self-explanatory: maximising the use of water and reducing wastage. A lack of a formal working definition, which both government agencies and private water companies must adhere to, must be viewed as a deliberate lacuna. Responsibility can be seamlessly shifted from asset manager to consumer. As stated by the Chartered Institute of Water and Environmental Management: 'Water efficiency effectively provides additional headroom in the supply demand balance through reducing demand' (CIWEM, January 2017). In other words, the consumers are the ones tasked with controlling their behaviours, their consumptive practices, to protect water resources to ensure that the 'additional headroom' is assured.

Education campaigns supporting water efficiency have emphasised not only the importance of changing water consumption behaviours at home but also the consequences of how personal use impacts on the wider water environment, effectively transforming water users into water stakeholders. Using water considerably is, of course, logical, sustainable and necessary. For householders and business users, a central water efficiency incentive is that using less water will save money, both through less volumetric use of the resource, potable water, but also because water use is tied to energy use. The Energy Savings Trust (2014) state that 55% of water used in the home is heated water. Hence, less water means less gas or electricity use. An outcome of a reduction in volumetric water use is that how we clean ourselves and our homes, and how often, opens up to public scrutiny. There is a watery 'blurring' between the public and the private realms (Appadurai and Breckenridge, 2009) suggestive of a crisis in our most basic application of citizenship (Marshall, 1964). Our most intimate habits and domestic rituals are deemed needing review and remedial action. We, the domestic public, are communicated with as unwitting delinquents needing guidance and support in reducing our voracious demand, fuelled by an ignorance concerning where our water comes from, and a lack of disregard as to where our wastewater flows. By focusing on our own personal responsibilities we are drawn away from considering how overconsumption in all aspects of urban metabolism is increasing pressure on water resources close to population hubs (Neville, 2018; Gandy, 2004).

This 'responsibilisation' of the end user reinforces the hierarchy between asset owner and asset user. Information flows downwards only. The water company communicates their role as protector of our water resources through paternalistic interventions. Water bill informatics compare domestic user use with those of 'average' households. Corporate stalls at community events distribute toilet cistern 'hogs' and sand-timers to encourage reduced water use by lessened volume or shortened duration. Tie-in TV programmes highlight the impact of household toilet habits on sewerage blockages; drain flushers in high-vis jackets become national heroes. This move towards 'responsibilisation' of asset protection away from those who profit from water use to those who rely upon them can be viewed as part of a wider neoliberal shift. We must pay attention to the ways in which water efficiency is not a neutral term; but is highly politicised. As Trottier (2008: 201) states:

Understanding why certain epistemic communities promote a specific version of the "water crisis" requires us to understand the power relations they are immersed in, the ones they actually believe in . . . such interaction between agency and structure brings about both the evolution of a society and the reproduction of its structure.

The hydrosocial construction of late-modern modes of water management calls our attention to

questions concerning water efficiency as a 'discursive construction'. We can argue that it synthesises extant technocratic hydrosocial practices and governance to now include embodied responsabilisation. A cursory review of public reports, working papers, and website data from the regulatory and subsidiary agencies involved in English water management reinforces these new water ethics. Climate change looms large in the presentation of facts, figures, statistics and other research data relating to potable water use and efforts to support efficient reuse and management of our effluent. As a paradigm water efficiency is compelling; drawing upon both emotive and empirical terminology, connecting humans and water environments in a mutually responsive dialectic.

Yet these targeted water efficiency initiatives seem ineffectual when we consider that the official leakage rates of the water companies remain at 25.6% for Thames, 16% for

Southern and 26.7% for Severn Trent (OFWAT, 2010). For Thames, in a water stressed area, that is the equivalent of 665 million litres of lost drinking water every day. These losses are creatively termed as 'returns to the system' by the water companies. For Thames alone this is the equivalent of 44 million toilets being unnecessarily flushed every day. More pertinent perhaps is the question of direct benefits to the consumer. If customers are being asked to change their behaviour around potable water in a fully marketised water supply sector then that drop in use should be reflected in a distinct savings in their water bills. Instead bills continue to rise; as do the profits of the water companies. Any small savings in volumetric charges are usurped by concomitant rises in service charges. As Allen and Pryke state (2013: 426): 'the operational side of the water business, indeed the actual cost of water itself and the amount used do not themselves seem to figure as part of the financial equation'. The actual volumes of water used by consumers seem almost an irrelevance. Revenue from domestic water customers is a locked-in, guaranteed income for the water companies; English household consumers cannot buy their water services from anyone else. These assured revenues are used by the water companies to finance high-risk, high-return investments in other financial sectors. Helm and Tindall go on to argue that the volumes of water involved do not figure in the landscape of the five year planning cycle for water pricing. Allen and Pryke note: 'Ofwat determines household water bills on the basis of how much the water companies invest, whether that is raised through equity or debt' (2013:426). Ofwat state in their 2010 Price Review: 'Promoting water efficiency will not affect company revenues. The revenue correction mechanism, which we will introduce from 2010-2011 will make sure that companies are not penalised if consumers use less water than we assume when we set price limits at PR09.'

Charging customers more to use less water can only succeed because the water efficiency paradigm has been deliberately manoeuvred into a 'postpolitical' framing (Swyngedouw 2007, drawing on Žižek and Rancière). To question the veracity of water efficiency is to present yourself as a climate change denier; a flat-Earther. We can go further. The shame we associate with our effluence – the desire to rid our homes of water once it is contaminated with urine, faeces, spent shampoo, shaved hair – equals the shame we are made to feel through profligate water use. To be asked, if not required, to use less water is challenging in both pragmatic and affective ways. How we dispose of our effluence reflects wider cultural mores around health, elimination and natural physical processes (Žižek, 2010). As Leone (2012:254) suggests the 'cultural semiotics of bodily waste practices' are learned, not natural processes. Cultural, psycho-social and material phenomena shape how we learn to value, or disvalue, water in all its various articulations. Our revulsion with the waste we produce through

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our bodily functions is reinforced through the architecture of wastewater infrastructure. The white porcelain of the toilet bowl enables a brief, usually solitary, inspection of our excreta before being channelled out through black soil pipes and invisible labyrinthine underground sewers. Toilets, waste pipes and drains, all act as both threshold space and conduit, connecting human bodies and material culture in a Bachelardian (1994) relationship of intimacy, both with ourselves and others.

The combination of domestic effluent in shared drainage systems, the mixing of our bodily wastes with others, human strangers, other animals and ephemera is relocated away from the private spaces we use for sanitation, to deep underground, away from our sense-making. Rarely do we contemplate what happens once we pull our flush and our waste departs. Like the intricacies of our own bowels, our sewerage networks remain a mystery to us, even as our daily comfort and flourishing depends upon their operation. As Robert Macfarlane (2019) reflects, the *Underland* is where we bury our waste and our treasure – and this porous, alchemical flux state between hiding and retrieving is true too for our wastewater. From it we can glean our next iteration of drinking water, phosphates and nitrates for fertiliser, other nutrients for aquaculture.

Effluence and money have then a complex and closely linked history before, and outside of, water company profiteering using water efficiency discourses. Before the advent of connected hydraulic systems in cities the 'night soil' collectors linked urban centres with the farms and market gardens which fed them (Geismar, 1993). Human waste was used for agriculture, in a recognised closed-loop symbiotic relationship; and still operates in similar ways within countries with no sewerage infrastructure (Jewitt, 2011). Private entrepreneurship enabled a human-waste management system before state intervention. The rise of hygiene, purity and disease as public health concerns, and as socially constructed concepts which used scientific language to legitimise the entanglement of private and public domains (Douglas, 1966), can be traced across Europe from the 16th century on (Laporte, 2002). By casting effluence as dirty and sullied, rather than as the result of natural processes, it becomes the material for state led practices of surveillance and admonishment. Water use, both within and outside of the body, coalesced with other techniques of control to determine how, when and where we socialise, dwell and work.

Water infrastructure is then intrinsically connected to capitalism. In the emergent cities of the Industrial Revolution water borne diseases were perceived as a significant threat to labour efficiency and capitalist enterprise. State led civil engineering enterprises in the 19th and 20th century to develop water resources across the global North are now viewed as less concerned with philanthropy and more with empire building. As such, nascent economic expansionism could be deemed the driving force connecting effluence with affluence in the global North. From the 19th century onwards outflows of bodily waste justified large capital works in urban centres, as the metabolism of the city densified and speeded up. The night soil collectors were no longer needed as hydraulic engineering works, funded through taxation and capitalist philanthropy, embedded water provision and sewerage as a perk of urban living, enabling the optimisation of labour efficiency. Night soil was relegated to the era of the pre-modern; a practice of the uncivilised. Water efficiency has always been as much concerned with the wastewater we eliminate as with the water we consume. As a paradigm then water efficiency in developed economies now represents yet another hydrosocial epoch; one in which we are reliant on accessing resources through privatised or semi-privatised organisations, with the bogey of water scarcity as the justification for paying more for less water.

Across the globe water resources management and governance approaches increasingly need to become sensitive to social justice concerns. Access to water resources, particularly for domestic water supply and sanitation, is not universal. Even in 2019 millions of global citizens struggle to access enough clean water to ensure their health and wellbeing. Current water efficiency initiatives seek to humiliate us into complicity, using climate change, water stress and water security as the driving

narratives to justify increasingly penetrative forms of intervention. These include real time water metering information, encouraging neighbourhood surveillance during hose pipe bans (Hackman 2015, Milbrandt, 2017) and public shaming by government officials. The UK head of the Environment Agency, Sir James Bevan, declared in May 2019 that ‘we need water wastage to be as socially unacceptable as blowing smoke in the face of a baby or throwing your plastic bags into the sea’ (Carrington, 2019). Our choices about sustainable water use are complicated by the distance that has deliberately been created between ourselves and our water resources. Both the inflow and outflow of our water use is mediated through money; we pay to have water delivered and we pay again to have it taken away again. **The reality** that our effluence underpins the affluence of a select number of anonymised global shareholders of the UK water companies is blurred, obscured, baffled through networks of complexity as dexterous as the pipes which service our cities’ water metabolism.

To end, a restatement. Water is elemental, to be revered and respected. Our lives depend upon it, as do our more-than-human brethren of animals and other biological life. That money and profiteering should pollute our relationship with our water resources needs to be challenged. Water efficiency needs to be recognised as a ‘discursive construction’ which enables forms of neoliberalised global finance to continue exploitative relationships with our natural resources.

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