

Assembling water efficiency: the role of water resource management in bringing about sustainable domestic consumption in England and Wales

In little over a decade the water industry in England and Wales has undergone rapid transformation. From its historical context of state-led development of clean, safe and secure supplies for an industrialising economy and its citizens it has emerged as a market driven industry prioritising efficiency to ensure that the provision of water resources remains economically, socially and environmentally viable now and into the future. There have been numerous developments within this transformation; a shift from hard, structural engineering logics, to soft managerial processes; a declining impetus on supply development in favour of demand management; several stages of re-regulation, shifting the political landscape and high level strategic aims of this recently privatised industry; increasing emphasis placed on collaboration both between water companies and beyond; and a growing role for the public in natural resource management. To add to this several significant droughts and some of the worst winters on record have created turbulent times for water resource management in England and Wales, and recent research suggests this turbulence is likely to increase if not become the normal operational state for the industry going forwards. The question that remains is whether current trajectories in water resource management are appropriate to ensure the ongoing balance of supply and demand, for society and the environment.

Through analysis of policy and planning materials and interviews with water resource managers, strategists and policy makers this research explores the water efficiency agenda as part of broader water resource management in England and Wales. Using an assemblage approach the heterogeneity of the management agenda is investigated and four multiple, sometimes contradictory, themes that shape management objectives and practices are identified. The aims of this research are three fold; firstly the water efficiency agenda that arises from this assemblage is explored with consideration to the social, technological and natural relations through which it is produced and of which it is productive. Secondly the consequence of this agenda for the long term sustainability of water resources is evaluated. Thirdly, with a view to understand how the water resource management agenda evolves, the experiences of water resource managers working in an increasingly participatory, collaborative and turbulent socio-natural environment are explored to gain an understanding of how challenge, dialogue and contestation shape the water resource management agenda.

This research offers insights for both academia and policy making. Firstly the application of the assemblage orientation presented here demonstrates a novel approach to understanding water resource management in a complex socio-natural system. The emphasis placed on multiplicity reveals the water efficiency agenda to be neither homogeneous, nor something that is simply practiced in different times and places by different actors. Instead the assembled agenda is the result of interaction between various different epistemic accounts of demand management. As a result of these interactions the assembled demand management agenda is dynamic and open-ended. Through dialogue and challenge the visions and practices of demand management are shown to be continually evolving. This draws attention to how various entities interact, verbally but also physically, materially, ideologically and otherwise, and how these interactions are productive of uneven relations in the water resource management agenda. These processes become vital to the delivery of long term sustainability as they are actively involved in producing the social, technical and natural relations not only of their own future, but of water resources and demand, contributing to the formation of specific socially shared images and meanings, infrastructures and technologies, and the broader hydro-social contract.

Changing patterns of consumption, growing population and climate change make finding robust sustainable management strategies increasingly urgent for the water industry and the implications of this research for policy makers and resource managers is to develop sensitivity for the role of management agendas in

shaping future water resource challenges. At present the limited scope of assessment and evaluation which prioritises quantification of impacts in primarily economic terms poorly reflects the uncertainty around management activities. This research, while not prescriptive, presents a critique of current policy and management trajectories based on current academic discussion around sustainability and resilience in the water industry.