

6 INDUSTRY COMMENT

WATER AS A SERVICE

Water services should be supplied locally by a wide range of providers in ways customers want. Integrated water resource management is essential, but what are the challenges for reformers to deliver it?

The water industry has a tendency to look within its own experience and culture for answers. But the world is changing, and one way is the influence that society is bringing to bear in defining the services it wants and the way they are provided.

This movement potentially turns our water industry on its head, away from a top-down planning regime and more to a locally driven system where water infrastructure and services are better engineered to reflect local needs. This change is being reinforced by the development of catchment partnerships, by partnership funding for flood schemes and by the local volunteer work of the Wildlife Trusts, Rivers Trusts and other voluntary organisations in caring for local waterways. Catchment Based Approach (CaBA) Partnerships are now actively working in 100+ catchments across England and Wales, and many water companies are already involved in local partnership schemes.

We look here at where this localism could take the industry.

Localisation

It is not too big a leap of imagination to think of local communities being served by a wider range of water service providers than is currently on offer. The range of such services is surprisingly broad: drinking water supply; raw water supply; sewage and waste water treatment; flood defence and miti-

gation; biodiversity conservation and enhancement; hydropower; carbon storage; fire control; recreation; tourism; and wellbeing.

How would such a services-focused world look? Reflecting trends in other industries, providers would need to offer their services using customer-facing systems which are easy to use and responsive to needs – “water as a service”. The water companies will still be there, but less in a customer-facing capacity and more on the heavy infrastructure and treatment side – perhaps like National Grid. Distribution will be done by a plethora of private or not-for-profit organisations using infrastructure offered by multiple providers. With the emergence of better small scale treatment systems and the rapid improvement of low cost sensors, this is becoming a more realistic possibility.

Supply would be facilitated by a new breed of broker (again private or not-for profit) who will sit between buyers and sellers, using systems that allow the integration and optimised use of distributed water networks and the trading of water as a service.

The wholesale side could also develop into an increasingly integrated water services network. Surplus water is captured in thousands of new retention ponds and wetlands, to then supply water during dry months. This would also provide beneficial support to local eco-systems in times of drought.

As these local networks expand, they link with neighbours and grow into catchment-wide networks and then, perhaps, into a national network. The scalability of this approach is attractive, from both an investment viewpoint and also for stakeholders where a trial-and-see basis allows future stages to respond to the impacts of earlier ones.

Integrated management

If localisation is a driver of the demand for water as a service, the integrated and optimised management of water resources is a fundamental necessity for its delivery.

Businesses are thinking holistically about their water risks. According to the Carbon Disclosure Project (CDP), 39% of companies reported significant and imminent impacts, including operational disruptions from drought and flooding, poor water quality causing higher pre-treatment costs, increases in water prices, and fines and legal costs linked to pollution incidents.

Whilst the demand for integrated services is there, infrastructure and service capabilities are not. We have partially integrated natural and man-made water networks with split responsibility across various agencies. The development of this infrastructure lacks strategic planning and resourcing at a catchment level and its overall effectiveness is limited by each stakeholder’s objectives.

The water industry has been historically focused on asset ownership and outputs rather than outcomes, though at the 2014 price review Ofwat began to regulate in a more outcomes-focussed way, emphasising total expenditure rather than capital expenditure and requiring companies to demonstrate accountability to their customers.

Furthermore, the ability of the industry to deliver integrated water services from existing infrastructure and within available funding constraints would be challenging; this would be asking too much in

view of the many physical, environmental and regulatory constraints. Diffuse water pollution is forever an issue, with water companies often abstracting supplies from waters polluted by agricultural run-off. Drought is also a growing challenge and not just in the South-East and East of England. Annual flood damage costs are enormous and could rise to £27bn by 2080. Yet central government spending on flood defences is reducing in real terms and is reliant on partnership funding to raise investment from local communities.

The environment, whilst it has seen improvements under the Water Framework Directive, will continue to experience stressed water courses and endangered biodiversity. The “greening” arrangements under the CAP do little to incentivise farmers to address environmental issues.

Integrated Water Resource Management (IWRM) is a globally recognised concept, and though both UK and international case studies have been cited, this does not yet appear to be a key plank in government or regulatory policy in the UK.

Water as a service

If we can say that localism can help drive the case for IWRM, and

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that a systems approach to delivery of integrated water services supports the concept of water as a service, how might this work in practice?

Take a large town which suffers from a range of water issues. Rather than focus on more traditional large civil engineering solutions, there is growing evidence that a network of smaller solutions can be more effective in providing flexible and resilient responses to changing weather and varying demand.

But that only takes us so far and does not ensure that every cubic metre of water is reused multiple times. This requires water service providers to be allowed access (through regulatory reform) to these enhanced water networks, and to be incentivised (through market reform) to exploit their potential. It also requires the systems to be in place to allow the water networks to operate efficiently and for buyers and sellers to trade.

In this way, customers can be offered a choice of service to meet their specific needs. A farmer may only want raw water supplied for a few months each year. A flood authority may want to purchase capacity within upstream retention ponds for limited periods but with more flexible options at other times. An industrial park may want to have water treatment services and reuse of treated water (thus lessening their supply bill) which don’t require heavy investment in plant.

There is also significant untapped potential for creating virtuous circles by networking raw water abstraction, clean water supply, grey water recycling and rainwater harvesting so that water recirculates and users can access the water of the quality required, where it is needed, and at a cost effective price.

In these scenarios, local water services could be traded both traditionally (by water companies), and within new markets where intermediaries would sit between suppliers and

users. Accredited “responsible” suppliers could also help to develop and manage enhanced water networks, possibly on behalf of landowners, and working closely with bodies such as the Environment Agency and Natural England to protect the environment, meet standards and mitigate risks. Significant projects could be overseen by a strategic catchment authority, one which provided a framework for the market to deliver innovative sub-catchment infrastructure solutions (using money from the capital markets).

Barriers

There are always barriers to change: culture constraints, risk perception, fear, lack of resources, lack of political leadership and other issues which might get in the way. But it is also important to highlight the barriers which might hold back the innovation which is necessary for change.

Whilst investment in water-tech products is increasing, what is less clear is how the industry is going to support innovation in the types of water services and systems described above. The complexities of our fragmented industry effectively promote innovation in product development to serve the existing regimes, but do little to promote radical thinking in the delivery of truly integrated water services and the systems to support them. There is also little crossover between capital projects for say upper catchment water supply and flood retention schemes, so that they can become more cost effective, more numerous and more able to create the opportunities to support investment into innovation in services and systems.

Part of the reason for this lack of investment comes down to the under-valuing of water. Consequently, there remains a discernible gap between what we pay for water and its true value.

However, getting users to place more value on water will never

happen until either shortages are reflected in price (which is largely controlled), or systems are in place which can deliver services in such a way as to demonstrably add value to people’s lives and businesses – water as a service.

If “water as a service” can add more value to customers, then a higher financial return can be delivered from water infrastructure and more investment can be attracted to support innovation into water services and systems. If innovation can be funded then change can happen. This will require investors to take a longer term view on their investments, for regulators to collaborate more proactively with innovators, and for industry and public sector bodies to be more willing to commission pilot studies.

Challenge

The challenge for reformers is therefore threefold. Firstly, to facilitate the development of markets for freshwater services so that water, through the way services are provided, is valued. Secondly, to develop the supply side to offer an integrated water services network that is able to reuse every cubic metre of rainfall multiple times before it is lost. Finally, to structure policy making and regulatory control to support IWRM at both a catchment and a local level.

Whether or not water as a service becomes a reality depends on “if” and “how” IWRM evolves. Professor Dieter Helm suggests establishing a new strategic authority (or “catchment system operator”) for catchment services. However, if such an authority were to turn to the traditional contracting market to deliver services on a prescriptive basis, this would be unlikely to unlock a catchment’s full potential. If, on the other hand, the authority were to competitively open up the market to solutions providers, there would be wider opportunities for developing and operating an integrated and



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optimised water services infrastructure, which could in turn deliver water as a service.

Should such a strategic authority not evolve and instead the current structure more or less remain in place, some opportunities for new services might be created around the gaps between current service providers, and at the fringes of deregulated markets. However, investors will not see this as such a rewarding market and water as a service would be more difficult to deliver on such a widespread basis.

If the door for change opens and current policy makers, regulators and statutory suppliers take a bold step all the way through, there is every opportunity to realise the advantages of a localised and democratised IWRM approach.

We therefore come back to the three fundamental parameters within which change in the water industry needs to respond if IWRM is to become widely adopted: democratisation, integration and optimisation. Democratisation is needed because users’ voices will become stronger; but this is only achievable if the sector becomes more outcome-focused, giving value to all aspects of water and not only the drinking water from a tap. Integration is needed because users have multiple needs at different times; only by bringing services together, through the development of water as a service, can these demands be met. And finally, optimisation of supply and demand better allows our limited resources to be made available. **TWR**