It's an exciting time for innovation in the waste and resources, water and energy sectors, and there is plenty of debate about its role in our transition to a circular economy. With the support of CIWM, ESA, the Energy and Utilities Association, the Future Water Association and the Resource Association, WRc is leading a cross-sector initiative to join up the discussions with partners and clients across the utilities and infrastructure sectors.

"Shaping the Future" Workshops

IN THE Spring, with the partners above, we hosted our first interactive workshop to explore the UK's transition to a circular economy for utilities and infrastructure. This built on the case study that WRc contributed to the All Parliamentary Sustainable Resource Group’s essay collection on supply chain efficiencies (2016). The premise was that while the headlines about the circular economy are on production, consumption and end-of-life management of consumer goods, the principles are just as relevant to consumer services. There is great potential for growth through innovation in the supply chain of the big utility sectors (water, energy, waste). The partnerships could include sharing of landbank, equipment and technical skills, the latter being key to implementing best practice across the sectors.

In the workshop we explored what future cities might look like, how that would influence the way services are delivered in the future and how that would impact (potentially radically) existing business models. There is great potential for growth through innovation in the supply chain of the big utility sectors (water, energy, waste). The partnerships could include sharing of landbank, equipment and technical skills, the latter being key to implementing best practice across the sectors.

Attendees shared examples of steps taken towards the transition that demonstrated a strategic approach. These have been collated in a report, the first in a series, called “Innovations in Infrastructure” and are available to download. The case studies demonstrate some of the innovative cross-sector collaborations that are taking place within the utilities and infrastructure sector and include contributions from Albion Water, Amey Staffordshire, Northern Powergrid, Pennon Group (South West Water and Viridor), SGN and Wessex Water. The case studies illustrate the importance of partnership work (the cost-savings and efficiencies that are gained are greater as a result) and that for these opportunities to be realised, there has to be a strategic plan. When there is a clear route map to a circular economy and the planning can take place before the infrastructure is built, the planning enables efficiencies in processes and in co-location.

A Day Of Innovation

THE "INNOVATIONS in Infrastructure" report was launched at WRc’s 5th Innovation Day, an annual event that brings together best practice and showcases the latest technologies. Previous Innovation Days have included keynote speakers such as Steve Lee (CEO, CIWM) on innovation in waste and resources; and the National Grid on its circular economy initiatives in asset recovery, and have showcased up to 80 technology providers demonstrating innovation. These have included online performance monitoring of an anaerobic digester, solar powered portable landfill gas monitoring, pyrolysis bench-scale demonstration of plastic waste pyrolysis to product process, infrared and optical sorting technologies for solid wastes and kit for separating solids from wastewater, to list but a few.

Technology providers demonstrated their wares at the exhibition and the winners of the WRc Innovation Award 2016 were Weeding Technologies, for its non-toxic Foamstream technology for controlling weed, moss and algae around treatment facilities or other infrastructure.

This year the headline themes were "sharing knowledge for a changing world" and "the circular economy as a driving force for change", again supported by a range of partners including CIWM and the ESA.

Ian McAulay, CEO of Viridor, highlighted the economic and environmental benefits of a circular economy approach...
and called for regional resource networks to facilitate combined action. Ian also cited examples of developing wastewater and energy from waste collaboration between Pennon Group companies Viridor and South West Water, including direct transmission of electricity energy from the Exeter Energy Recovery Facility to Countess Wear wastewater treatment plant, also described in the Innovations in Infrastructure report.

Jon Briggs, manager of innovation, Yorkshire Water, maintained the cross-sector theme. He presented "An Integrated Approach to Innovation", a sustainable water, waste and recovery model that will co-locate a new commercial hub with Yorkshire Water’s second largest wastewater treatment plant, Esholt. The circulation of energy, water and waste from production, consumption and recovery will deliver transformational change.

A second circular economy workshop examined the complexities of true circularity during a hands-on activity to "build" a town. This exercise picked up the earlier theme of the need for cross-sector collaboration and demonstrated that it’s much easier to apply circular principles in new developments with early engagement of all stakeholders, than retrofitting existing towns. Having a clean slate avoids vision being constrained by legacy. Another interesting outcome was the potential opportunity for greater employment and enhanced quality of life, both of which result from strategic and collaborative planning.

At WRc we have a long history of working collaboratively across the water, energy and waste and resources sectors. We believe the circular economy is part of the fourth industrial revolution that will ultimately transform the way we as consumers interact with our services, with the waste and resources industry being at the sharp end – the vanguard – of this change. Collaborative working and strategic planning are both key to achieving the greatest efficiencies and therefore are a critical part of the circularity journey.

We are currently compiling more case studies, demonstrating the innovation in the transition to the circular economy for our second “Innovations in Infrastructure” report, to try to help spread the word about the great things the utilities sector is already doing. These may be examples of good practice that follow circular principles, but may have been badged differently. Do let us know if you have examples of innovative practice that you would like to share. WRc has also identified a need for better support for SMEs with solutions to these future problems and has created a new dynamic support service to help bring new ideas, products and services to market.

Where Next?

INNOVATORS IN new SMEs and existing companies are developing solutions to resource problems that meet the circular economy challenges. Support for these, to help them reach the market and understand their strengths and weaknesses is really important. Scotland has taken a clear lead on this with Zero Waste Scotland creating a support programme but we, as technology evaluators and specialists, and the waste and resources companies that need the innovators’ solutions, do need to work together to help pull these new ideas through.

The circular economy will become truly embedded as a concept when places also take a lead, as well as companies. It is reassuring that, in this current time of uncertainty, business rather than central government has been leading the way. With places such as Peterborough and London having ambition to lead on the circular economy, there is the potential for a strategic, collaborative approach to take hold. Maybe it is time for local government and business, rather than central government, to lead the way.

References

2. Innovation in Infrastructure (WRc, 2016) www.wrcplc.co.uk/Data/Sites/1/media/pdfs/articles/CaseStudiesDigitalowres.pdf

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