Q:1 What are the main barriers to innovation in the sector and why?

Quite apart from the fact that the public health responsibilities of water companies encourage a "tried and tested is best" culture there is a range of other issues which arise as a result of internally logical responses to regulatory pressure, often in opposition to the intent of the regulatory pressure:

- The regulatory mechanism that re-sets the opex or Totex budget every 5 years means that any significant capital investment for adoption of a new technology, say, which might allow a long-term return, has a high barrier to acceptance within companies. If a small investment in a revised operational process has a payback of less than 3 years it will be rationally prioritised over a £30m investment that may have a 10 year payback period, which with the re-set would not be realised against that investment. At an Executive Board level such an investment may make sense as part of a portfolio of long-term approaches which help the company to sustain lower costs and allow incentive rewards at company level, but at an operational level there is no incentive for a divisional head to "take the hit" for the company UNLESS there is an internal incentive system which favours the division taking the risk. Seeking to isolate risk and secure benefits by using associated companies is restricted due to RAG5 issues, thus closing off a route used by other private sector companies.
- The current regulatory system effectively penalises a company for taking a risk that does not work out and re-sets the opex or totex budget at the next AMP if the risk does pay off. This tends to encourage adoption of "sure bet" incrementalism and price pressure on the supply chain. Price pressure on the supply chain does encourage some innovation for example on design methods, equipment standardisation and the like, but beyond a certain point this is a diminishing return and designers retreat to a "design to a price/process" mentality which does not encourage innovation. Whilst this is not necessarily a problem for simple repetitive tasks – indeed it is a rational outcome – the price pressure has tended to "cut the tulips and leave the daisies" so that the better and more innovative thinkers necessary for one-off tasks or development of new approaches to planning or investment management for example, tend to leave the sector for other client groups where their value is rewarded.
- Common procurement practice in the sector has sought to achieve price competition for all services as if they are truly products, and prioritises incumbency over innovation due to an inability to price or value such innovation. Again, there is certainly a range of services where such "productization" is reasonable and dealing with an incumbent is a safe bet, but as a pervasive approach it has a tendency to reduce any drive for transformational innovation.
- There is a great opportunity available from intelligent assessment and use of insight from cheap and extensive data acquisition and analytics. To realise the value from such insights there is a significant investment needed given the current immaturity of data acquisition, management and analysis; this might be an area where joint working could provide cross-company benefits more rapidly than would be achieved from companies working alone. Benefits would accrue from pressures to

standardise acquisition protocols, for machine learning from wider data sets, common insights and the like.

On the face of it none of these is impossible to solve, but each requires a focussed approach to understand the constraints and to provide a way to release drive for innovation.

Q2 Do you think that the financial support cited in section three is required to stimulate innovation in the sector? If so, what do you believe is the appropriate amount of funding and why?

Innovation in business is really about the adoption of good ideas, new technologies etc into business as usual; in the absence of such adoption there is no real innovation.

Given the range of current constraints to innovation it seems appropriate to seek a way to stimulate sector wide adoption of good practice, new technologies and processes.

As this would be a new initiative there is no way of coming up with a right answer to how much should be made available, but £200m sounds like a suitable amount as there may be relatively slow uptake to start with and this amount seems large enough to not present a constraint to well directed and meaningful progress. The cost impact to customers is negligible and should not be contentious especially since the poorest and most vulnerable will be protected from the cost impact but will benefit from any longer term cost reduction from innovations.

Q:3 Do you agree that our proposed draft principles for additional financial support will effectively safeguard the interests of customers?

Yes, the principles are sensible, to seek to balance the risks and opportunities which the customer will feel. Companies do need to have some “skin in the game” in terms of a contribution to the research budget and it makes sense to seek to claw back funds which are inappropriately targeted, poorly spent or which are not well managed. Given that the cost impact to customers is c£1.50, the claw back is of limited benefit financially to customers but is a correct signal to the companies that this is not just free money.

Q:4 What are your views on the collectively funded innovation competition model which we describe in section three? What other key considerations not highlighted should we take into account in designing/ implementing the competition?

The idea of a collectively funded innovation competition seems appropriate.

Companies will want to compete for the funds as there is a genuine desire amongst companies to be actively innovative and to be seen to be innovative: the C-Mex measure will undoubtedly be affected by the way that customers see their suppliers trying to “move the needle”.

Since competition winners will have to share the benefits of the work this should encourage companies to seek to link early with others who have something to offer a team and who

might thus improve the chances of a successfully developed and implemented idea. It becomes sensible to work with an erstwhile competitor who has part of the knowledge and experience that you need to boost whatever area you are interested in. There is mutual benefit and some intellectual tension/competition. There is also the likely by-product for individual companies of learning about the practice of innovation and engendering new and adjacent ideas as the approved project progresses.

The main area to be wary of is the level of control exerted by the "single independent expert entity"; whilst it is a good idea to have expertise available to challenge innovation plans from the companies, there is a risk that the expert entity can act as a brake or force a bias. Working on the EUREAU committee over a number of years it was clear that adjudication and decisions over research and development ideas was frequently biased by pre-conceptions of experts and in some cases led to a classic paralysis by analysis as the proposals were modified to suit the prejudices of the committee. So, the terms of reference of the expert entity should be advisory, challenging and should concentrate on eliciting risks to progress and how the team are to manage them, as well as reviewing progress reports to help plan for problems in development.

As an Incubation Manager for start-ups benefitting from BEIS's Carbon Limiting Technologies Fund it is clear to me that supporting focus on the end goal and driving progress are important aspects of achieving success.

Q:5 What are your views on the end-of-period innovation roll-out reward we describe in section three? What other key considerations not highlighted (e.g. whether it should be collectively funded or individually funded) should we take into account in designing/ implementing the reward?

An end-of-period innovation roll-out reward could work to suitably incentivise companies to develop and roll-out new ideas as single entities. It is understood that companies should not be funded for the collectively funded scheme for the same innovation. It would be interesting to see whether the idea of working alone and benefitting alone will work better than a collective approach; my personal preference would be to focus on the collective approach.

Such an approach would offer: the opportunity to accelerate innovation where two or more companies are each bringing part developed elements of a wider innovation; a wider pool of talent and mindset from two or more companies, thus potentially avoiding the risk of "groupthink" which seems to pervade individual companies; a wider range of opportunities to which the innovation approach might provide solutions, making the roll-out more viable; the opportunity to obtain wider sector benefits for all customers as the outcome of a successful innovation will include making the benefits available to all parties.

Q:6 What other potential alternative mechanisms for funding/ rewarding innovation not discussed do you think we should be considering? Which financial support mechanism or combination of mechanisms should we introduce and why? What would be an appropriate split of available funding/ reward?

In summary I would prefer the collectively funded approach only, with a process for ensuring that the participating parties have some “skin in the game” and will invest themselves in the idea(s). I would also want to see a higher level of support funding when more parties are engaged; the collective nature of innovation seems to offer greater opportunity and benefit realisation. I would suggest that the reward should be a valuable percentage of the whole (>20%) and should be payable on wider dissemination of the innovation.

Q:7 Do you think the potential industry activities discussed in section four could help drive innovation? Are there other activities not identified which you think the industry should be considering?

A joint innovation strategy may have merit, for example by focussing the UKWIR big ideas into real programmes of research for non-incremental outcomes.

An innovation centre of excellence seems a step too far at the moment; let’s see how well the companies respond to this stimulus. If it is a good idea to have a centre, for example to add further efficiency to the process, then the companies can promote it themselves.

AI and insights are clearly essential areas to develop and it is likely that, subject to data confidentiality issues, having open data would accelerate utility of systems.

Q:8 Do you think the proposals in section five will help drive innovation? Are there other activities not identified which you think Ofwat should be considering?

No response.