Beesley lecture 15 October 2015

The evolution of the regulatory model in water

Cathryn Ross, Chief Executive

Introduction

Thank you for that introduction and for this opportunity to set out some thoughts on the evolution of the regulatory model in water.[1]

I know that an economist is someone who, when they see something working in practice says ‘that’s all very well but would it work in theory?’ But I am going to try to talk from a practical perspective, or certainly from a practitioner’s perspective. What I will say builds on my experience in a number of different sectors but especially at Ofwat.

We have been living through the evolution of our regulatory model at Ofwat over the last few years. It has characterised our recent approaches to price reviews, to our strategy and to our ways of working. And it will define how we operate in years to come. So I hope it is helpful to set it out. I also suspect it may have relevance for the regulation of other sectors, and I would be interested in your thoughts on that in the discussion.

I wasn’t privileged to know Michael Beesley. But I have very much felt his influence, as I suspect have most in this room. He is someone to whose words I return to when I need a reminder of why we regulate and what regulation is for. And of course - as someone who has just been through her fifth price control - I have very much felt his influence as one of the parents of RPI-X regulation, alongside Stephen Littlechild, who I am privileged to have as my discussant.

I am going to talk for around 45 minutes. I am going to begin with some ground clearing – setting out briefly what I mean when I talk about ‘economic regulation’. I will then talk a little about the economic regulatory regime in water and how Ofwat’s regulatory model has evolved over the last few years. I will then set out the changes facing the sector and the challenges they present and finally where, in the light of those challenges the regulatory model in water is going.

[1] I am grateful for comments on this lecture to: Piotr Jasiński, Jonson Cox, Sonia Brown, Giles Stevens, Andrew Walker, Nick Gammage and Claire Forbes. I am also grateful for the assistance of Jamie Tunnicliffe, Rachel Wright, Dannii Leivers, and Kate Edwards. Errors, omissions and infelicities remain my own

Part 1: What is economic regulation?

If we are going to talk about the evolution of the economic regulatory model, we need to spend a bit of time setting out what economic regulation is: its core features, its defining characteristics, those things that must remain true while other features change and adapt.

I should caveat what I say here by noting that I am specifically talking about economic regulation UK style, and in particular economic regulation that was borne out of the privatisation of many of the UK's critical infrastructure service industries.

I would suggest there are three essential characteristics of economic regulation (UK style):

First, economic regulation seeks **to influence behaviour through the use of incentives**.

And incentives come from **the allocation of risk**. Sometimes that risk is created by the regulator, seeking to mimic the effects of competitive markets, for example by putting money at risk depending on the level of service the regulated firm provides. Sometimes that risk is inherent in the business, such as cost risk, and the regulator chooses how that risk should be allocated between the firm and its investors and customers.

Incentives are often financial. They may also be reputational - for example through the use of league tables or prizes. And they may also be procedural – for example ensuring that 'good' companies are subject to less onerous processes than less good companies. These are no less a part of the economic regulatory tool kit than financial incentives. And regulators can influence behaviour very effectively by understanding and harnessing them.

Second, economic regulation uses incentives to **align the interests** of capital, and company management (which one should not assume are themselves aligned) with those of customers. Done well, economic regulation means that capital and company management get things that matter to them by doing what their customers want.

In doing this – and I did say I was talking about UK style economic regulation – it helps to address the inevitable **information asymmetry** between regulator and 'regulatee' because it provides the regulated firm with an incentive to reveal information (for example about efficiency) that is then useful to the regulator. It recognises the existence of a **dynamic process**. Economic regulation is not a one shot game, but a repeated one, in which frontiers shift, information is revealed, actors learn.

Third, economic regulators exist in relation to markets. Of course regulation is always and everywhere a poor second best to a well-functioning market. But regulators are not separate from the markets they regulate[2]. Economic regulators are **in markets, of markets, and for markets**. Or to put it another way, as a regulator you are a referee, but you have also written a good part of the rules and are a player on the pitch. This reflects the fact that regulators are trying to influence the behaviour of actors in markets using a variety of different tools – licensing, enforcement, determinations, dispute resolution, price controls, transparency and 'shining a light'.

So… I'm proceeding here on the basis that economic regulation is defined, in essence by its use of incentives (which come from the allocation of risk) to align the interests of capital and company management with those of customers, and through its inextricable relationship with markets.

Beyond this essence, provided it remains true to these core characteristics, economic regulation can and does take many forms. Those forms can, do, and *should* change over time, depending on what the regulator is trying to achieve.

Ground cleared. Let's move on.

[2] This point is particularly well-made in Yarrow, G. (2015) The Political Economy of Markets, RPI, Essays in Regulation New Series, available at:
http://www.rpieurope.org/Publications/Essays_New_Series/Yarrow_Political_Economy_of_Markets_April_2015.pdf

Part 2. The economic regulatory model in water: where have we come from?

Before I talk about how Ofwat's regulatory model is changing, we need to spend a little time understanding where it has come from.

Following an initial Department of the Environment white paper in 1986[3], and a report by Professor Stephen Littlechild[4], I am told published on the same day, on how economic regulation could be applied in the sector,the 10 water authorities of England and Wales were privatised in 1989 – these are the 10 water and sewerage companies we know today. Alongside this the 29 'statutory water companies'[5] had the restrictions that had previously existed on their borrowing and payment of dividends removed – these became what we now know as 'water only companies' – 8 of which remain today (the CMA has not yet produced its final report on the acquisition of Bournemouth by Pennon!).

I understand that the government's initial thinking on privatisation was in favour of a franchise model. But it didn't take this road. Perhaps having regard to Professor Littlechild's view that the privatised companies – in response to the spur of regulation - could choose for themselves what to contract out, and that capital markets would provide a more efficient and effective vehicle for changes of ownership and good company management[6].

Like other sectors, at the time of privatisation the government put in place an independent economic regulator, Ofwat.

[3] Cmnd. 9834.
[4] Littlechild, S (1986), *Economic Regulation of Privatised Water Authorities*, Department of the Environment.
[5] The Water Act 1973 established 10 'water authorities', which took over functions previously performed by a wide range of bodies in relation to: water conservation and development; water supply; sewage collection, treatment and disposal; prevention of pollution and environmental improvement; general provisions for recreation (eg at reservoirs, or on rivers); care of inland fisheries funded by central government; land drainage and flood protection. It also ringfenced the revenue of water authorities from the general local authority budget and placed control of investment under central government, allowing borrowing to fund it. Alongside these water authorities were many already privately owned 'statutory water companies' (in 1973 applying c. 20% of drinking water supply in England and Wales). These companies were financed by private capital, but (until the Water Industry Act 1989) subject to government controls on what they could charge, borrow and pay out in dividends. See Ofwat and Defra (2006): *The Development of the Water Industry in England and Wales*, available at: www.ofwat.gov.uk
[6] See for example Littlechild, S (1988) Economic Regulation of Privatised Water Authorities and Some Further Reflections, OxREP vol. 4 no. 2

What was the problem that economic regulation was designed to solve in the sector?

We could spend hours on this. And I am conscious that many in this room will know far more about the whys and wherefores than I do. But it is worth drawing attention to two aspects of the policy background to water privatisation that I think were key in determining the regulatory direction of travel.

The first was the overriding need for privately financed investment in the sector. Pre-privatisation, the 10 water and sewerage authorities created by the 1974 Act were faced with rising demands for capital investment both through a need to improve service and to meet the demands of Euroepanlaw on environmental improvement. The investment needed was not going to come from the public sector; access to private capital markets was imperative[7].

Second, in water competition in the market was not expected to play a significant role.

In part this seems to have reflected what was seen as the underlying economics of the sector. The 'water industry' was generally seen as 'the most natural of monopolies'[8] or the 'natural monopoly *par excellence*'[9]. In part, I suspect it was linked to that investment imperative – vertically integrated monopolies would be simpler for and more attractive to investors.

And these two things – I think more than anything else – drove the tool kit Ofwat used and the emphases that were placed on different elements of that tool kit.

The **vertically integrated regulated monopolies** remained intact.

There was a great emphasis on the **regulatory capital value –** created by Ian (now Sir Ian) Byatt on the basis of the average market capitalisation of the sector over the first 200 days of trading to enable the cash negative sector to access capital markets.

Ofwat's focus was very much on the **price paid by the customers** of the vertically integrated monopolist, and on the service they received. There was no development of

[7] The 1983 Water Act provided for the water authorities to borrow directly from private capital markets rather than solely from central government. However, in practice central government continued to control their borrowing and prevent private borrowing.
[8] Glaister, S (1996): Incentives in Natural Monopoly: the Case of Water, *Regulating Utilities*, IEA.
[9] Littlechild, S (1988) Economic Regulation of Privatised Water Authorities and Some Further Reflections, OxREP vol. 4 no. 2: 'The UK water industry is … the natural monopoly par excellence. … Consumers will demand a more comprehensive and permanent scheme of regulation than would be appropriate in any other private or privatised industry.'

the sort of access prices or other wholesale prices that would have been needed to enable competition to develop.

Coupled with all of this, in water the regulator had the advantage of comparisons. It was an obvious tool to use and a very powerful one. It helped to drive efficiency through the information these comparisons revealed, and Ofwat developed some pretty state of the art tools in **comparative econometrics**. And it helped – both in respect of efficiency and service quality – through companies competing with one another in respect of their place in the **regulator's league tables**.

Benefits realised since privatisation

Leakage is about a third lower than at its peak in the mid-1990s

£120 billion has been invested. The cost of a litre of tap water supplied and taken away is less than half a penny

In 2014, 99.96% of drinking water in England and Wales met European and national standards

Environmental quality has improved – more than 200 beaches gaining Blue Flag or Seaside Award status across England and Wales

In the early 90s, customers were more than 5 times as likely to be at risk of an unplanned supply interruption, 8 times more likely to be at risk of having their house flooded by sewage and well over 100 times more likely to be at risk of low water pressure

Taken against the policy goals of privatisation, that regulatory model worked well. We have seen more than £120bn of privately financed investment in the sector from privatisation until 2014. Over the same period service improved enormously. Customers today are 5 times less likely to be at risk of an unplanned supply interruptions and 8 times less likely to be at risk of sewer flooding than they were in the early 1990s. They are 100 times less likely to be at risk of low water pressure and enjoy drinking water that is 99.96% compliant with European and national standards. The sector is more than a third more efficient as a result of economic regulation, with bills a third lower than they would otherwise have been. And the cost of a litre of tap water supplied and taken away is less than half a penny. Although it is fair to say that bills did rise by 40% in the period from privatisation to 2014. And the principal beneficiary of that gap between rising bills and more efficient costs was of course the environment. We have gone from being the dirty man of Europe to having more than 200 Blue Flag beaches and salmon in the Thames and in the Mersey.

Investors have done well too with equity returns that have significantly outstripped the FTSE100 over the same period.

Going back to one of the defining characteristics of economic regulation being the alignment of the interests of capital and company management with those of customers, a regulatory regime that enables investors to make money when companies are delivering what customers and society want is not a bad thing.

So… If this is all such a happy picture why change? Why not just carry on?

It is fair to say that when we started to talk about making some changes to our regulatory approach – and we started to do this around 2009, at the time of the last but one price review, we heard a lot of that. I know because I was leading this thinking when I was previously at Ofwat as Director of Markets and Economics, under my predecessor Regina Finn.

But there were and are utterly compelling reasons for change. Indeed, we are seeing a growing consensus around them now.

Part 3. Challenges facing the sector

As I said earlier, beyond its essential characteristics economic regulation can and does take many forms. Those forms can, do, and *should* change over time. The tools regulators choose to use and how they use them reflect where the regulated sectors are and where they need to get to.

When those things change, it is perfectly normal to see regulators revisiting their approach. Indeed, it would be worrying if they didn't - a regulator in love with his or her tools, rather than a regulator actually trying to achieve something in pursuit of his or her statutory duties, is a dangerous thing.

So let's talk about the changes facing the water sector right now, because these are bringing the challenges that will – that must - define Ofwat's regulation of the sector in the run up to PR19 and beyond.

These changes fall into 4 categories

The first set of changes relate to **supply-demand balance**. They go to the core of the sector. They relate to the sector's ability to take water from where it is and when it is to where it is needed, when it is needed. And, just as important, to take water –foul water, surface water - away, and return it safely into the environment.

There are a lot of challenges here[10].

Our **population** is projected to grow to 73.3m by 2037, an increase of 14.3% on 2013. And that growth is not evenly distributed across the country. This will have a big impact on already water-stressed areas. Areas of the south east of England have less water available per person than Morocco or Egypt[11] and yet 13% population growth is predicted for London. And this growth will also have an impact on surface water run off – more development, especially on flood plains, will exacerbate flooding, and where drainage and sewerage is combined (as in London right now) we will see more pollution incidents.

[10] In this section I draw on a useful overview of the challenges facing the sector put together by Jean Spencer of Anglian Water and Sarah Lund of Yorkshire Water. It is available at: http://www.anglianwater.co.uk/_assets/media/Water_2020_LT_Challenges_-_Final.pdf

[11] River Basin Management Plan South East River Basin District, December 2009

Demographics are changing too. Single occupancy households –in which individuals tend to use more water per head - are on the rise[12].

And that's before we get into **climate change**. There is no doubt that our climate is changing. We are seeing more extreme weather events in a country where our infrastructure was built for drizzle.

The **second** set of changes is **technological**. It is probably true that the water sector has not been at the forefront of technological change. But there are some significant changes happening that are already having an impact on the sector, and will continue to do so.

Sensing capability is a big one – the ability to gather real time data on network performance, flow and quality is improving rapidly.

And of course technology is enabling huge changes in how customers are able to interact with service providers and what they expect… Just take a look at what you can do right now in terms of monitoring and controlling your energy usage with smart thermostats, or what you can do in terms of journey planning and realisation with TfL these days – energy and transport, not traditionally the most exciting markets - and compare that with what is available in the water sector.

All this links to the **third** set of changes facing the sector – **cultural and social** changes. Some – admittedly not all - customers are looking for more information about and more control over their interaction with service providers, and technology is enabling this. By creating the scope for innovation at that interface it is creating scope for service providers to look more from the customer's point of view – often a view very different from that of the supplier! And I did note that not all customers are seeking out or are able to have this level of interaction with their service providers, which raises challenges in relation to inclusion.

Another set of changes I would put into this category is the increasing concern of customers and society more widely not only with what they get, or indeed with how they interact with service providers, but how they feel about those interactions. Do customers feel treated fairly? Does society see service providers as good corporate citizens? Like some of the other changes I have spoken about this clearly extends way beyond the water sector. But I do think these expectations are higher in relation to products and services where people have little choice over their consumption and where they have

[12] Single-person households without a meter typically use between 45 and 100 cubic litres annually, a household of two people would typically use between 27.5 and 68 cubic litres annually per person**.**

little choice over their provider. So I think these expectations are particularly keenly felt in respect of service providers in the water sector.

The fourth and final set of changes I want to draw attention to is **financial**. These challenges may be less trends than the other changes I have referred to; they might more reflect a moment in time. But they do bring very important challenges to the sector.

I want to start with the **affordability** challenge. This has been a bigger issue over the last 5 years than at any point since privatisation, as household real incomes have fallen through the recession.

Figure 1 Median household income (ANC) and average water and sewerage bills (1994/95 = 100)

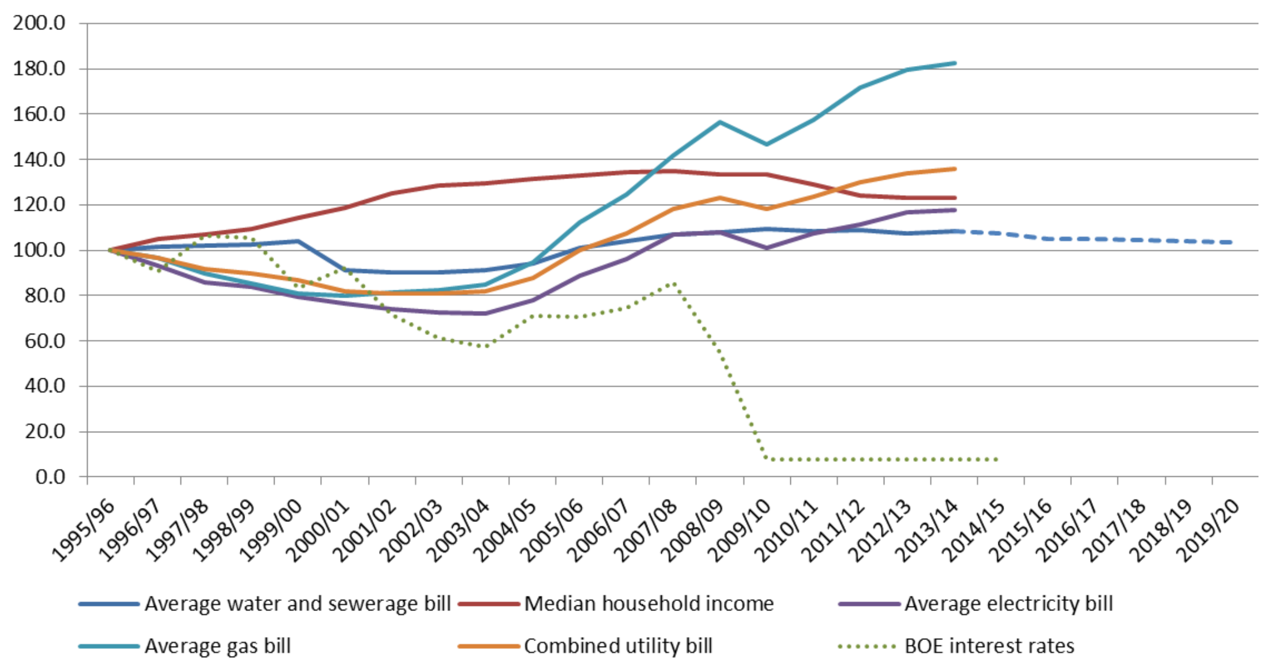
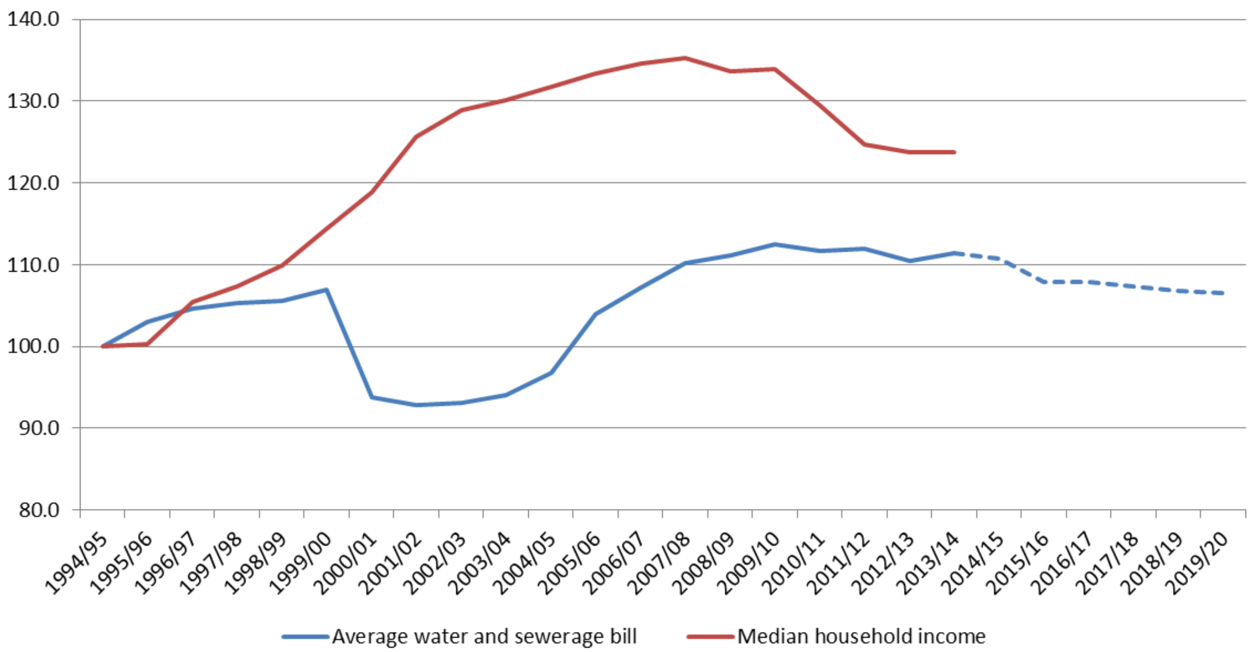


Figure 2 Medium household incomes (ANC), average utility bills (gas, electricity and water) and BOE interest rate (1995/96 = 100)[13]



If you layer onto that graph what has been happening to other big household bills over the same period you can see that energy (especially gas – that lightish blue line) bill increases have been adding to the pressure, and that it is really low housing costs as a result of low interest rates (that dotted green line) that have been helping to offset things.

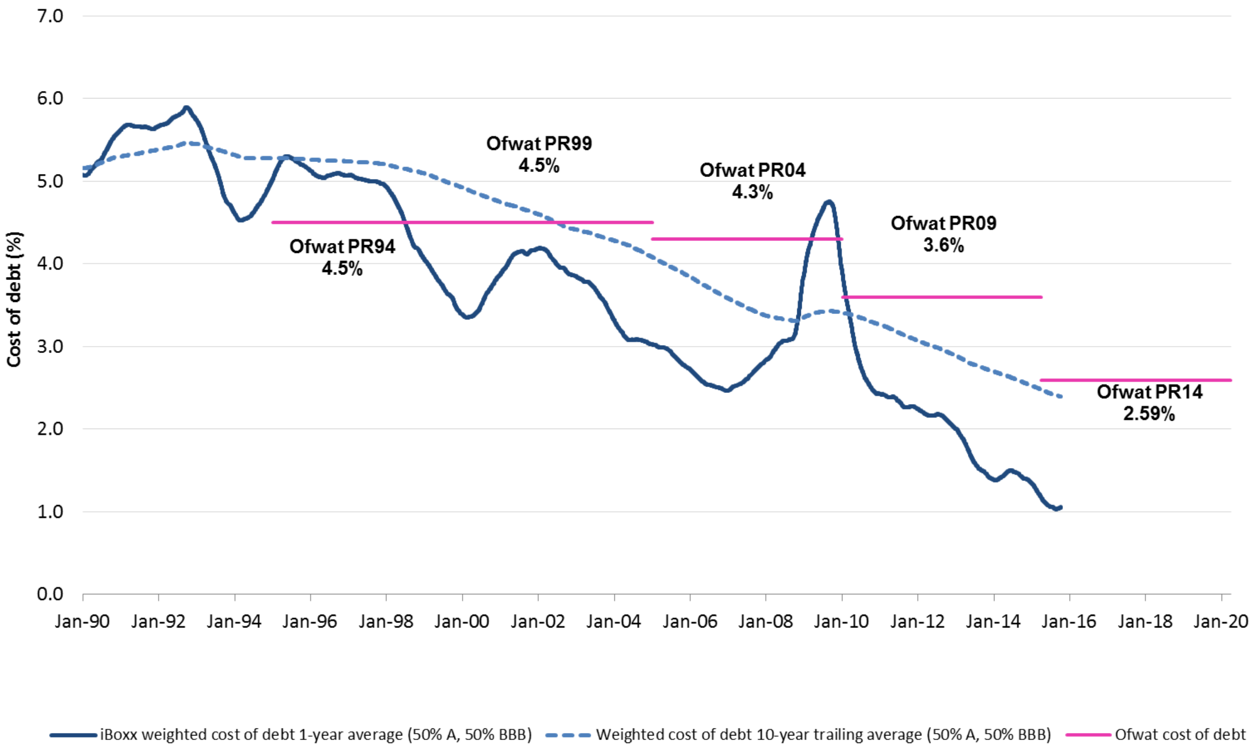
So… what you think is going to happen on affordability over the next few years is really a function of whether you think the rise in housing costs will outstrip the growth in incomes. Affordability has been a huge issue over the last 5 years, really driving a lot of the debate about water, albeit to a lesser degree than in energy. It is going to continue to be a huge issue.

There will also be changes in the financial climate facing companies. In the last 20 years we have lived in a world of easy returns, in which the cost of debt has been steadily declining. Since the 1999 review the outturn cost of debt at successive price reviews has been lower than Ofwat's assumptions in the review.

---

[13] Until 2004, incomes were increasing more quickly than water bills. After PR04, water bills increased but incomes slowed down a little until their peak (in real terms) in 2009. bills flattened off and fell slightly after PR09 – but incomes started to decrease in real terms. So customers were still steadily getting worse off. However, water customers still have a better bill/income ratio than they did in the late nineties.

Figure 3 Assumed and actual cost of debt 1990 - 2015



Who knows whether this will be the case in future? We are all waiting for interest rate rises, anticipating the end of QE and wondering about the Chinese economic slowdown (though we have all been doing that for a while..).

But if any investor thinks the regulator is going to provide a get out of jail free card by passing the brunt of these changes on to customers, they have another think coming. So the uncertainty here brings another challenge for the sector to deal with.

So what does all that amount to?

If you consider the challenges just to keep the water flowing from the taps and the waste water taken away in the face of population change and climate change…

… if you consider the impact of new technology, rising consumer expectations and a changing consumer culture…

… if you look at the pressure on financing costs the sector may well face in coming years…

… taking into account that right now those costs amount to roughly a third of the average bill…

… and the fact that affordability issues are absolutely not going away any time soon…

… in a climate of significant financial uncertainty…

… this sector is facing a more complex, more dynamic set of challenges than it has at any point since privatisation.

And that has big implications for Ofwat’s regulation of it.

Part 4. Where do we go from here

I will draw out here what I think are the three most important implications of these complex and dynamic challenges for economic regulation. They are all linked, and I think they are actually mutually reinforcing.

The first is that these challenges mean that we need to rethink the role of markets in the sector.

The sector will not continue to deliver a reliable supply of wholesome drinking water from the tap, it will not continue effectively to take waste water away and return it safely to the environment in the face of population change and climate change, and within the constraints of affordability if it does not find ways of doing more with less. Or to use the technical term, getting more efficient. This is something I firmly believe markets can help with. Indeed, I think it is essential if the sector is to meet the challenges I have set out with any success that we harness the capacity of market to inform and enable not only productive efficiency (doing things at lower cost) but allocative efficiency (making the best use of scarce resources) and dynamic efficiency (finding new and better ways of doing things).

It is important to be clear here what I mean by ‘markets’. I simply mean places where buyers meet sellers and where transactions take place. Nothing more or less. And I am not using ‘markets’ synonymously with ‘competition’. Markets may or may not be competitive. They may or may not be capable of being competitive. There is another debate to be had about the role of competition in the water sector.

But even where they will not be vibrantly competitive, markets still have value and there will be immensely valuable in the sector’s rising to the challenges I have set out. Crucially, markets give those within them choices. In particular, by making better use of markets within the water sector we can give existing water companies choices about whether they continue to do the things they do in the way they do them, or contract with someone else, who may do things differently. And that choice will reveal information, about the efficient cost of providing the service, and about the value of that service.

What does this mean in practice?

It may mean water trading – water companies looking beyond their boundaries and beyond the water sector and bringing new sources into the public water supply. For more information on the potential here I refer you to the excellent Beesley lecture given by Sonia Brown in 2012 !

It may mean – as we are starting to see already – more extensive use of catchment management schemes. Water companies like South West Water contracting with farmers not to put nitrates on the land at certain times, to reduce the impact on water courses. Water companies like Wessex Water contracting with land owners to flood fields because this is a more efficient way of attenuating flood water than building big tanks. Water companies like Welsh Water working with local councils to put swales around playing fields and introduce roadside planters so they can avoid massively expensive expansions of their drainage network. Water companies like South West Water working with farmers to improve water quality

It may mean water companies participating in energy generation by using sludge (that is the stuff that is left over after you have treated sewage – the glamorous end of the industry!) to generate energy that can be sold into the grid. Which could also see them using their sludge treatment and disposal assets to deal with sludge from other companies – bringing in revenue, and potentially also generating economies of scale. And making better use of something that has historically been seen as a waste product – a problem to be dealt with.

It may mean water companies realising that others – that some of the smaller so-called ‘new appointees’ are better placed to do genuinely innovative service delivery especially on some tricky sites, and working with them to enable that, rather than resisting it.

None of these things would be called ‘competition’ in the conventional sense. But they certainly involve markets and trading.

And having said that by markets I do not mean competition – I do think retail competition for non-household customers, which is coming in England in 2017, will be helpful. Partly because I think it will help to change the relationship between service providers and their customers – which I will talk more about shortly. Partly it is because I think that the possibility for retailers to bring in their own (or third party) water resources, on the basis of access to treatment, transportation and distribution networks will prove to be a valuable one.

The key here is the ability of markets to open up new possibilities, enable new choices, and reveal information. That in itself will enable efficiency, the creation of value that can then be shared between investors, customers and the environment. I also think the ongoing process that markets enable is important – crucially they enable those within them to learn and adapt. Both of these things – choices and the ability to learn and adapt – are vital for resilience in the light of the uncertainty facing the sector.

I said at the outset that an economic regulator's relationship to the market is one of its defining characteristics. And I also said that differences in expectations about how markets would develop in water was one of the main reasons why economic regulation in this sector developed rather differently from that in some of the others. So a rethink of the role of markets in the water sector has significant implications for economic regulation.

What will this look like?

Having emphasised the importance of a process of discovery here, you will not see Ofwat taking a top down approach to the use of markets. You will not see us going into a huddle, coming up with a series of detailed market designs, and imposing them on the sector, forcing new pricing structures, or breaking up companies (which we couldn't do even if we wanted to).

What you will see us doing – what we are doing – is taking sensible steps to reveal those 'make or buy' choices and to make sure that those faced with those choices (as buyers or sellers) have decent quality information for their decision-making.

You will see us challenging companies hard to assure us that they have properly engaged with and tested the market, for example where significant new capital projects are concerned. And this will also mean understanding the services that have traditionally been provided within the water companies, getting companies to understand the costs of those services, and making sure there are price signals that will enable support sensible choices.

You will see us putting more emphasis on understanding the system operation functions that companies perform and taking steps to ensure that they are more transparent and enabling of efficient transactions.

And you will see us – through our traditional regulatory tools like price controls – simultaneously removing regulatory barriers to efficient choices and putting powerful incentives on companies to drive efficiency. Before PR14 we set our efficiency challenge by reference to average efficiency across the sector. In PR14 we moved to a benchmark based on historic upper quartile efficiency. But, frankly, that isn't a great reflection of what you would find in a competitive market. In what competitive market do you see customers saying to a company 'I know you are high cost and have higher prices than the other guy, so I am going to give you 5 years to get your price down to 30% more than his'?!

You will also almost certainly see us get more involved in 'level playing field' casework – dealing with the sort of issues that inevitably come up when a sector becomes more diverse and different firms want to do different things. Things like undue preference, undue discrimination, margin squeeze and various other forms of leveraging market power. And it is worth noting that in the context of market development casework becomes a very important tool – it tells you what is actually going on in the market and allows you as regulator to respond to real issues in – if you get it right – a timely way. I see this becoming a more important part of our portfolio over time.

Something of a second order point, but still important. You can already see that we are keen to see a more effective market for corporate control in the sector. This is an important corollary of the role we see for markets directly in the sector.

Management in the sector will need to be at the top of its game, and changes in ownership provide an important discipline.

Moreover, as markets within the value chain present new opportunities, water companies' will themselves evolve. Different business models will emerge over time. Different investors may be interested in these, and it is important that capital markets enable those transactions to happen.

In a recent speech our Chairman Jonson Cox flagged that while we are not looking for a particular sector structure, we think companies and their investors should be asking questions about whether the current structures are the right ones. We would support this. We did not for example oppose the recent acquisition of Bournemouth Water by Pennon. And as we develop our regulatory approach, for example, to make better use of market testing, and wider benchmarks, there may be scope to go further. The changes to the special merger regime introduced in the Water Act 2104 (once the provisions are commenced) will be helpful here, as they create the possibility for undertakings in lieu of a phase 2 inquiry under the special merger regime, which should reduce regulatory risk.

You will see the results of this unfold over time. Incrementally. This is not a big bang. This is about evolution – and the creation of conditions for successful evolution.

I said that the changes I set out earlier had three sets of implications with an impact on regulation. The second of these is that we need to rethink the role of the customer.

This is just as profound as the need to rethink markets. And in some ways is more challenging for a regulator.

The sector (and the regulator too) needs to stop thinking about customers as passive receivers of services. We need to start thinking about customers as enabling and in some ways helping to deliver the services the use. To do this we need to stop thinking about customers as homogenous and start to understand how their priorities and their behaviour differs in different places, at different times, in different circumstances. And we need to stop thinking about customers as existing at the end of the value chain, and recognise the role they can play throughout the value chain.

If you think about the water and waste water value chain even in its conventional sense, the customer is right in the middle of it. Abstraction takes place from a water source, it is transported, treated, transported some more, distributed locally to a customer who uses it. That customer then returns that water (and other water from surface run-off) into the local drainage network, from where it is treated and returned to the environment. The customer determines how much clean water is need; the customers' behaviour determines how much water is returned through the drains and sewers and the state of it. Customers – in all their forms – are integral to the value chain.

Water is quintessentially local in nature. Water is heavy, there is no national grid and there won't be one. Obviously, its local-ness varies in different areas – more so where water sources are bore holes, less so when geology means reservoirs are more likely to be the source. Waste water is possibly even more local. Too much of it at the wrong place and at the wrong time is very visible indeed. If is returned to the environment in an unfit state, the effects tend to be visible too with a real impact on the local area.

Community solutions seem, intuitively, more likely to make sense. And it should be easier to harness the energy of local communities to bring them about. Customers and communities become service providers in that context, and all of those things we can and should be doing to make more effective use of markets will help to enable their integration into the value chain. There is phenomenal potential here. And you can see this change beginning to happen.

But in general this is so far from where the sector is today.

And I worry that the regulatory zeitgeist may be moving in the opposite direction.

There are some recent developments that suggest an emerging school of thought that customers are not sufficiently interested/financially aware/possessed of enough time to bother with utilities. Or even that customers who are not vulnerable customers but are simply those who have chosen not to engage with the market should be protected. I completely accept that the protection of vulnerable customers is necessary – we have an important role in ensuring this happens. But I simply do not accept that it is impossible, too difficult or just not worthwhile genuinely to empower customers. I think a lot could be achieved here even with a relatively small number of active customers. It is happening already in energy – where in the 5 years to March 2015 there have been more than 5000 community energy initiatives . They may not all have worked – but it doesn't suggest a lack of interest.

What does this mean for regulation?

A lot of this links back to what I was saying earlier about how to make better use of markets. A lot of what I was talking about there (revealing information, getting out of the way of innovative solutions, putting in place powerful incentives for efficiency and high standards for assurance on process) will help.

But even where radical solutions like 'community water' are not being contemplated, we need to do more to improve the quality of companies' engagement with their customers. To encourage and reward companies who really get to know their customers, who have the difficult conversations with them about relative priorities and intergenerational effects. And do this in a way that cements the ownership of customer relationship with the company, in a way that is genuine, nuanced, responsive and dynamic – rather than some giant survey exercise undertaken by the regulation team for a price review.

This, incidentally, is why I do not see us following some of the examples of 'negotiated settlements' that are out there. Given the importance of companies owning and improving the relationship with their customers, I am very uneasy about a regulatory process that inserts a third party – even if that third party is a customer representative body – into that relationship.

All of this is clearly linked to the third and final implication I wanted to draw out of those complex and dynamic challenges facing the sector. This is the importance of legitimacy.

Again, this is critical and very profound. In essence it conveys the idea of what might be called a 'social licence to operate'. And maybe it took the sort of debate that has been played in out in energy over the last few years to make us realise how important it is. It is existential. If a sector were to truly lose legitimacy, if it lost the trust of those it serves – customers and society – then a paradigm shift would be inevitable. It might come about through a political big bang, or more gradually though the market. But it would happen.

Where does legitimacy come from? Ultimately from the experience of customers and society in respect of the sector.

It is about whether customers get what they expect for a price they are willing to pay. It is also about the resilience of those services and the systems that underlie them. And that isn't just about whether the kit will fall over in the face of a disaster, it is about corporate and financial resilience – does the service provider's corporate governance make it likely to make good decisions and enable it to respond quickly and appropriately to a shock? Does its financial structure support this? It is also about how the sector takes account of and deals with its wider impacts – impacts on the environment, on future generations.

It is also, crucially, not only about the what but about the how. It is about how those within the sector handle the manifold relationships they have – with customers, communities, the supply chain, the third sector, government.

Legitimacy does not come from the stuff in the glossy corporate social responsibility section of an annual report. It comes from how those who provide the services on which customers and society depend are constituted, about how they think and act every day.

Surely, nothing to do with an economic regulator? I don't agree.

Just looking at this in a narrow sense, consider our statutory duties. One of our primary statutory duties is to protect the consumer interest and we have been very clear for many years that this is not a short term interest, it is a long term one. So many of those things that drive legitimacy are very closely aligned to the interests of consumers, especially considered over the long term. Another of our primary duties relates to financeability – we have a duty to ensure that efficient companies can access capital markets. I don't think a legitimacy crisis would be very helpful in making the sector attractive to investors. And we have just acquired a new statutory duty to further the resilience objective – which, if nothing else, means we need to take a keen interest in the sector's ability to withstand and recover from shocks.

So even if you don't think legitimacy itself should concern us as an economic regulator, there is enough of an overlaps between things that are important for legitimacy and things that directly relate to our statutory duties to put us - centrally and appropriately - in the territory.

But more than that – if you accept that markets are going to be a critical enabler of the efficiency and innovation the sector will need to meet the challenges it now faces, if you accept the importance of the sector working with its customers, then you must accept that we have a strong interest in the legitimacy of the sector.

A loss of legitimacy would mean a loss of trust. And trust is essential if markets are to function, and even more essential if customers are to become engaged and empowered within the sector, rather than have regulators conclude they can't be bothered and should be grateful for the regulator's protection.

But I do accept that regulators perhaps do not have off-the-shelf legitimacy tool kit they can reach for. So what does the centrality of legitimacy for what we are trying to achieve here mean for the way we regulate?

It certainly means that we need to look beyond the traditional regulatory tool-kit. Of course, licensing, enforcement, price controls, casework will all remain a hugely important part of what we do, and indeed most of what we do. But we need to put ourselves in the position of being able to spot issues or risks early, and raise them with specific services providers or with the sector early, quite possibly in ways that do not involve the formal regulatory tool kit. But which can usefully bring things to the attention of those with the ability to deal with them. Not something to do lightly, or with abandon. But an important part of the tool kit.

That means we need to be better informed.

You will see us putting considerable work in over the next couple years to develop our horizon scanning capability, the visibility of both lagging and leading indicators of risk. In my view this is a vital complement to our work enabling and encouraging the development of markets. We need to know not only that we have taken steps to support the development of markets, but how they are working and what they are delivering. I stress this does not mean we intend to micro-manage the markets that do emerge – that would be self-defeating. But we do need to how they are working and what they are delivering needs to be transparent, so that we can act - in a proportionate and targeted way - if needed. If we don't know this, we can't do our job. And we need to do our job if the sector's legitimacy is to be maintained.

And, linked to this, we need to harness the power of others across and around the sector. Legitimacy may be something for an economic regulator to be concerned about, but we cannot deliver it. Others must play their part too.

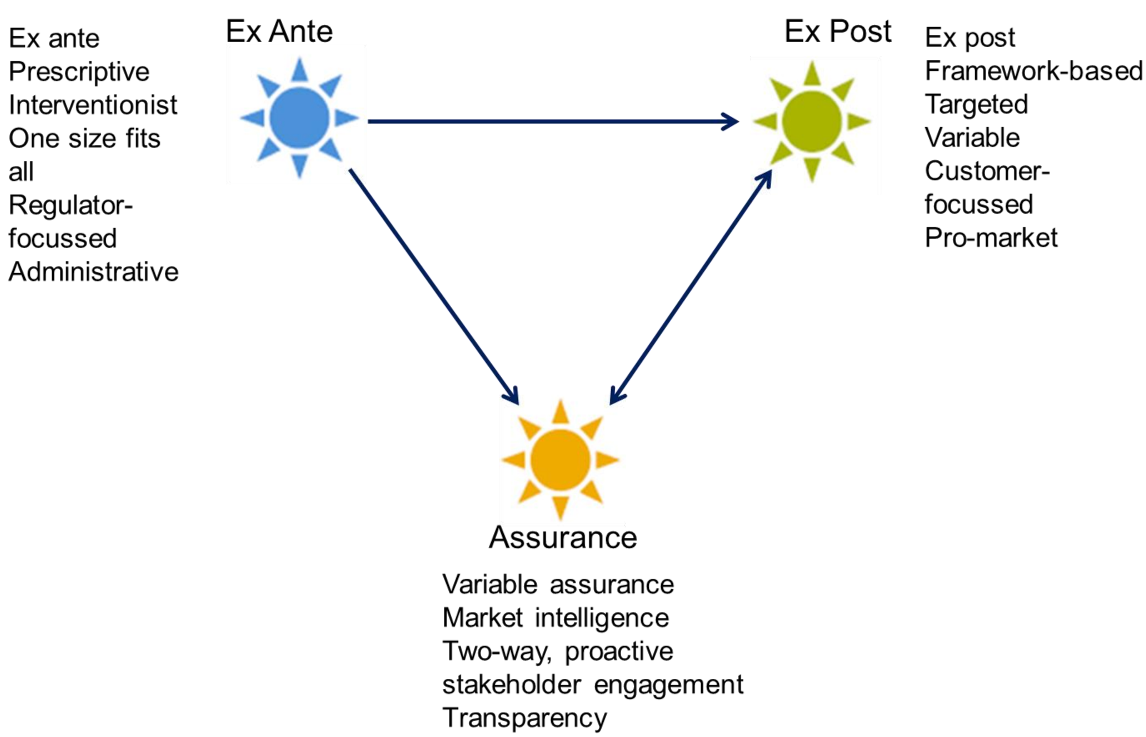
A wide variety of people are important here: NGOs (green NGOs for example through the Blueprint for Water coalition have already been influential); investors (we will certainly need more active and engaged investors if the sector is to meet those challenges and retain its legitimacy); customer representatives; government; community groups. As the regulator we need to facilitate and encourage this.

All this means that we need to pay much more attention to information.

For those who remember it, let me be completely clear that this does not mean a return to the 'June return'. That was information gathered by the regulator for the regulator. Here we are talking about information some of which may be collected by us, some of which may be collected by others, but which we can ensure is relevant for customers and society and is available to them in a user-friendly way. The more we can ensure that information about how the sector is doing – in terms of the what and the how is out there, the more other stakeholders can help identify and understand risks and opportunities, support and challenge those in the sector in managing them, and ultimately hold the sector to account.

Bringing all this together is the diagram we use to illustrate our regulatory model.

Figure 4 Regulatory model – pillars of regulation



Part 5. So what?

There is a lot to do.

I am always keen to remind people that we don't deliver water and waste water services - it is the service providers who do that. And ultimately how these challenges affect the sector – whether it continues to deliver what customers and society expect, in a resilient way, with legitimacy, will be a function of how those within it respond.

But economic regulation does have an important role to play. And our tool kit here is immensely powerful.

There is no cookbook as to what constitutes good economic regulation. It is simply a function of where the regulated sector is now and the challenges it faces. I have set out how I think the challenges facing the water sector now are greater and more complex than at any point since privatisation. And if we – as the regulator – are going to help the sector meet those challenges and continue to deliver for customers and society our regulatory model needs to evolve.

We must now move away from the model that served everyone well for the first two decades after privatisation…

… from a model that was very much focussed on the regulator, very much based on ex ante rules and standards, rather administrative, one-size-fits-all…

… towards a model that is more customer-focussed in the widest possible sense, more framework-based, more ex post, more pro-market, more proportionate and more targeted…

… and as we do this we must develop our tools in relation to regulatory reporting, market intelligence and assurance in way that will enable both us and others to be more pro-active in prompting and challenging the sector to maintain its legitimacy.

This isn't just talk. In fact I think we have already passed the inflexion point.

If you were looking for the specific point of inflexion you could perhaps look somewhere between 2009 and 2011.

2009 was the year in which Martin Cave put out his review of competition and innovation in water, which envisaged – on the basis of a stepwise approach with testing and evaluation – real scope for competition in the sector at the retail and competition – though I would say markets – in the upstream of the value chain.

And 2011 was the year in which David Gray concluded his review of Ofwat . Among other recommendations, Gray said that Ofwat should adopt a more proportionate and targeted approach to its regulation that better enabled flexibility and innovation, and said that Ofwat as 'too focussed on penalties and compliance as opposed to positive incentives for desired changes of behaviour. This chimed with Ofwat's own thinking that diminishing marginal returns had set in as far as the post-privatisation regulatory model was concerned and that – without throwing the baby out with the bath water – a new direction was needed.

Table 1 Changing regulation in water

Price Review	Key developments
1994	RCVs and real WACC Revenue 'building block' approach Incentive framework Overall Performance Assessment 'Serviceability' rather than 'asset condition'
1999	Price reductions Formal business plans Econometric modelling of costs Financeability as a concept 5 year price limits formalised
2004	Focus on maintenance rather than enhancement Risk based framework for asset management Serviceability metrics formalised Joint customer research

Price Review	Key developments
2009	25 year Strategic Direction Statements (and formal Water Resource Management Plans) Customer views of Business Plans (through CCWater) Service Incentive Mechanism Use of menu incentives (CIS)
2014	Focus on outcomes rather than outputs Extensive customer engagement Totex Risk and reward Risk-based review

In terms of regulatory practice, the most significant moves in the direction of our new regulatory model have been in PR14. We incentivised companies to focus on outcomes – the things that really matter to customers and society, and to find out what these should be by engaging with their customers. We ratcheted up our efficiency challenge by moving a benchmark of upper quartile efficiency – and by moving to totex and introducing new financeability levers, we freed up scope for companies to respond with different ways of doing things. We rewarded companies who developed challenging business plans, on the basis of good information and good customer engagement by giving them ‘enhanced’ status, with much less intervention from us and a faster draft determination.

Beyond PR14 our work on, board leadership and transparency is a further key element of this new model that is already in place. Challenged by us, the sector, with input from its investors, developed a code of practice in this area, and we are now assessing compliance with it. It supported the great weight we placed in PR14 on the assurance by company boards of their business plans.

And of course we now have the Water Act 2014, which enables, and indeed requires us to change our approach . Competition in the market for non-household customers is coming in England in 2017 – we need to work hard to make that happen in itself, and to prepare for the very different dynamics it will bring. The Act envisages water trading and abstraction reform by 2022, i.e. in the next control period, which means we need to do the leg work on how we enable this now. As I mentioned earlier, we have a new statutory duty on resilience – encompassing services and systems – which means we need to put greater emphasis on the long term and on the sector's ability in all respects to withstand and recover from shocks.

As we move towards PR19 it should be no surprise that we want to see a further step change in customer engagement. Rewarding companies who see good customer engagement as part of what they do every day and an integral part of their business rather than an exercise in regulatory box ticking.

We are also looking at where in the value chain markets could add most value – sewage sludge and water resources are prime candidates as I have said. And this means looking at wholesale price and service, especially where there would be interfaces between existing companies and other providers. We need to find ways of driving more market testing of significant new infrastructure, and creating scope for this to be provided not by existing water companies but by others, if they can do it more efficiently.

We will develop our approach to mergers and our approach to price controls to better enable an effective market for corporate control. We will develop our approach to casework, so that we are well placed to respond in a timely way to as yet unknown developments in markets.

We are putting a lot of effort into information. Looking at the sort of information that will be needed to enable the development of markets – including looking at system operation functions as part of this. Looking at regulatory reporting. Looking at companies' reporting on performance and on corporate and financial resilience, and at how we can develop a dashboard to show how the sector is doing on the things that matter most for legitimacy – not some giant regulator-focussed exercise, but something that will enable others to scrutinise, challenge and support the sector in meeting those challenges. Information that will support that process of learning and adaptation that is so important.

And we will continue to emphasise board leadership; looking for assurance that the sort of challenges I have spoken about here are driving conversations among company boards, whose members are taking an active role in identifying and understanding the risks and opportunities the sector faces, and providing the spur to company management that will ensure they are effectively managed in the best interests of customers and society over the long term. This is important if companies are to step up to their responsibility and take proper advantage of the flexibility we will give them. It is also important for corporate resilience.

In all of this, we will still be using incentives to align the interest of capital and company management with those of customers. But the nature of those incentives will change. In all of this, we remain inextricably linked to the markets we regulate. But our relationship with those markets will change too; we will work with markets to drive efficiency and innovation.

And for all everything I have said implies a significant change for the sector, I fully recognise it implies a significant change for Ofwat too.

Our strategy, this new regulatory model, is underpinned by a substantial business transformation programme, designed to ensure we have the right mix of skills and experience to take forward this ambitious agenda and –in the light of the inevitable additional challenges from the comprehensive spending review – make the most effective use of every last ounce of available resource.

And as I come to my conclusion, I wonder if the most important element of our new regulatory model is the one that it is least often discussed in these kinds of fora. It is the mindset we – all of us at Ofwat - take into this. a clear commitment to what we are trying to achieve…

… an openness to debate and challenge and learning…

… and a certain amount of bravery.