

Water Resources Forum, 18 July 2017

Note of meeting

1. Welcome and Introductions

Richard Aylard welcomed everyone to the meeting. He explained that the purpose of the meeting is to share work being undertaken to inform our next Water Resources Management Plan (WRMP19) and provide the opportunity for stakeholder input to the development of the plan. Key points made by Richard were as follows:

- Since the March 2017 Forum we have held technical meetings to discuss water resource options (April 2017), and demand management options and environmental assessment (June 2017). We have also published a series of technical reports on our website www.thameswater.co.uk/wrmp
- We published the Annual Performance Review in April 2017. We did not perform well against 2 water measures: leakage and security of supply (SOSI). After 10 years of meeting our leakage target we failed it, by a significant margin, and we now have a recovery plan in place. Due to our performance on leakage, we also missed the SOSI target.
- To support the development of our business plans we are undertaking a 3-phase customer engagement programme. The second phase, focused on local engagement, was undertaken throughout May and June. As part of which we held 57 roadshows and 8 local engagement meetings. The third phase which will start in January 2018 will comprise local engagement and formal public consultation on the draft WRMP.

2. Forecasting future growth

Alex Nickson then introduced the first topic of the day, forecasting population and property growth. Alex highlighted the difficulties with forecasting future growth and that confidence in projections is critical to the plan. Dr Peter Boden from Edge Analytics and Professor Phil Rees from the University of Leeds joined the meeting to present the work that they have completed for TW to develop the short-medium and long-term population and property forecasts respectively.

Key points from Peter's presentation were as follows:

- Edge Analytics has produced demographic evidence to support TW's short and medium-term planning process (to 2045). This includes the WRMP 2019-2045, 2019 Price Review (PR19) and wastewater asset management.
- Data sets have been prepared for both water and wastewater asset management and investment.
- The Water Resources Planning Guideline (WRPG) provides the framework for water companies to follow in developing plans and sets out that forecasts need to be based on local plans published by Local Authorities.



- Data has been sourced from the 95 Local Authorities in TW supply area. Local Authorities are at different stages of Local Plan development. Data availability, completeness and consistency varies between Local Authorities.
- The forecast indicates that there will be an additional 2.2 million people across TW's water supply area by 2045.

TRT: Have you looked at population forecasts produced by the water only companies whose areas overlap with TW's wastewater operational area to consider how the projections for population growth compare? **Peter Boden:** We do not have access to the data from the water only companies at this stage to enable comparisons. To note – the population forecasts produced by the water companies for WRMPs will be published in their draft plans and at this point analysis can be undertaken.

TRT: What is the total population increase forecast for TW's overall operational area? **Peter Boden:** This data was checked post meeting and we can confirm that the total population growth (2015-2045) for the combined water supply and wastewater area is 3,479,825.

CPRE: We have reviewed the ONS data for Oxfordshire and the South-east, does your data agree with ONS data? **Peter Boden:** ONS projections are different, they are trend projections which provide the starting point for a Local Plan. Edge has used this data to derive a housing led projection.

CPRE: The Oxfordshire Strategic Housing Market Assessment is generally regarded as flawed so are you producing estimates of uncertainty on these forecasts taking account of what might actually be delivered. **TW:** We recognise there is a difference between the number of new homes forecast and the number being delivered by the market. We have contracted Experian to review this and will use the output of this review for short term planning. For the WRMP we are required under the WRPG to use Local Plan data. **CPRE:** Can we see these data. **TW:** We will include all relevant information in the draft WRMP19 which will be published early in 2018.

RSPB: How accurate have these forecast been in the past, is there one answer or a range of plausible futures? **TW:** There is always uncertainty. We will take account of uncertainty through the use of scenarios and target headroom.

ICE: My understanding is that housing growth tends to underperform compared to projections whereas population growth has in the past exceeded forecasts. **TW:** We agree, and it is more important that we get the population forecasts as accurate as possible as it is people who use water and not houses.

Key points from Professor Rees' presentation were as follows:

- University of Leeds were contracted to develop population forecasts to the end of century for each WRZ.
- A demographic model was used to produce forecasts by age, sex, and ethnicity. Ethnicity has a significant impact on population growth. TW region is attractive to international migrants.

This is particularly relevant in Greater London and some areas outside London such as Slough.

- The projections have been compared with other forecasts – there are differences in the forecast for London growth produced by Leeds, GLA and Edge. These are driven by differences in projections for ethnic communities populations and they have been derived from bottom up assessments. Internal migration influences distribution between London and Outside London.
- Leeds University has prepared trend based projections for housing growth as there is less confidence in long term housing growth projections. DCLG forecasts include a small decrease in household size.

CPRE: Will the number people per household increase or decrease? **Professor Rees:** DCLG household formation data is used to calculate number of households and number in each household. There was a trend of increasing number of households from the late 1940s until the end of the last decade, but this rate of increase has slowed down. There was not much difference between 2001 and 2011 census in number of households due to a tight housing market. Since the financial crisis the long term reduction in number of people per household had come to an end, for example, because children cannot afford to move out of their parental homes after university.

BBOWT: Has population growth accelerated or slowed in statistics over time? **Professor Rees:** When local and national data are compared, forecasts overestimate the white population and underestimate ethnic minority population growth. **Peter Boden** added that before 2004, we did not have a net migration issue to deal with, and migration into this country had grown rapidly since then, with a ~ 315,000 net increase in population every year. He also said the number of births is falling (853,000 births in 1953, and 500,000 in 2000) but we have an ageing population, as people live longer.

CCW/CCG: What is the prediction to 2045 for Edge and Leeds and then the final prediction to 2100? **TW:** Edge’s estimate for 2045 is 12 million and Leeds University’s is 14.5 million. For 2100, Professor Rees said the projections are ~30% higher than these figures. Following the meeting this data has been checked and can confirm the data is as follows:

	Population forecast 2045	Population forecast 2100
Edge Analytics	12 million	N/A
Leeds University	14.5 million	18.3 million

TRT: Over such a long period do you make any radical assessments or is it trend based? **Professor Rees:** We have developed a model of water saving interventions and practices and defined a range of scenarios which get more radical as you move through the scenarios, referred to as light and dark green projections.

GARD: For transparency – it would be helpful to have data rather than graphs. In South Korea energy consumption can change significantly through generations, in particular with improved education particularly for women. When you assess ethnic populations do you take account of western

influence/education on fertility and water use? **Professor Rees:** The model does not include these factors but is an interesting proposition, although noting the educational dimension would not be as marked in the UK as it is in developing countries. There is a huge range of fertility rates across ethnic groups – from 1.2 children in families of Chinese origin to 3.4 in families of Bangladeshi origin.

CPRE: Fertility rates are very important and should be taken into account as one would expect high fertility rates of some of ethnic groups to drop substantially. **Professor Rees:** Agree that the generational change associated with education is an important component but it will not remove the growth differential completely due to the effect of the age structure. Furthermore there is reduction in Asian family household size built into the forecasts.

3. Developing the preferred programme

Chris Lambert provided an overview of TW's approach to developing its preferred programme. A briefing note was circulated ahead of the meeting. Some key points raised by Chris are noted below:

- TW has assessed the supply demand problem faced in each WRZ in accordance with industry guidance¹. The assessment helps to decide on the appropriate planning horizon, and the decision support tools to be used to develop the best value programme in each Water Resource Zone (WRZ).
- London's population is increasing, alongside reductions in the amount of water available for public supply due to climate change and environmental measures, leading to a growing water resource challenge of ~ 400 MI/d by 2045 (very similar to WRMP14) and over 800 MI/d by 2100. These forecasts assume similar weather patterns to the last 100 years although when looking over a longer period there have been more significant drought events which would further increase this challenge. There are also substantial resource deficits forecast in SWOX and SWA WRZs. In view of the scale and complexity of the challenges in these WRZs, sophisticated decision support tools will be used and a longer planning horizon of 80 years.
- The remaining WRZs – Guildford, Henley and Kennet Valley do not face significant deficits over the planning period. As such relatively simple decision support tools and shorter planning horizons will be used.
- TW has done extensive work to identify and assess feasible demand management and resource options and has engaged with stakeholders as this work has been undertaken. There is a limit to the amount of demand management that can practically be achieved over a 5 year period hence we have initially assumed a maximum of 100 MI/d, pending further analysis of delivery over the AMP6 period. The constrained options are inputs to the model.
- The models will generate a large number of potential investment programmes. These programmes will be optimised in terms of cost, but also with consideration other parameters (referred to as metrics), including for example resilience, environmental effects and deliverability, to ensure a best value programme is taken forwards.

¹ UKWIR UK Water Industry Research WRMP 2019 Methods – Decision Making Process: Guidance Report Ref. No. 16/WR/02/10

- TW is also required to consider if options could supply other water companies in the South-east region as part of the development of a best value regional strategy.
- TW has developed a new tool called Polyvis which is helpful to show how programmes perform against the variety of metrics aiding transparency of the process.
- TW is working with an appointed Expert Panel to review the potential programmes and determine a preferred programme. TW is starting to share output from the programme appraisal with the Panel.

Professor Adrian McDonald, as a member of TW's appointed Expert Panel, presented an overview of the Panel, its composition, and remit. Adrian emphasised that the programme appraisal process will produce a shortlist of programmes, but these are only a guide and need to be interpreted thoughtfully, and that the Expert Panel members will review and challenge these from different starting points.

CCW/CCG: What is promotability and what is customer preference metric. **TW:** At an option level TW has assessed how promotable an option is. The customer preference metric uses data taken from the quantitative customer preference research which explored customer views on specific option types.

TRT: A lot depends on the weighting of metrics – are these scored or weighted. **Professor McDonald** explained the Expert Panel's scoring could be relative or absolute depending on what was being assessed. Different experts would prioritise different factors. For example, his priorities were resilience and deliverability. However, other panellists will have other priorities, such as cost, enabling the panel to arrive at a balanced view.

LBofNewham: Adaptability of the programme is mentioned but does not feature on the scoring – is this considered. **TW:** The adaptability of the programme to a range of futures is considered following appraisal of the programmes against the metrics.

GARD: There are 7 metrics, some are quantifiable but others are not, such as the environment. Also is there objectivity to the assessment of inter-generational fairness as there is no agreed measure of fairness with regard to whether it was right to pay upfront or defer payments for future generations of customers, citing PFI schemes, as an example of this problem. **TW:** There is a Government methodology to assess inter-generational fairness and this is the foundation for our method for this metric. **GARD** would argue the objectivity of inter-generational fairness. **TW:** The approach is robust, it considers whether costs are paid now or shared with future generations. Research with customers indicated their supported for sharing costs between generations.

ICE: Will the discussion and challenge presented by the Expert Panel be made public. **TW:** The Panel will produce a report, this will be made available.

4. Adaptability and SEA

In the final presentation Chris Lambert explained the approach to test the plan against different futures and presented draft scenarios as follows:

- Risk to a severe drought – The baseline supply demand balance is a 1:100 year drought based on the available historical records of rainfall and evaporation from 1920. The EA has defined 1:200 year drought as a reference scenario. For TW supply area this equates to ~ 150 MI/d of additional water resource availability.
- Sustainability reductions (SRs) of a range of 43 to 143MI/d. TW is discussing the extent of SRs with the EA, particularly the SR defined on the Lower Lee of 125 MI/d. In view of this TW is proposing to include a reduced set of SRs in the baseline and test the full range in scenarios.
- Water Resources in the South East (WRSE) and requirements of other companies, as currently advised, is between 165 and 190 MI/d for raw water, with an additional 75 MI/d treated water. These requirements may change as companies do further work on their plans.
- Leakage – Customers have set out their preference for a greater reduction in leakage, a range of leakage scenarios will be considered
- Changes in population growth and water usage – the ranges have not yet been defined, this work is on-going.

Chris then summarised the environmental assessment being undertaken to inform the development of the plan, at an option level, at a programme level and on the overall plan. This was presented in detail at the Technical Stakeholder Meeting in June and feedback from regulators and stakeholders is being taken into account. Ricardo is undertaking this work for TW. The option level assessments are largely complete, a list of these is on TW's website. TW has not published the full set of assessments as there are over 200 but if stakeholders would like to have copies of any of the assessments please request these via Lesley (Lesley.tait@thameswater.co.uk). The programme level assessment will consider the cumulative effects of other company's plans and link this with the WRSE work.

BBOWT: Are the possible interventions similar in this plan to past plans? **TW:** Overall we are considering more options for WRMP19 including for example options such as Teddington Direct River Abstraction which have not previously been considered. At that time there were concerns that abstractions from the Lower Thames were damaging but studies completed by TW indicated that this is not the case hence this is an option which is now under consideration for WRMP19 and could provide up to 300 MI/d of water, although discussions are ongoing with the EA on this option.

TRT: Will you come back to this group and consult them on the proposed plan. **TW:** We are thinking of hosting a stakeholder meeting in late autumn to provide feedback on programme appraisal. This will be communicated once the date is set.

Chiltern DC: There are several chalk streams in the Chilterns, do you envisage SRs on these rivers. **TW:** The EA has defined a SR on one of TW's abstractions in SWA WRZ near Aylesbury. The largest impact in this area is on Affinity Water. **Affinity Water:** The EA has identified substantial SRs of ~ 70 MI/d (confirmed) and 48 MI/d (unconfirmed) in addition to reductions to present deterioration under the Water Framework Directive of 15 MI/d. Affinity Water plan to model a number of scenarios to reflect uncertainty. Furthermore the WRSE companies are working regionally on this

issue. **TW** emphasised that there is growing concern about chalk streams and protection of these watercourses is high on the political agenda

TRT: If you knew the scale of other water companies requirements earlier in the process would it have affected constrained list of options. **TW:** We have a wide number of constrained options, the issue is timing and when water can be made available, if this is the outcome. For example Southern Water (SW) set out their requirement for water by 2027 to meet reductions set by the EA to ensure compliance with WFD. SW is appealing against the timescale for the required reductions.

RSPB: A common industry position on the scale of the water shortage challenge, and impact on key issues such as river flows would be helpful. Also it would be helpful to set out what the future looks like and share it with other stakeholders. **TW:** We are happy to discuss and share this work with interested stakeholders.

BBOWT: Why are the drivers so much higher for this plan? **TW:** There are a number of drivers which were previously recognised but have increased including population forecasts and climate change. Also environmental protection requirements are more challenging, and there is recognition of the need for greater resilience. We didn't previously plan for a 1:200 year drought but the near drought in 2012 and other events have shown that the system needs to be more resilient to cope with these event.

BBOWT: So do you expect to implement more interventions in next 5 years. **TW:** Not in the next 5 years but we do need to plan now to ensure a secure and resilient water supply for the future and the adaptive pathways approach will help to ensure a no regrets approach when look at different futures.

TRT: Are you developing long term strategies for wastewater and drainage akin to water resources planning. **TW:** We are developing a similar approach for wastewater, it is not a formal requirement but work is in progress.

TRT: Is Ofwat supportive of strategic planning and will the regulatory regime support this? **TW:** The regulatory framework is less prescriptive, it is focused on outcomes rather than outputs, and trying to promote innovation and ensure future plans reflect customer preference. Furthermore Ofwat now has a duty for resilience. That said, companies will still need to be able to demonstrate that the plan is efficient.

TRT: Will the approach leave liabilities for future generations. **TW:** Ofwat want to see us taking a long-term view but they are not going to give TW a free pass, we will need to present a rigorous investment programme and demonstrate that it meets customer's priorities

GARD: In the sensitivity analysis presented you didn't include any scenarios without desalination and reuse, does this imply that these options are the bedrock of whole system. **TW:** There are multiple desalination and reuse options so there is flexibility. If Teddington transfer, the Severn Thames transfer or the reservoir cannot go ahead, there is no back up hence the need to run scenarios omitting these options.



GARD: GARD challenged that all the SEA work is being completed by Ricardo, for TW and also WRSE. With regard to the needs of other companies in the South East, why can't other companies provide resource to TW for example the desalination options promoted by Southern Water in WRMP14?

TW: If Southern Water can supply desalinated water to London more cheaply than TW developing a new resource then this will be taken forwards. There is not a cartel. A whole range of possible options are considered via the regional processes, WRE and WRSE. Regulators have a keen interest in these and are overseeing them.

GARD: So is it not individual water companies that decide. **TW:** Each company must develop its own plan but they must ensure that where there are trades and sharing of resources that the options promoted between plans are consistent. Regulators will ensure this is the approach.

CCT: As you know CCT put forward an alternative hybrid scheme and an SEA for a transfer via canal. If when you consider the costs and SEA the canal proves to be a better option than pipeline will it be reconsidered? **TW:** We are evaluating the information provided by CCT and this will be included in the updated Resource Option Fine Screening Report and Raw Water Transfer Report.

CCT: I am concerned about timings and if we will be timed out of the process. **TW:** The transfer via the River Severn is being considered in the programme appraisal albeit with the pipeline but if this further work changes the assessment of the conveyance route via the canal will be considered.

CPRE: CPRE support the inclusion of a range of demand and population estimates. **TW:** TW confirmed that it will use a central forecast in the baseline in line with the WRPG and will then look at a range of scenarios. **CPRE:** How will you develop the range of scenarios. **TW:** These will be developed from the Leeds and Edge work.

ICE: In preparing an adaptive plan, will this include lead times for different elements and will TW have a monitoring plan to assess the reality of assumptions. **TW:** Yes.

Richard thanked everyone for their time and contributions and confirmed that TW would advise on the dates for future meetings when these are set.

END

Attendees

Adrian McDonald	University of Leeds
Chris McNulty	Chiltern District Council
Dan Bicknell	Greater London Authority
Dave Wardle	ICE
Debbie Leach	Thames21
Derek Stork	Group Against Reservoir Development
Dominique Barnett	London Borough of Lambeth
Elizabeth Botfield	London Borough of Newham
Dr Gareth Old	Centre for Ecology & Hydrology
Helen Charlton	CCW/CCG
Kay Lacey	Pang Valley Flood Forum/CCG
Ken Burgin	Cotswold Canals Trust
Mark Bristow	Tandridge District Council
Martyna Jasinska	Edge Analytics
Nathan Richardson	RSPB
Nick Honeyball	Affinity Water
Nicola O'Reilly	CCWater
Paul Leinster	Independent Consultant
Peter Boden	Edge Analytics
Peter Spillett	Thames Rivers Trust
Professor Phil Rees	University of Leeds
Richard Amos	Welsh Water
Richard Harding	CPRE
Richard Wyatt	Oxford City Council
Sarah Wardell	Environment Agency
Thomas Beckett	Berks, Bucks & Oxon Wildlife Trust
Tim Bamford	Country Land & Business Association
William Mackveley	Severn Trent Water
Wilson Lui	London Borough of Lewisham

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