

## **Submission to Water Resources South-East (WRSE) Consultation**

The submission below represents the combined views of the individual county Branches of CPRE across the South East.

### *Summary*

1. CPRE argues that future demand is exaggerated in the 'reported pathway' used in the analysis. We believe a more realistic future requirement is half that planned.
2. The chosen population projection is the third largest of the 21 reported, suggesting an influx of four and a half million new people into the South East. We urge that a much smaller number, such as that projected by the ONS 2018 be used.
3. We suggest urgent and rapid action is taken to reduce abstractions affecting the most at risk chalk streams. We question the very large water resource requirements suggested by the WRSE, who plan a 'one size fits all' approach. Research is urgently needed to identify which headwater catchments will most benefit from reduction in water extraction.
4. The climate change requirement uses the highest emission scenario – following the recent climate talks we argue this is unrealistic and a median scenario should be adopted.
5. All water companies should plan for the Government target of 110 l/day/person. This is challenging but achievable and requires concerted action by the Water Companies and Government.
6. Given the very large uncertainties in the future demand projections we argue any new sources of water should be adaptable, scalable and have low environmental impact. We therefore recommend that water transfers and recycling schemes be given highest priority.
7. The SESRO scheme is not adaptable or scalable and has an obvious high environmental impact and we suggest it be given low priority.
8. Decarbonisation of the electricity grid may make desalination plants more attractive in the future. These should not be rejected at this stage, although should be restricted to brownfield sites and subject to rigorous environmental assessment.

### *The WRSE Plan*

#### Pressures on water demand

The report identifies four pressures on water demand in the next 50 years: environmental improvement, climate change, population growth and increasing our drought resilience. There is considerable uncertainty on the impact of all these pressures on future water needs and the report identifies nine possible scenarios. The increased water need ranges considerably across these scenarios – from 1.0 billion litres per day to 2.8 billion litres per day (see page 20 of consultation document). The headline figure is the 'reported pathway' at 2.7 billion litres per day – this has high population growth, high climate change and high environmental improvement. It seems perverse that having identified a range of scenarios WRSE focus on one which is within a few percent of the highest, with very little justification. We discuss the reasons we doubt the WRSE analysis of the individual demand pressures below.

## Population Projections

WRSE present 21 population projections for the south-east region. The projected increases from 2020 to 2050 in population range from 400,000 to over 5 million. The 'reported pathway', used in the subsequent plan development, uses one of the very highest projections, i.e. the housing plan, this has a population increase of 4.5 million (an increase of 23% on the 2020 figure). We understand that the 'housing plan' is the guidance from the Environment Agency but it must be appreciated that its use poses a considerable risk of overestimating future demand and to base major funding and resource decisions on such flawed projections seems irresponsible.

The housing demand scenario is a sum of the individual housing growth projections of the local authorities. These plans have been calibrated to achieve the Government target of 300,000 new houses a year – a target not achieved in the UK in the last 60 years. We know from the experience of the local CPRE Branches that the local authority targets are nearly all aspirational and are unlikely to be achieved. In fact, recent announcements from the Department for Levelling Up, Housing and Communities suggest the 300,000 target is likely to be abandoned.

A quick analysis of the Office of National Statistics (ONS) 2018 population projection shows that the 'natural' growth of the population (births minus deaths) becomes negative for the south-east in 2029. Over the 25 year (2018 to 2043) period the overall natural change is in fact negative. This part of the ONS projection is reasonably robust, the females likely to have children in the next 20 years are already born and there is a world-wide trend towards lower fertility rates which is unlikely to be reversed. The big uncertainties in all the projections are inward migration rates (both internal and international). If the population of the South-East is to increase by 4.5 million those people must come from overseas or from other regions of the UK. Both movements would be contrary to current Government policies. It is worth noting that moving millions of people from the north of England would have very serious social and economic consequences.

In conclusion it must be recognised that it is very likely that the reported pathway considerably overestimates future population growth. It must also be recognised there are considerable uncertainties in population projections, arising from uncertain future migration patterns. There are thus considerable dangers in assuming one of the highest population growth scenarios for planning purposes. Although we recognise that choosing a lower growth scenario may go against guidance it is possible to put together robust arguments for such a decision. The large uncertainties, exacerbated in the last few years by BREXIT, Covid and the economic slowdown, point to a need for adaptable and scalable solutions.

Even taking the median of the population projections (although this still involves attracting 2 million people into the region) would halve the future demand from 600 to 300 MI/d.

## Environmental restoration

CPRE supports the restoration of our internationally unique chalk streams and some reduction in groundwater extraction is needed. We note that, as with the population increase estimates, there is considerable uncertainty in the new water resource required to return the chalk streams to a pristine state, ranging from 520 Mlt/day to 1360 M Lt/day. We also note that the WRSE preferred pathway chooses the largest number, as with the population projection. We also note WRSE acknowledge that: '*The investigations carried out by water companies over the next 10 years will provide the evidence base for the future reductions in abstraction*'.

There are clearly many gaps in our knowledge about the best way to restore our chalk streams. We would particularly like to highlight:

1. Uncertainties in the level of reductions in abstraction required to produce acceptable flows in the chalk streams.
2. Uncertainties in the amounts of additional water available in the lower reaches of the streams which is then available for extraction following a reduction of groundwater pumping. (We note that the 'Chalk Streams First' analysis suggest this is considerably higher than estimated by WRSE.)
3. To what extent additional pollution prevention interventions and catchment management (restricting agricultural and sewer outfalls) would be more effective in restoration.

It is absolutely clear that we cannot wait 10 years to answer these questions before we embark on a programme of restoration. So we strongly support the Chalk Streams First and the DEFRA-sponsored 'Catchment Based Strategy' which recommends priority for streams where abstraction exceeds 10% of recharge (A10%R). Such a strategy requires much lower resource requirements to regenerate the priority streams. We would urge, as a matter of urgency, that work to investigate the best and cost-effective strategies to restore our chalk streams is expanded (along with immediate action on the most vulnerable streams). It is clear there is not a one size fits all solution and work needs to be done on a stream-by-stream basis. We note that the recent Chalk Streams First report provides the first step in this process, and we believe further work should be based on this.

The WRSE plan focuses wholly on water extraction but pollution (sewage and agricultural) is a bigger factor for the lower reaches of the rivers. Resources may be better redirected from supply of new water infrastructure to Sewage Treatment and ameliorating agricultural pollution.

### Climate change

According to Ofwat, climate change impacts should be investigated for 'upper quartile' and 'lower quartile' effects. Upper quartile represents essentially no efforts to ameliorate Greenhouse gases. As we understand it the climate change requirement is based on the IPCC RCP8.5 scenario. This is scenario is the highest emission scenario tested and it is now regarded as unrealistically high. In fact, a recent article in the journal Nature (vol. 577, pages 618-620, January 2020) recommends: *'Stop using the worst-case scenario for climate warming as the most likely outcome'*.

The last IPCC AR6 report the RCP8.5 scenario gives a mean global temperature increase of 4.4°C (with a range of 3.3 to 5.7°C). The 2015 Paris agreement, signed by the UK Government, commits to a maximum temperature increase of 2°C (with an aspiration of 1.5°C). The National commitments made at the Glasgow COP26 suggest we are on track for a global heating of about 2.5°C, further illustrating that the high climate change scenario used by WRSE is unrealistic.

WRSE take the highest climate change scenario as their 'reported' pathway. CPRE's view is to take the median – leading to a 125 MI/day deficit instead of 240 MI/day.

*CPRE contends that it is perverse that the headline demand scenario used by WRSE is within 5% of the very highest of the nine scenarios presented. CPRE ask for a more honest assessment of the uncertainties in the demand forecasts and the target scenario closer to the average.*

*We particularly urge the use of more realistic population projections and the need for a more holistic, adaptive and evidenced based plan to improve river quality across the region.*

## The Solutions

All scenarios need some 'new' sources of water. These include river transfers, new reservoirs, water recycling, desalination and others. It is interesting that for the 'low' pathway the three suggested reservoirs provide only 1% of the new demand. Given the large uncertainties in future water demand, outlined above, we fully endorse the need for adaptive and smart solutions. All solutions should be scalable, proportionate and minimise environmental damage.

### Leakage and consumption

For all the scenarios over half the 'solution' is achieved through leakage reduction and demand management and for the 'low' scenario this constitutes 78%. The plan will reduce leakage by 50% by 2050 and reduce personal water use from 144 to 115 litres per person per day (averaged over the WRSE area, but boosted by the 123 litres per day target for Thames Water). *These targets are challenging, but CPRE asks for higher ambition.*

In terms of water use all companies should aim for a maximum of 110 litres per person a day, in line with Government policy (see, for example, the Environmental Improvement Plan 2023). All water companies should accelerate the installation of smart water meters and, as soon as possible, implement a progressive charging policy to penalise the high water users. Not all the 'heavy lifting' can or should be done by the companies and the Government has a considerable responsibility to help with public education and to update building regulations (the latter should ensure all new buildings, and renovations, are water efficient and contain rainwater harvesting and internal household water recycling systems).

We particularly note this is not all about mean water use. Most of the 'new' water resource is only needed during drought conditions. Public awareness campaigns and social media have been shown to be remarkably successful in reducing water use at critical times. The Water Companies and Government need to work together to both standardise and refine this messaging (for example start media-announced public warnings to start saving water much earlier, when the hydrological situation clearly points towards an impending drought scenario).

### River Basin Transfers

CPRE supports the various river basin transfer schemes. The Grand Union Canal transfer can provide very quickly water needed to reduce extraction along the Chilterns and thus allow the remediation of the Chiltern Chalk streams in the next few years. Similarly, we support the development of the Severn-Thames transfer. This scheme is scalable, adaptable and causes minimal environmental damage. We understand it could be operational by the early 2030s, thus providing water quickly for improved resilience and river improvements. We do understand that pumping across the Cotswolds has a carbon cost but in fact this goes away if the Government target of decarbonising the electrical grid by 2035 is achieved. We note that the 'operational carbon cost' quoted by WRSE assumes constant pumping of high flow in the scheme, whereas the likelihood (from the RAPID Gate 2 documents for the Severn-Thames transfer scheme) is around 25% averaged over the period to 2075, thus reducing the costs.

## Recycling

CPRE also support the various recycling schemes. These are also scalable, adaptable and have low environmental impacts. The Teddington river abstraction (supported by Mogdon recycling) should be implemented as soon as possible. We understand this could be easily expanded in the future from the current plans for 67 Ml/d to 100 Ml/d, and even further if the water temperature issues could be resolved (water heat pumps to supply district heating along the pipeline is a rapidly developing technology and should be investigated).

## Reservoirs

CPRE remains very critical of the priority given to the SESRO reservoir. This development would not be scalable or adaptable and has considerable environmental damages and risks. It is obvious that the environmental damage during the construction phase would be huge, not just on the 10 square kilometre site but in the surrounding area and access roads. Even beyond the construction phase any restoration of habitat (or even the creation of new habitat) will take decades (for, for example, for trees to grow and insect populations to recover). We find it difficult to believe that the environmental impact would be anything but severe. If the SESRO project is to be progressed at any time in the future we urge that a full, transparent and independent study of the environmental and greenhouse gas emission consequences be undertaken. Further CPRE believes that a portfolio of smaller distributed reservoirs (such as Havant Thicket Water and Broad Oak) combined with recycling schemes could provide a realistic adaptable solution.

## Desalination

Finally, desalination plants along the south coast should not be completely rejected but CPRE would urge they be restricted to brownfield sites and subject to a rigorous environmental assessment. New technologies and the decarbonisation of the electricity grid may make these more cost-effective options in the future. Again, they should be scalable and adaptable. We would particularly point to the previously proposed Fawley desalination plant. The Fawley oil refinery is very likely to become redundant as the UK decarbonises (with for example, the vast majority of cars being electric by the 2030s). There seems considerable opportunity to repurpose part of the site (clearly focusing on the brownfield area). Again, as with SESRO, we would urge that a full, transparent and independent study of the environmental and greenhouse gas emission consequences be undertaken.

To conclude, CPRE believes that the priorities for new water sources outlined by WRSE should be reassigned in the light of the considerable uncertainties and likely overestimations of the demand forecasts. The uncertainties emphasise, even more starkly, the importance of an adaptable plan. We lay out above that water transfers, recycling and desalination provide a route to real adaptability and scalability to equip us well for an uncertain future.

Prof. Richard Harding, on behalf of CPRE SE.