

Report to	Lead Cabinet Member for Transport and Environment
Date	28 July 2008
Report By	Director of Transport and Environment
Title of Report	Draft Water Resources Management Plans – a) South East Water; and b) Southern Water
Purpose of Report	To establish the County Council's views on these two Draft Water Resources Management Plans

RECOMMENDATIONS:

The Lead Member is recommended to:

- (1) welcome the opportunity to comment on the Water Resource Management Plans; and**
 - (2) agree the comments set out in full in the Appendices to this report, and summarised in paragraph 3.3 below, for submission to the Secretary of State for Environment Food and Rural Affairs as the County Council's views on the draft Water Resource Management Plans.**
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1. Financial Appraisal

1.1 There are no direct financial implications arising from this report. However, there may be implications for the County highway and rights of way network should the Proposed Clay Hill reservoir be developed, but that would be a matter to resolve when any planning application is submitted.

2. Supporting Information

2.1 Water supply in East Sussex is provided by two separate companies. South East Water (SEW) supplies most of the County and Southern Water supplies the Lewes - Peacehaven area and Hastings - Rye area. Both companies also supply water to much wider areas in other counties in the region.

2.2 All water companies are currently reviewing their water resource needs for the next 25 years to the year 2035 as part of the new statutory process. Both companies have prepared draft Water Resource Management Plans (WRMPs) which replace earlier, voluntary, long term plans. The draft WRMPs set out how the water companies intend to maintain along term balance between increasing demand for water and available supplies. The draft plans are out for public consultation and any representations are to be made to the Secretary of State (SoS) for the Department for the Environment Food and Rural Affairs (Defra). It is expected that the plans will be finalised and published by Summer 2009.

3. Comments/Appraisal

3.1 Both WRMPs have followed a similar process of forecasting future demand for water and baseline water supplies; assessing a range of demand management and resource development options for closing gaps in supply; evaluating different combinations of options; devising a strategy and proposals at water resource zone level (sub-divisions of company areas); and presenting a final water supply/demand balance.

3.2 The WRMPs are large, complex documents and a great deal of technical work underpins them. Appendices 1 and 2 attached to this report summarise the WRMPs for

SEW and Southern Water respectively. Where they raise issues for East Sussex a commentary a commentary on the relevant aspects is included as a draft for submission to the Secretary of State (Defra).

3.3 The WRMPs raise a number of common issues, but in some areas there is apparent conflict between the Plans. The County Council welcomes the opportunity to comment formally on these new plans. In summary the County Council:

- supports the concurrent twin track approach of demand management and water resource development;
- advocates keeping the statistical bases of demand projections up to date so that the strategy can be adjusted accordingly in good time;
- supports maintaining leakage control at or below the agreed “economic level”;
- supports universal metering as a demand management measure, subject to the needs of low income groups being protected;
- urges the water companies to make even greater efforts to encourage their customers to use water more efficiently;
- generally supports the concept of transfers of water from zones in surplus to zones in deficit to achieve a better balance between supply and demand;
- recommends the SoS and Companies to resolve the apparent conflict of approach to bulk water transfers between the two companies and to the issue of the proposed raising of Bewl;
- supports in principle the need to develop additional resources to serve East Sussex, but has not yet seen sufficient evidence that Clay Hill is the best proposal, yet is prepared to continue working with SEW to resolve outstanding issues; and
- urges a resolution of the uncertainties surrounding possible reductions in abstractions that the Environment Agency may require on sustainability grounds.

4. Conclusion and Reason for Recommendations

4.1 This is a new formal statutory process for planning for water that is designed to ensure a robust balance between the demand for and the supply of water at all times up to 2035. There are many uncertainties in seeking this balance, but the companies aim to strike it in the most sustainable and cost effective way. However, there are choices and the uncertainties need to be managed. It is important that the County Council gives its views on the consultation proposals as its residents need secure water supplies and the environmental impact of proposals need to be mitigated and opportunities they may present seized. The comments set out in the Appendices are the County Council’s response to the consultation. There is further work to be done, in particular on the new reservoir proposals, to which the County Council is prepared to contribute.

RUPERT CLUBB
Director of Transport and Environment
17 July 2008

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Local Members: All

BACKGROUND DOCUMENTS

Draft Water Resources Management Plan - South East Water, May 2008
South East Water WRMP Strategic Environmental Assessment - Atkins & Jacobs, May 2008
Consultation Draft Water Resources Management Plan Main Report - Southern Water, April 2008

SOUTH EAST WATER - DRAFT WATER RESOURCES MANAGEMENT PLAN

Introduction

1 The Draft Water Resources Management Plans are part of the new statutory process which sees the earlier voluntary plans that were submitted to the Environment Agency replaced by new Plans prepared under the guidance introduced by the Water Act 2003. These new plans look 25 years ahead and set out how the companies aim to maintain a long term balance between the demand for water and available resources.

2 South East Water's (SEW) draft Water Resources Management Plan (WRMP) was published in May and is out on public consultation until 1 August 2008. A copy of the main report is available at: <http://www.southeastwater.co.uk/environment/stagetwo.asp>

3 Representations on the draft WRMPs are to be made to the Secretary of State for the Department for the Environment Food and Rural Affairs (Defra) who forwards them to the respective water companies. The Water Companies then must publish their formal responses to the representations made. Following that, the Secretary of State reviews the Plans with the companies' responses and can direct changes to the plans before they are finally published. It is expected that the final plans will be published by Summer 2009.

South East Plan Context

4 The water companies in the South East Region have been working together with the Environment Agency to inform the development of the SE Plan. The SE Plan recognises the twin track approach of demand management and water resource development pursued by all the companies. Policy NRM1 recognises the "demonstrable need for new water resource schemes and increased demand management over the period of the Plan". It lists five major specific schemes that it considers may be required. Three are relevant to East Sussex: a new reservoir proposal at Clay Hill in Lewes District; new reservoir proposal at Broad Oak in Kent; and the proposed enlargement of Bewl reservoir.

5 The Examination in Public Panel supports the concurrent twin track approach. It rejected a consecutive approach where demand management and efficiency savings would be exhausted before new resources are developed, because of the long lead times involved in planning new infrastructure. Nonetheless, the Panel also recommends more co-ordinated effort by national and regional bodies as well as water companies in delivering water efficiencies.

6 In recognition of the long lead times the Panel also endorses the five resource schemes listed in the policy NRM1 and recommends strengthening this policy to provide a greater degree of certainty over their need. It also recommends giving a firmer steer to LDDs to facilitate the delivery of strategic infrastructure, stating that LDDs should allocate and safeguard sites for the reservoir schemes listed in the policy.

7 As these recommendations are based on the Panel's examination of the evidence, they are influential, but cannot yet be regarded as certain. At the time of writing the Secretary of State for Communities and Local Government (CLG) had not published her proposed changes to the SE Plan, but is expected to do so during July.

SE Water Company's Overall Strategy

8 In preparing its draft WRMP SEW has focused on five broad objectives:

- Establishing the need for additional water resources;
- Evaluating new water resource options;
- Evaluating ways of managing demand for water;
- Ensuring statutory duties are met and to put in place resilient and cost effective plans to meet customers' needs in the future; and
- Ensuring they operate in an environmentally and socially sustainable way.

9 The strategy's twin track approach seeks to balance across the company's area both the demand for water and the available supply to meet customer requirements. Maintaining a balance implies seeking to ensure that shortages do not occur at any time during that 25 year planning period. Because of the uncertainties relating to actual demand and actual supply at any one time, the company's planning process incorporates safety margins in its calculations above the base forecast of supply and of demand. This allows a sufficient buffer to cope with uncertainties such as peaks in demand and failures in supply that depart from the expected norm.

10 Supply and demand forecasts are undertaken at "resource zone" level. Where deficits in supply relative to demand are forecast to occur, SEW has assessed the options available to remove the forecast deficit in the most sustainable and cost effective way as part of the process of preparing its strategy and proposals for the WRMP.

11 The SEW baseline forecasts of supply and demand for water clearly reveals a need for further resource development. It is against the balance of these forecasts of surpluses and deficits at resource zone level and consideration of further inter-zone transfers that SEW has appraised options for closing the supply/demand gap to 2035. (Figure 1 indicates the SEW resource zones and also shows the extent of planned inter zone water transfers.)

12 SEW has undertaken an initial assessment of over 600 potential water management options to close the forecast demand/supply gap. The wide ranging options included:

- a range of demand management measures;
- metering;
- leakage;
- new river abstractions;
- optimisation/enhancements to sources of supply;
- new groundwater development;
- effluent re-use;
- desalination;
- aquifer storage and recovery;
- winter storage reservoirs; and
- national, regional and company transfers from areas with surplus supplies.

13 The initial appraisal, including discussion with the Environment Agency, rationalised the long list down first to the 200 most feasible options for closer evaluation and then to the 110 most optimal schemes for final assessment. SEW has used a mathematical model to determine the best combination of schemes that balances demand and supply over the 25 year planning period at the most sustainable, least cost (including social and environmental cost) means. Schemes of different size and nature were compared on a common basis by using the cost per cubic meter of water delivered.

14 SEW indicates that in general the demand management and further leakage reduction options selected were limited, because despite scoring well on sustainability criteria, they were judged to deliver little water and had a higher degree of uncertainty.

15 Bulk water transfers can have high environmental costs but their impact is localised and can be mitigated, but long term sustainability is hampered by high power requirements needed for pumping. This militates against long distance transfer.

16 Winter storage reservoirs yield large amounts of water at low unit cost, but tend to have the largest degree of environmental impact because of the large areas of land they cover, but can provide other benefits such as recreational use and habitat creation. They are more drought resilient than direct river abstraction.

17 In summary, SEW indicates that their overall strategy:

- supports reduced levels of water use in all new homes;
- reduces the planned rate of growth in water consumption per person;
- includes universal metering by 2020;
- reduces leakage further to maintain it at its economic level;
- takes account of potential climate change impacts;
- takes account of their assessments of customers' willingness to pay;
- minimises total amount of new water resource development;
- minimises environmental impacts and maximises environmental benefit
- reduces the increase in SEW's carbon footprint; and
- minimises cost by selecting the least cost/most sustainable combination of options.

18 In terms of strategic infrastructure proposals that affect East Sussex, the strategy includes:

- further developing inter-zone water transfers from areas of water surplus to areas where demand outstrips supply;
- improvement at existing groundwater sources and treatment works;
- by 2017 developing a new winter storage reservoir at Clay Hill north of Ringmer to serve the western part of the county, with new strategic mains to serve other zones including the eastern part of East Sussex;
- by 2018 developing a new groundwater source near Bewl reservoir
- by 2024 developing a new winter storage reservoir at Broad Oak in Kent with new strategic mains to serve the eastern part of East Sussex and elsewhere;
- by 2026 raising Bewl Water (only 25% of which is abstracted by SEW and the rest by Southern Water)

19 The rest of this Appendix looks first at the baseline balance of water supply and demand and then discusses some of the key components of the demand for, and supply of water, including proposals for new reservoir development. The final water supply and demand balance as a result of the strategy and proposals is summarised at the end. Draft County Council comments on aspects of the WRMP are set out in italics at the end of each section.

Baseline Balance in Water Supply and Demand

20 Water supply and demand is planned at resource zone levels. These are essentially sub-divisions of company areas that broadly share the same level of risk to supply disruption.

21 The baseline forecast of water demand takes account of future patterns of consumption, increases in population and housing, changes in metering policy, the impact of leakage control, water efficiency initiatives and the potential impact of climate change. The the baseline water supply forecasts exclude existing transfers of water between SEW resource zones that are currently used to match supply and demand. However they include existing bulk transfers into the SEW area from other areas and assume their long term continuation.

22 In this context the baseline forecast shows that three resource zones are currently in deficit with demand exceeding supply. These zones cover much of the western parts of East Sussex and Kent. The eastern part of East Sussex within the SEW area is in healthy surplus. Varying surpluses are also shown in the remaining zones of the SEW area such that the whole of the SEW area is currently in aggregate surplus overall.

23 However, this aggregate water surplus is forecast to disappear at peak times shortly after 2015 and in terms of average demand soon after 2025. A substantial overall deficit is shown to build up by the end of the planning period with deficits of demand over supply evident in seven of the eight resource zones.

24 By making use of the inter-zone transfer of water (including into and between the two main zones serving East Sussex) a balance between supply and demand can be maintained in all zones in the early years of the plan period. This delays the point at which new resources need to be brought into play.

Components of Demand for and Supply of Water

Demand for Water

25 The overall demand for water is forecast to increase for a number of complex reasons, despite policies and actions to manage demand.

26 Absolute population growth inevitably increases the demand for water. Across the whole SEW area the population is projected to grow by about 15% up to the year 2035. Household numbers, however, are projected to rise by over 25% over the same period, as average household sizes decline in common with national and regional trends. Much of the growth in households is a result of increasing numbers of people living alone. Nevertheless, this is a high rate of growth - the SEW area does include major growth areas such as Ashford and the Medway valley in Kent and Reading and Basingstoke in the detached western part of SEW's area. It is also evident that the consumption of water per person is higher in smaller (especially single person) households as, for example, washing machines and dishwashers may not always be full when used.

27 SEW states that the consumption of water per person has historically grown at about 1% a year and is currently growing at 0.5% annually. Water companies have a legal duty to promote water efficiency to their customers. Consequently, initiatives pursued under this requirement have helped reduce historic annual growth rates. SEW is planning to reduce the per capita growth in water consumption even further to 0.3% a year.

28 The potential impact of climate change has been factored into SEW's demand assessments. The climate change scenario used in the assessment has the effect of increasing overall demand by about 2% by 2020 rising to 4% by 2040. These impacts are, however, included in the per capita consumption rates discussed above.

Comment

29 *The levels of customer and household growth are substantial and seem to be based on projections that take account of SE Plan housing provisions including the Panel's recommendations. The water companies in the South East region have collaborated in the commissioning of these demographic projections and their consultants are poised to refine them in the light of the final version of the SE Plan once it is approved. However, by running to 2035 the housing projections cover a period beyond the SE Plan's time horizon. Consequently, it is unclear what the basis for house building rates, and hence household and population growth, is beyond 2026. It is also difficult to cross check the projections up to 2026 because of the unusual geography of water company areas. While it is essential that planning for water should take a long term perspective, the further into the future projections look, the more uncertain they become. That said, they do not seem unreasonable given these uncertainties. However, this aspect of the planning process - the demographic demand base - should be kept under review and adjusted as necessary.*

30 *The principle of planning for a reduced level of per capita growth in water consumption is strongly supported, although it is difficult to judge what level of reduction is achievable. SEW should be encouraged to seek and pursue measures that would result in an even lower level of per capita demand where practicable and cost effective.*

Demand Management

31 Whatever increase in customer base as a result of new house building, the water companies must supply water to them. There is, therefore, no opportunity to manage the number of customers to be served, only the amount of water each consumes. It is also this increase in per capita consumption that comprises the largest component of overall increases in demand and hence where the greatest scope lies in managing demand.

32 The lower rate of growth in per capita consumption is based on the application of demand management initiatives, including metering and the impact of the code for sustainable homes on new building.

33 Currently 37% of SEW's customers have metered water supply and, on current policy, SEW reckons this would rise to almost 60% by 2020. However, the Environment Agency has classified the whole of the region as an area of "serious water stress". As a result the Secretary of State has directed the water companies to consider the case for adopting a policy of universal metering. The WRMP proposes to adopt this policy and estimates it can achieve 90% metered supply by 2020. However, SEW is sensitive to the plight of low income groups with legitimately high water usage needs and is working with regulators and government to ensure they are adequately protected.

34 The benefits of metered water supply seem clear. Metered SEW customers consume an average of 150 litres a day, whereas un-metered customers' consumption averages 175 litres a day, but care needs to be exercised in interpreting these figures. Although SEW has been metering all new properties in recent years, it has also been responding to those who choose to opt into a metered regime and who may do so because of their more modest consumption. Reductions in consumption can be expected as a result of metering, but perhaps not to the full extent that the above figures might imply.

35 SEW estimates that the more efficient water systems in new housing, arising from implementing the code for sustainable homes established by CLG, can result in per capita consumption in new homes of 130 litres a day.

36 Other demand management measures relate to behavioural change including retro-fitting more efficient appliances in existing homes. SEW states that supporting behavioural change in its customers is central to its strategy which has three main strands in this regard:

- awareness and education programmes and water efficiency initiatives that help to educate customers to save water;
- undertaking innovative trials and pilot schemes to improve understanding of the costs and benefits of initiatives; and
- implementing proven water efficiency options alongside water efficient schemes on the supply side as part of the twin track approach.

Comment

37 *The principle of managing demand for water is strongly supported. In this regard the policy of seeking universal metering is also supported as a necessary and sustainable component of demand management, provided there are safeguards for low income groups that have high water needs.*

38. *Behavioural change measures to raise awareness, educate and encourage the public to use water more wisely and efficiently are also strongly supported. I accept it is difficult to make robust estimates of the likely results from pursuing policies and campaigns to effect behavioural change and recognise the nature of risk in overestimating it. Failure to achieve expected reductions in demand through behavioural changes could leave insufficient lead time to augment supply when needed. Nevertheless, the County Council encourages the water company to increase its efforts in informing and educating the public in wise water usage as part of the demand management approach. It is*

recognised that further moderating demand may only delay the need for new water resources rather than obviate the need for them at all.

Water supply

39 The key finding from the analysis supporting the WRMP is that despite demand management measures, overall demand for water in the company's area will outstrip available supply if only existing sources are relied upon. It is evident that additional resources will be required.

40 Over 70% of the water currently supplied by SEW is groundwater abstracted from aquifers and they are entirely reliant on winter rainfall to recharge them. SEW indicates that with the variability of winter rainfall and the need to protect the environment they may be required, as a result of European legislation, to abstract less water from ground sources in future.

41 The remaining sources of existing supply are river abstractions. SEW is working with the Environment Agency to assess the potential impact of abstraction in environmentally designated or sensitive areas. There are studies underway on 8 such watercourses, but the EA has instructed SEW not to assume any sustainability reductions in abstraction in this plan in terms of deployable output of water or its "target headroom" of demand (the inbuilt safety margin in the demand forecast). However, by way of context, the current studies cover approximately 20% of SEW's deployable output.

42 The potential impact of climate change has been taken into account in assessing deployable output of water supply. A mid-range climate change scenario has been used which has the effect of reducing the deployable output of water by 1.9% by 2020 and 2.4% by 2035.

Comment

43 There are clear uncertainties about the level of future baseline supply. The Plan seems to have taken reasonable account of potential climate change impacts, but the scale of any reductions in abstraction from ground or river sources is unknown. This must make planning to balance future demand and supply in the long term more difficult, given the EA has instructed the WRMPs to make no explicit allowance for this possibility. Clearly the WRPM will need to monitor these potential reductions in baseline supply and respond as necessary when the situation becomes clearer. The EA should be encouraged to resolve this at the earliest opportunity as it could destabilise the robustness of the WRMP.

Leakage Control

44 Leakage in water supply systems is inevitable and has to be allowed for in the planning process. Supply side losses due to leakage are significant, but Water companies operate to what is known as the Economic Level of Leakage (ELL) which is set for each company by the industry regulators. This is the level of leakage control below which it is accepted as uneconomic to rectify. To manage leakage SEW has active leakage control policies and regular "find and fix" programmes for leaks. Over the last decade SEW has reduced leakage by about 10% and the company is currently operating just below its ELL. The Plan aims to continue to operate at this level of leakage. Because of the increase in the number of new connections over the plan period arising from new house building, there is potential for leakage to increase. However, by retaining overall leakage at current levels, it would decline from 17.6% of distribution input at present to 15.9% by 2030.

45 Furthermore, as part of its long term strategy, SEW strongly believes it should be able to adopt customer supply pipes. This would improve management of these pipes and should enable leakage rates to be driven down further. SEW reports that this proposal received a very positive response from its customers in recent consultations.

Comment

46 *The County Council accepts the company is broadly operating at its economic level of leakage control and that this is externally agreed by the regulators. It also recognises the efforts that are required to maintain this level as the overall demand for water and the number of properties served increases. However, the economic level of leakage should be kept under review and every opportunity taken to reduce it, as costs, prices, benefits and circumstances change.*

Inter-Company Bulk Transfers

47 In addition to transferring water around the SE Water company area SEW also has contracts with other Water Companies for the bulk transfer from their areas into the SE Water area. Most notably are transfers from Southern Water (including transfer from Bewl) into resource zones serving East Sussex. These are significant components of supply for SEW and existing contracts run until 2021 and 2023, which is only half way into the plan period. SEW's strategy assumes these contracts being renewed and relies upon transfers continuing at the same rate until 2035. However, SWS in its draft WRMP is raising as an issue the merits of these transfers and the consequences on its own supply/demand balance.

Comment

48 *There is clearly some potential tension here between the draft plans of two companies. It is not clear what the consequences or options would be for SEW if those contracts were not renewed. This is an issue the Secretary of State will need to resolve.*

Proposed Clay Hill Reservoir

49 The proposal for Clay Hill has been publicly aired at exhibitions and discussions locally but at this stage only an illustrative scheme exists (see figure 2). The supporting information indicates it would be about 150 hectares (1.5 square kilometres) in area, east of the A26 north of Ringmer. It would dam the Clay Hill stream, a tributary of the Ouse, and involve abstraction from the Ouse during high winter flows. It is close to the Ouse and the existing water treatment works at Barcombe which would require extending together with around 3.5 km of additional pipelines. The total cost of investment would be about £90 million.

50 SEW's environmental assessment indicates it would have a high carbon footprint during construction, although its operational footprint per unit of water delivered is relatively low in the longer term. It would give increased security of supply and resilience in the light of climate change and the operation of the reservoir can be used to augment low flows in the main river. It has the potential to create new wetland habitats and opportunities for compatible recreation.

51 There are a number of more detailed issues to be resolved and impacts identified including those relating to ecology, landscape and archaeology. It may also impact on a number of county roads on the edge of the reservoir that may require bridging or realignment.

52 If the proposal is accepted as part of the WRMP strategy by the Secretary of State, it is expected that a planning application would be made to Lewes District Council in Autumn 2009 with construction envisaged between 2011 and 2016.

53 Alternatives to Clay Hill that were rejected included local effluent re-use and desalination, but these would have had unit costs 1.5 to 8 times that of the reservoir option and have larger, long term operational carbon footprints. About half a dozen alternative locations for a reservoir in this zone were considered but all were judged to have less favourable cost, feasibility and environmental impacts than Clay Hill.

Comment

54 *It is clear that water supply in this zone close to or below current demand and that some augmentation of supply is required. However, it is very difficult, from the material published, to come to a clear and definitive view of the principle of a proposed new reservoir at Clay Hill. However, it would fill the supply gap and provide surplus that would also enable projected supply deficits to be met in the eastern part of East Sussex.*

55 *The case for strategic water resource development was accepted by the SE Plan Examining Panel who recommend a firmer policy in the SE Plan that supports in principle the five strategic schemes that, including Clay Hill, it contains. (The Secretary of State for Communities and Local Government is expected to publish her proposed changes to the SE Plan during July which may clarify the regional policy.)*

56 *While it might seem a more attractive option to rely on more ambitious demand management measures and leakage control, this would be a more risky solution and would at best probably only delay the timing of new resource development. If, after a number of years, more aggressive standards of behavioural change were not achieved, there would be insufficient time to augment water supply, given the long lead time involved in planning and construction.*

57 *Clay Hill is close to an existing abstraction point and treatment infrastructure. It would clearly have environmental impacts and change the landscape in the vicinity. However, it could be designed to make a positive, albeit different, contribution to the local landscape and could offer positive opportunities for recreation and habitat creation.*

58 *The County Council, therefore, should acknowledge the need for, and support in principle, a new reservoir to serve this area. However, the County Council should not at this stage prejudice the consideration of any forthcoming planning application (although it would be a matter for Lewes District Council to determine). It is not yet sufficiently clear from the draft WRMP which other options have been considered and, consequently, that this is the best option. This is the kind of information that is likely to accompany any planning application.*

59 *While there appears to be strong evidential support for the Clay Hill proposal, there are also a number of concerns identified in SEW's Environmental Report accompanying the WRMP that require further examination or resolution. The County Council is prepared to continue contributing to this work, where appropriate.*

Proposed Raising of Bewl Reservoir

60 *This scheme is to raise the level of water at Bewl Reservoir and SEW estimates it would cost almost £11 million, but SEW have only 25% abstraction rights, the rest going to Southern Water. It is not clear whether this is a wholly SEW funded scheme, or this is just their share of a larger cost investment. SEW favours this towards the end of the plan period coming on stream by 2026 and it would only provide a relatively modest increase in supply to SEW.*

61 *It would involve the loss of land and have some impact on the High Weald environment. It does, however, feature as one of the five strategic source developments that the SE Plan Examining Panel supported. Nonetheless, it does not appear to be a firm proposal in Southern Water's WRMP (see Appendix 2).*

Comment

62 *As this proposal is identified as not being needed until late in the plan period and would only yield a relatively modest supply increase for SEW, the decision whether to include it should be judged also in relation to the Southern Water WRMP. Yet, Southern Water seems only to be seeking to investigate the potential of raising Bewl towards the*

end of the planning period. There is clearly an issue that the SoS needs to resolve.

Proposed Broad Oak Reservoir

63 By 2024 SEW propose to have developed a new strategic reservoir at Broad Oak near Canterbury in Kent at an estimated cost of £125 million for the reservoir and treatment works and a further £49 million for mains infrastructure. It would serve the Canterbury/Ashford and Whitstable area and provide a surplus of water that is available for transfer to the eastern part of East Sussex (and elsewhere) to help all resource zones maintain a supply/demand balance. SEW indicates it is the most cost effective solution for this part of the company's area. It also states that the alternative for supplying the eastern part of East Sussex would be a less optimal strategy involving a desalination scheme (£32 million) and another winter storage reservoir (£100 million) with higher costs in terms of the amount of water delivered.

Comment

64 *On the basis of the evidence presented it appears there is a case for the development of additional water resources towards the latter part of the plan period. Given the scale of the proposal it clearly has strategic significance beyond the immediate resource zone and comprises part of the supply strategy for part of East Sussex. To this extent it is supported in principle.*

Final Balance in Water Supply and Demand

65 With the strategy implemented in full - including maintaining the rate of leakage control, demand management measures, new groundwater sources, additional strategic reservoir development and extending the capacity to transfer bulk water supplies - the water supply can maintain a positive balance between supply and demand in all zones throughout the plan period.

66 While SEW has sought to quantify and plan for the uncertainties that surround the complexities of planning for water as far as it can, there remains a major unresolved uncertainty that casts a shadow across this and other WRMPs. This is the "sustainability reductions" that the Environment Agency may require in abstractions from sources in environmentally sensitive areas.

Comment

67 *The concurrent twin track approach that seeks to balance demand management and supply development is strongly supported. The overall strategy and mix of measures and schemes would seem to provide sufficient capacity to meet demand up to 2035, recognising the limitations of long term forecasting.*

68 *The balance and robustness of the strategy is threatened by the uncertainties surrounding the sustainability reductions in abstractions that SEW may have to comply with. The hands of the Water Companies appear to be tied on this issue if, on the one hand they do not know the likely scope of reductions, and on the other are prevented from making contingency plans. In principle, the need to maintain the quality and integrity of water bodies in environmentally sensitive areas is supported. However, this could have a significant impact on the available water supply. The County Council considers this issue should be resolved expeditiously so that SEW has sufficient time to plan for the consequences, especially given the lead times in developing infrastructure.*

Figure 1 SEW Water Resource Zones Showing Planned Bulk Water Transfers

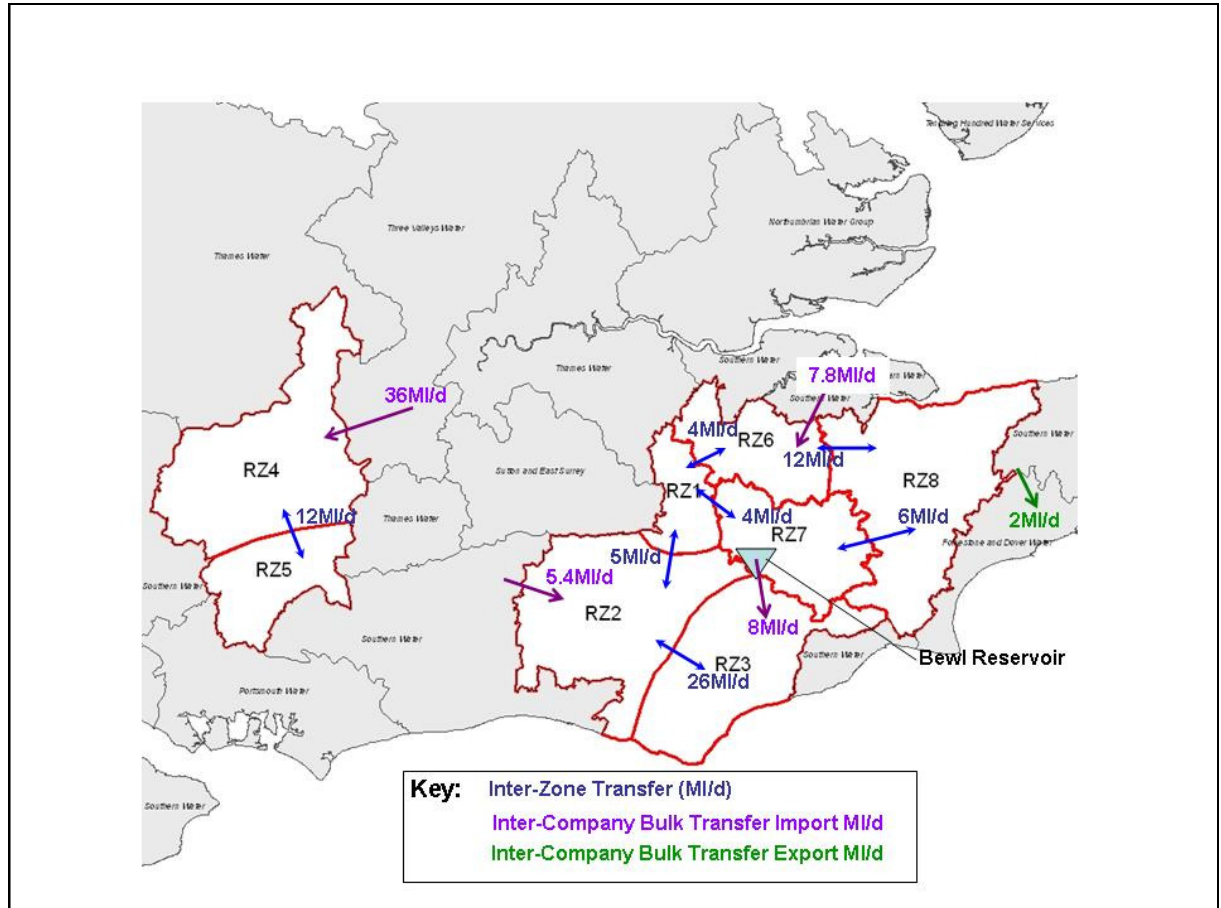
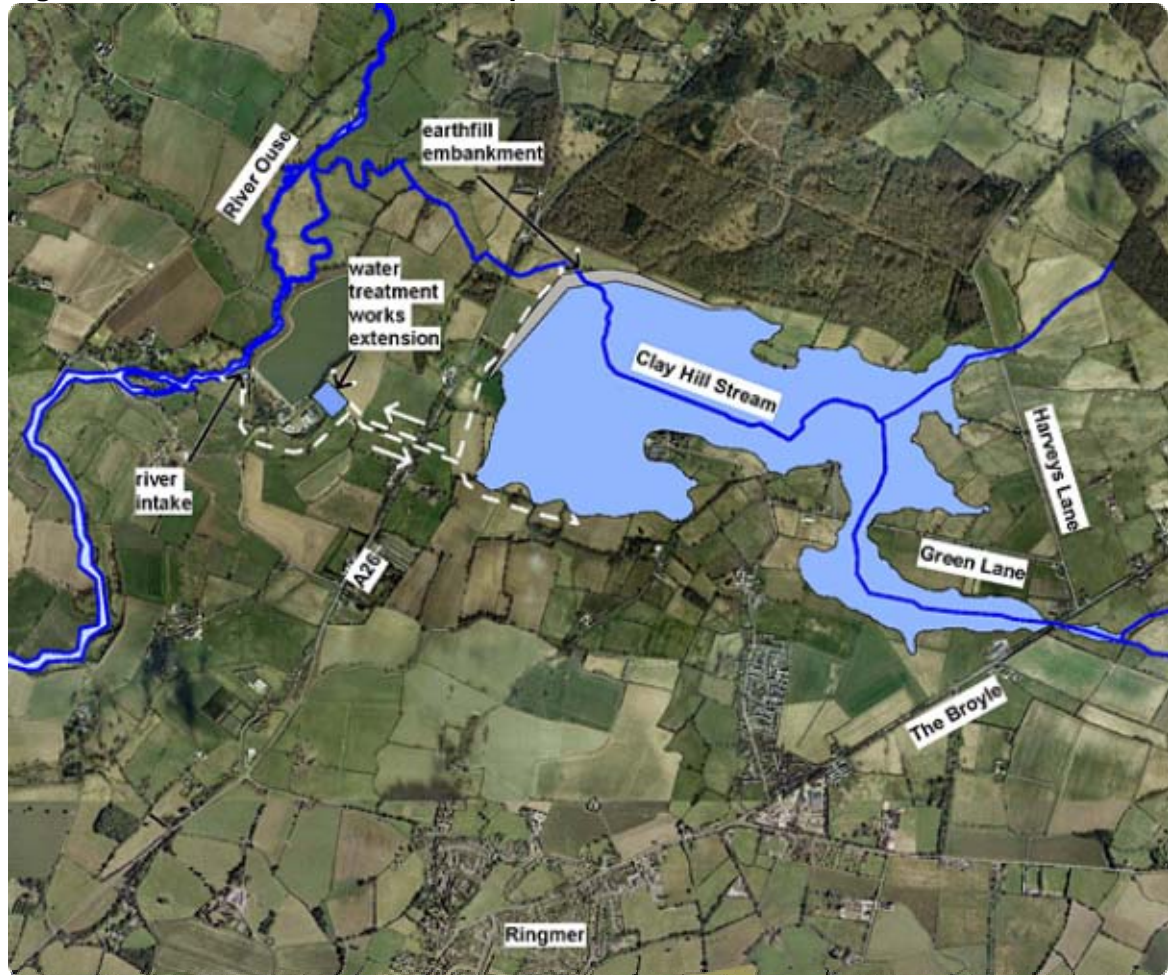


Figure 2 - Illustrative Scheme of Proposed Clay Hill Reservoir



SOUTHERN WATER - DRAFT WATER RESOURCE MANAGEMENT PLAN

Introduction

1. Water Resources Management Plans (WRMP) are statutorily required plans which look 25 years ahead, and seek to demonstrate how water companies will ensure that there is sufficient security of water supplies to meet the anticipated demand for water.
2. Southern Water's WRMP was published in April 2008 for consultation until 25 July. A copy of the main report is available at:
<http://www.southernwater.co.uk/Environment/managingResources/publicConsultation.asp>
3. Responses to this plan are received by the Department for the Environment Food and Rural Affairs (Defra) and forwarded to the water company. Following the publication of the company's response to responses received, the WRMP is reviewed by the Secretary of State with a view to finalising all WRMPs for publication in the summer of 2009.
4. WRMPs will be reviewed on a regular basis, and a revised WRMP will be prepared every five years, or earlier where a review indicates a material change in circumstances, or at the direction of the Secretary of State. This WRMP is complemented by Southern Water's Drought Plan which demonstrates how the company will manage the security of supplies in the event of a drought.
5. Southern Water supplies a total of 2.28 million customers to an area of some 4450 sq kms from East Kent through East Sussex (Hastings and Rye and part of Lewes district) to Hampshire and the Isle of Wight. Figures 1 and 2 show the distribution of Southern Water's supply areas in East Sussex.
6. A questionnaire accompanies this consultation, and where appropriate, this Appendix provides responses to the questions set by Southern Water,

The Water Resource Strategy

Do you consider that we have included all the main generic challenges for water resources planning?

7. The WRMP outlines what it refers to as the key generic challenges which it needs to address over the coming 25 years, including:
 - Security of Supply – a water supply system must be planned to be robust and resilient, and be able to maintain the security of supplies under the most severe conditions;
 - New Housing – although a range of demand management measures have been factored into the water company's calculations, the proposed rates of growth in the south east will lead to an increase in demand;
 - Climate Change – the WRMP will need to accommodate the uncertainty surrounding climate change and the prospect of drier summers, wetter winters and an increased frequency of drought events;
 - Energy Use – the need to reduce carbon emissions to avoid increased climate change is a challenge for the water sector which is characterised as an energy intensive industry;
 - Impacts of Environmental Legislation – the level of protection afforded to the water environment has been enhanced over recent years meaning that greater consideration needs to be given to the needs of the environment when calculating the amount of water available for use; and,
 - Providing Best Value to Customers.

Comment

8. *Anticipated climate change allied with the recommended rates of development found in the South East Plan panel report are fundamental to the water resource planning process. They have profound implications for the remaining generic challenges listed the WRMP and I am reassured that the assumptions made in respect of housing growth generally accord with the South East Plan (SEP). Whilst the SEP has yet to be finalised, I note that the WRMP acknowledges that proposed rates of growth may rise following the publication of modifications to the plan expected this summer. However, the South East Plan period extends to 2026, whereas the WRMP looks to 2035. It is not clear how and on what basis the WRMP assumes the growth in development rates beyond 2026.*

Do you consider that the past performance with regards to the Target Levels of Service to customers and the environment needs to be improved in the future?

9. Beyond the generic issues, described above the WRMP is requesting views on issues specific to the company area. These take the form of Target Levels of Service which relate to the frequency and nature of restrictions which customers may experience under drought conditions, and the frequency of drought orders/permits that allow increased abstraction from some sources.

10. The targets for sprinkler bans is 1 in 8 years or less, full hosepipe bans 1 in 10 years or less, drought order for non essential use is 1 in 20 years or less, and for drought permit order 1 in 20 years or less. The WRMP reports that the company has failed to meet its targets in the Sussex part of its area. This is attributable to the serious nature of droughts occurring in 1989 - 92, 1995 and 2004 – 06.

Comment

11. *The failure to meet Target Levels of Service in those parts of the Southern Water operations in East Sussex and adjacent areas is of concern, given the projected increase in housing and formation of smaller households and the predicted impacts of climate change over the plan period. However, Southern Water states that this past performance must be corrected as a matter of urgency through the WRMP. This commitment is to be supported.*

Do you believe that Southern Water should plan to introduce compulsory universal metering throughout its supply area by 2015?

12. To meet the challenges described above, the WRMP adopts the Twin Track approach to manage demand and supply. The approach uses the parallel approach of;

- reducing demand through demand management measures such as leakage reduction, appropriate metering policies and the promotion of water efficiency initiatives; and,
- the development of new supplies, as required and through the development of the new sources and inter zonal or inter company bulk supplies.

13. As part of its demand management strategy, Southern Water is committed to introducing universal water metering throughout its area by 2015. Currently, water meters are only installed with a change in house ownership or at the request of a customer. However, the Environment Agency has identified the South East as an area of serious water stress which requires Southern Water to consider universal metering. Southern Water considers that metering is the fairest way to pay for water, enabling customers to influence their own bills, and gives greater focus to reducing customer side supply leakage (at present an unmanageable but significant element of leakage rates). The plan considers that water resource savings of up to 15% can be gained from metered properties in comparison with un-metered.

14. The WRMP's strategy has assumed the successful implementation of metering by 2015 and has factored this into its assessment of the Demand Supply Balance (the predicted availability of supplies set against forecast demands).

Comment

15. *The Twin Track approach is to be supported in principle. Nonetheless, it requires a significant shift in behaviour if it is to be successful in delivering the sustainable management of water resources in a region which will experience the most extreme effects of climate change in the UK. Water metering is a significant tool in bringing about a change in public attitudes to water use, and Southern Water's commitment to universal metering is a practical response to managing demand.*

16. *However, it is important to note that Southern Water supplies some of the most deprived wards in East Sussex. Therefore, tariffs must be sensitive to the economic and social circumstances of customers.*

Do you believe that Southern Water should aim to reduce leakage to less than 10% of Distribution Input by the end of the planning period?

17. The WRMP states that a low level of leakage is desirable as it defers the need for investment in new resources which would otherwise be required to meet increases in demand over time. According to the draft plan the current Economic Level of Leakage (ELL - the balance between the costs of repairing leaks and the value of the water lost) for Southern Water as a whole is 83 mega litres per day (ml/d). This figure is below the Ofwat target set for the company of 92 ml/d. The plan proposes a long term ELL target of 75 – 90 ml/d. Although the plan also commits Southern Water to achieving a leakage target of less than 10% of distribution input or 60 ml/d by the end of the plan period (2035).

Comment

18. *Southern Water's recognition that effective leakage control is vital in light of the challenges that face water resource planning in the south east is welcomed as is the intent of the company to substantially reduce its leakage rates over the plan period.*

Do you believe that Southern Water is achieving its aim of actively promoting water efficiency initiatives?

19. Southern Water is involved in a number of initiatives to encourage customers to reduce their demand for water and include sponsorship of community events and water audits in domestic and commercial premises. Southern Water states that it will continue to invest in such activities where it is sustainable and economic to do so.

Comment

20. *The combination of challenges facing water resource planning in the south east will demand a greater emphasis on promoting the need for individuals to be water efficient. Furthermore, the treatment and distribution of water is energy intensive and the WRMP provides an estimate of its carbon footprint over the plan period. Although this is based upon a worst case or dry year scenario and energy needs may be less in reality, it is evident that the company's carbon emissions will increase significantly as it seeks to meet the demand for water over the plan period.*

21. *As a consequence, every encouragement should be given to Southern Water in maintaining and improving upon the methods it employs to promote water efficiency measures.*

Do you believe that Southern Water should pursue a policy, within the WRSE Group of companies, of renewing existing inter-company bulk supplies to other companies, providing that increases in customer bills are kept to the minimum, and ensuring that the company's security of supplies, and other internal targets, are maintained?

Do you believe that Southern Water should pursue a policy of the presumption of

renewal of inter-company bulk exports, in the face of a Supply Demand Balance deficit in its own area of supply?

22. Southern Water has boundaries with seven other water companies and bulk transfers between these companies are commonplace. The WRMP notes that the number of boundaries and the existing and potential future inter connections with a large number of company areas raises opportunities to improve the strategic use of resources across the region. It does, however, add significantly to the complexity of the water resource planning process for each company.

Comment

23. *Water companies in the south east and beyond are integrated with each relying (to varying degrees) on imports of water from each other. Consequently, there is a danger that should a water company act in isolation and fail to renew bulk exports the water resource strategies of others will be undermined.*

24. *The emphasis for Southern Water and other water companies, therefore, should be on planning for water resources at a level for sustainable water management. Given these complex interrelationships this can only take place at the regional level. If financial and operational requirements of individual companies demand that bulk transfers should be reviewed, this should take place in a timely manner and within the context of the Water Resources South East group (WRSE) (comprising all the water companies in the south east, the Environment Agency and Ofwat).*

Do you believe that there should be some recognition of the need to develop further resources and associated infrastructure, including reservoirs, in the strategic plans of other organisations?

25. The South East Plan provides the spatial planning framework for the south east region and aims to bring together and integrate policies for the development and the use of land with other policies and provides the statutory framework that forms the context for Local Development Documents and Local Transport Plans.

26. Policy NRM2 of the SEP sets out the potential requirements for water resource development over the plan period (to 2026) and identifies and safeguards specific schemes such as the enlargement of Bewl and Darwell reservoirs both in Southern Water's ownership, which may be required during the SEP period. NRM2 also notes that smaller scale water resource developments will be required and sets criteria based on need, environmental impact, and social and environmental benefits to judge both major and smaller scale water resource developments. This approach was endorsed by the Panel's report on the Examination in Public of the South East Plan.

27. An integrated approach to the delivery of water supply infrastructure is an essential element of spatial planning in the region. The technical work supporting the strategies of Southern Water's Central and Eastern areas (part of which lie on the East Sussex coast) demonstrate that they will suffer from water supply deficits early on in the plan period if new resources are not developed.

Comment

28. *The South East Plan sets the statutory policy framework for development plans and the need for LDFs to accommodate water supply infrastructure proposals within their strategies is a principle accepted by the SEP EiP Panel. The issue, therefore, is not simply should other strategies recognise water resource infrastructure requirements, but that both should be in step with each other ensuring that infrastructure is delivered in a timely manner to serve development.*

To what extent do you consider that the company-preferred investment strategy should consider, alongside other considerations such as least cost, social, political and environmental considerations, all options that would increase system

robustness and resilience in order to meet the company's Target Levels of Service?

29. The WRMP has outlined a number of generic challenges which it needs to address in its twenty five year strategy. It is clear that a combination of climate change, new development and the formation of smaller households has a significant impact on the predicted supply demand balance in the region. A robust and, above all, resilient water supply infrastructure is essential, particularly in the context of changing climate.

Comment

30. *Southern Water should be supported in its development of options which, alongside environmental, social, political and value for money considerations, would lead to greater resilience and, therefore, security of supply.*

Do you consider that the company-preferred water resources strategies for the Central and Eastern Areas are appropriate?

31. Water Resource Zones are the building blocks of the strategy. These supply areas represent the largest area in which all customers bear the same amount of risk restrictions in the event of a drought. The ten WRZs in the Southern Water area are considered in terms of three sub regional areas.

- Western Area located in Hampshire and the Isle of Wight;
- Central Area consisting of Worthing to Peacehaven, parts of Lewes District, and large parts of mid Sussex and Horsham districts) (figure 1); and,
- Eastern Area comprising the Hastings and Rye area, the Medway towns and east Kent (figure 2).

32. Common to all these areas is the Company's target of achieving universal compulsory metering by 2015, seeking to improve ground water resources where appropriate, and the optimisation of inter-zonal transfers. The WRMP states that these interventions will take place during the first five years of the plan period (i.e. 2010 – 2015).

Comment

33. *Given that the WRMP seeks to reduce leakage rates to 10% of distribution input by the end of the plan period, a rolling programme of leakage control up to 2035 is implied. However, the WRMP states that leakage control measures will take place in 2010 -2015 with no further actions in subsequent years. To reduce leakage rates from the current level of 83ml/d to 60ml/d in five years, as the strategy seems to suggest, would require unprecedented levels of investment.*

34. Planning for a resilient and sustainable water supply to 2035 will inevitably involve a degree of uncertainty. Uncertainty in water resource planning takes a number of forms such as natural variability, variability in the magnitude of forecast demand, the precise timing of securing consents to develop resources e.g. planning permission, and the impacts of environmental legislation.

35. The WRMP process makes allowance for such variations by introducing the concept of "Headroom" when planning for the Supply Demand Balance. The difference between the supply forecast and the demand forecast is referred to "Available Headroom". However, given uncertainties of planning over a 25 year period an allowance is made in the calculations for this uncertainty, this is known as the "Target Headroom".

Comment

36. *This approach to managing risk is prudent, and seeks to ensure both the long term supply and a maintain supplies on a daily basis. However, I am concerned that the WRMP has not included a major source uncertainty which could adversely affect the robustness of its strategy.*

37. *A series of investigations have been undertaken by the Environment Agency to determine whether abstraction licences are having an adverse impact on the environment, particularly on environmental designations. There is no timetable for the implementation of measures necessary to minimise the impacts identified. However, the water companies have been instructed to make no allowance for this uncertainty in their water resource plans.*

38. *It is evident that the WRMP has been drafted without the ability to manage this area of uncertainty. The full implications of this are unknown but it may require Southern Water and other water companies to revise their strategies substantially to accommodate reductions in abstractions.*

39. *The Environment Agency and Defra must address this situation as a matter of priority and ensure that this uncertainty is removed from the WRMP process.*

Central Area Strategy

40. The Central Area is situated on the Sussex coast, and comprises the water resource zones of Sussex North, Worthing and Brighton. The Sussex North WRZ lies north of the South Downs and includes the towns of Crawley and Horsham and the rural parts of the mid Sussex District. The Sussex Worthing WRZ extends across the coast from the river Arun to the river Adur and includes the towns of Worthing Littlehampton and Arundel. The Sussex Brighton WRZ extends for the River Adur to Peacehaven and includes the south western part of Lewes District including the town of Lewes.

41. These zones receive a bulk import from Portsmouth Water, and export supplies to South East Water from Weir Wood reservoir.

42. The Worthing and Brighton WRZs are supplied entirely from chalk groundwater sources, with the North WRZ having some limited surface water supplies. The WRMP characterises the Worthing and Brighton WRZs as being very vulnerable to drought events, with the Brighton WRZ being more vulnerable and the problem of saline intrusion during drought events affecting both WRZs. This lack of resilience is not surprising given that the coastal WRZs rely on a single and vulnerable water resource.

43. The baseline assessment of the Supply Demand Balance for the Central Area shows that, with the exception of the Worthing WRZ, the area is in deficit from 2010 onwards. This, however, does not include the presence of inter zonal transfers which will augment supply.

44. The strategy for the Central Area comprises both generic responses applied across the company's area and schemes specific to the Central Area, which are;

- 2010 – 2015 - two strategic schemes should be brought forward – river abstraction on the Arun, and the augmentation of river flows from waste water recycling;
- 2020 – 2035 – an aquifer storage scheme is proposed for the Worthing area in 2022.

Comment

45. *The strategy and its component area strategies have been assessed as part of the Strategic Environmental Assessment of the WRMP. In this a variety of options have been considered. It is evident from this testing process that Southern Water has endeavoured to meet environmental concerns balanced against the need to observe the commercial considerations.*

46. *Whilst the strategy for the Central Area appears to be capable of delivering the necessary supply to meet anticipated demand over the plan period, questions remain over the assumptions made in the population projections beyond 2026 (the period for the South East Plan) and the additional uncertainty introduced by the Sustainability Reductions*

overseen by the Environment Agency. It is this latter point which is of greatest concern as it presents a more immediate and fundamental threat to the success of each component strategy.

Eastern Area Strategy

47. The Eastern Area is situated in north and east Kent and East Sussex. It comprises the water resource zones of Kent Medway, Kent Thanet and Sussex Hastings. The Hastings WRZ supplies Hastings, Rye and the surrounding areas.

48. The area is supplied by a mixture of surface and ground water resources, the surface water sources comprise the three reservoirs of Bewl, Darwell and Powdermill, all within East Sussex. Darwell and Powdermill are small pumped storage impounding reservoirs with pumped inflows from the River Rother to Darwell and from the River Brede to Powdermill respectively. There is also a strategic transfer facility between Bewl and Darwell.

49. The baseline Supply Demand Balance for the Sussex Hastings WRZ shows that the area will be close to deficit from 2019/20 and in deficit by 2024/25 onwards. In response the WRMP proposes three small schemes in the later years of the plan, namely;

- a variation of an existing abstraction
- the re commissioning a disused groundwater source; and,
- construction of a desalination plant by 2027 to meet peak demands.

50. The WRMP does not propose the raising of Bewl reservoir, although it does note that this option is not discounted

Comment

51. *Whilst the nature of the Supply Demand Balance for the area indicates that relatively modest schemes are required to meet demand, the status of Bewl in the Eastern Area strategy is of concern. The WRMP looks to investigate the potential for raising Bewl reservoir, part in Wealden District, in the later stages of the plan i.e. 2020 – 2035. Whereas, South East Water's WRMP anticipates Bewl being raised by 2024 and delivering an additional 4ml/d per day to SEW's supply. This may prove to be a relatively minor component of SEW's overall supply, but uncertainties over the actual level of Sustainability Reductions to be delivered across the South East may increase the significance of this source.*

52. *This discontinuity between the two plans is of concern. Should both strategies not be fully integrated, an element of risk is engineered (unnecessarily) into the WRMP of at least one company. There is no evidence to suggest that collaborative working between the two companies has not taken place at all, but on this particular issue there appears to be a failure of both plans. Southern and South East Water are urged to address this matter as a priority.*

Figure 1 Southern Water's Central Area

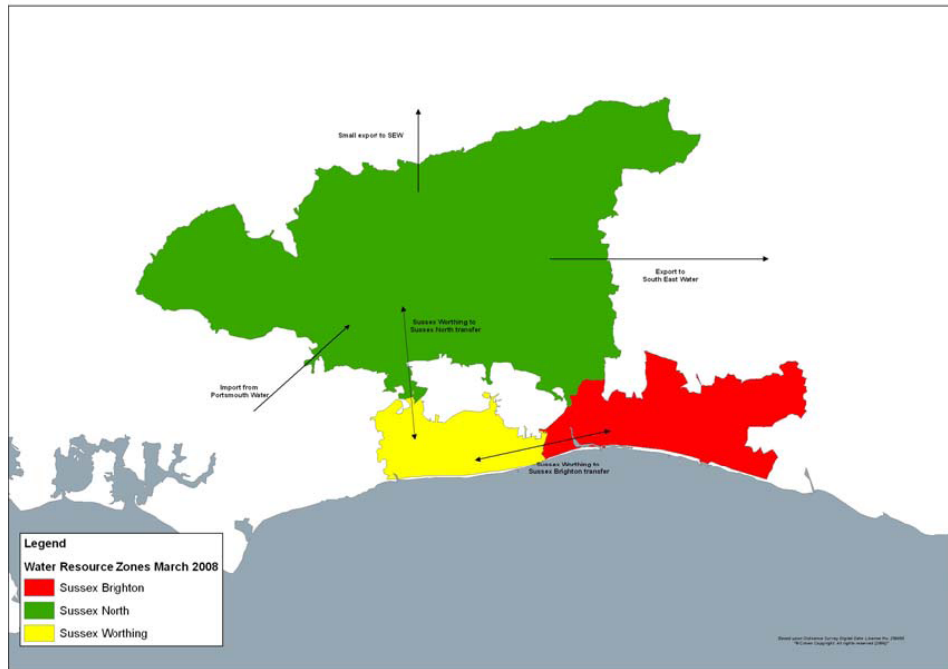


Figure 2 Southern Water's Eastern Area

