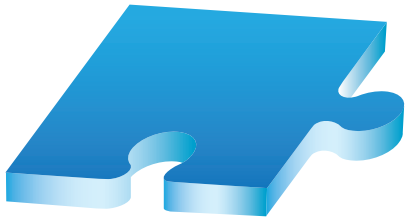


Section 7 : Optioneering

In this section we explain how we have identified and evaluated options to address our shortfall in water

Introduction

7.1 We determined that at the beginning of our planning period there will be insufficient water to meet demand in some WRZs and by 2025 this deficit extends across the majority of our supply area. Our statutory obligations require that we maintain a secure water supply and to fulfill this requirement we have considered all options.

7.2 Our options appraisal process has been both rigorous and transparent. We have adopted a twin track approach and considered both options for demand management measures and to increase our supply of water.

7.3 This section and Appendix 7 explains how we have followed the guidelines and covers the following:

- How we have engaged on our options appraisal process;
- An overview of our option identification and appraisal process; and
- The next steps following completion of our options appraisal process.

Appraisal objectives

7.4 We have undertaken our assessment of options based on the principles set out in Section 6.1 of the guidelines. In our optioneering process we have:

- Considered whether an option can be implemented, ensuring there is a secure supply of water and a protected environment, at a cost that is acceptable to our customers;
- Sought to achieve a clear and transparent decision making process, so that customers, interested parties and regulators can understand how we have arrived at our final decision on our preferred option;

- Only decided to include a preferred option in our WRMP14 after all options have been identified, screened and appraised (including investigating links and synergies). This includes undertaking a SEA to make sure non-monetised costs and benefits are included when deciding that the preferred option is the best value for our customers and the environment;
- Appraised options that Government specifically wants us to;
- Accounted for uncertainties in our options assessment and the flexibility of our final solution;
- Actively involved our customers, stakeholders and regulators;
- Adopted a consistent approach, avoiding bias against options where less information is available (or more needed); and
- Provided an opportunity for neighbouring water companies or third parties to bid into our plan in our Statement of Need on our website http://www.southeastwater.co.uk/media/130506/Stmt_NeedandAvailability.pdf

7.5 In accordance with the guidelines we have utilised a number of methods to determine our preferred options. These are described in Table 7.1.

Table 7.1 Methods used in options appraisal process

Title	Description
The economics of balancing supply and demand *UKWIR and Environment Agency, 2002*	This provides a detailed guide to assessing options and choosing a preferred solution. It focuses particularly on the economic assessment of individual options and combination of options.
Benefits assessment guidance *Environment Agency, 2012*	This guidance sets out a structured approach for assessing and valuing a range of environmental and social impacts associated with water resource schemes. It is a decision making tool based on the principles of cost-benefit analysis, enabling a consistent comparison of the costs and benefits of an option in monetary terms.
Guidance on Strategic Environment Assessment and Habitats Regulations Assessment of WRMPs *UKWIR, 2012*	Provides a method to follow to carry out a SEA and how to include this within WRMPs. This process will ensure non-monetary costs and benefits are identified and considered in the decision on the preferred option.
Involving customers in price setting – Ofwat's customer engagement policy statement *Ofwat, August 2011*	This report describes Ofwat's expectations for how companies will engage with their customers to help them shape their plans for PR14.
Carrying out Willingness to Pay Surveys *UKWIR, 2012*	Customers' views are very important in making decisions about preferred options. This guidance provides details of how a water company undertakes willingness to pay surveys and engages with customers to determine their views.

How we have engaged on our options appraisal process

7.6 Much of our engagement activity, which targeted a wide range of stakeholders, including regulators, local authorities, non-governmental organisations (NGO's) and customers, focused on the option appraisal process. Details of our engagement activities are set out in Section 2 and Appendix 2.

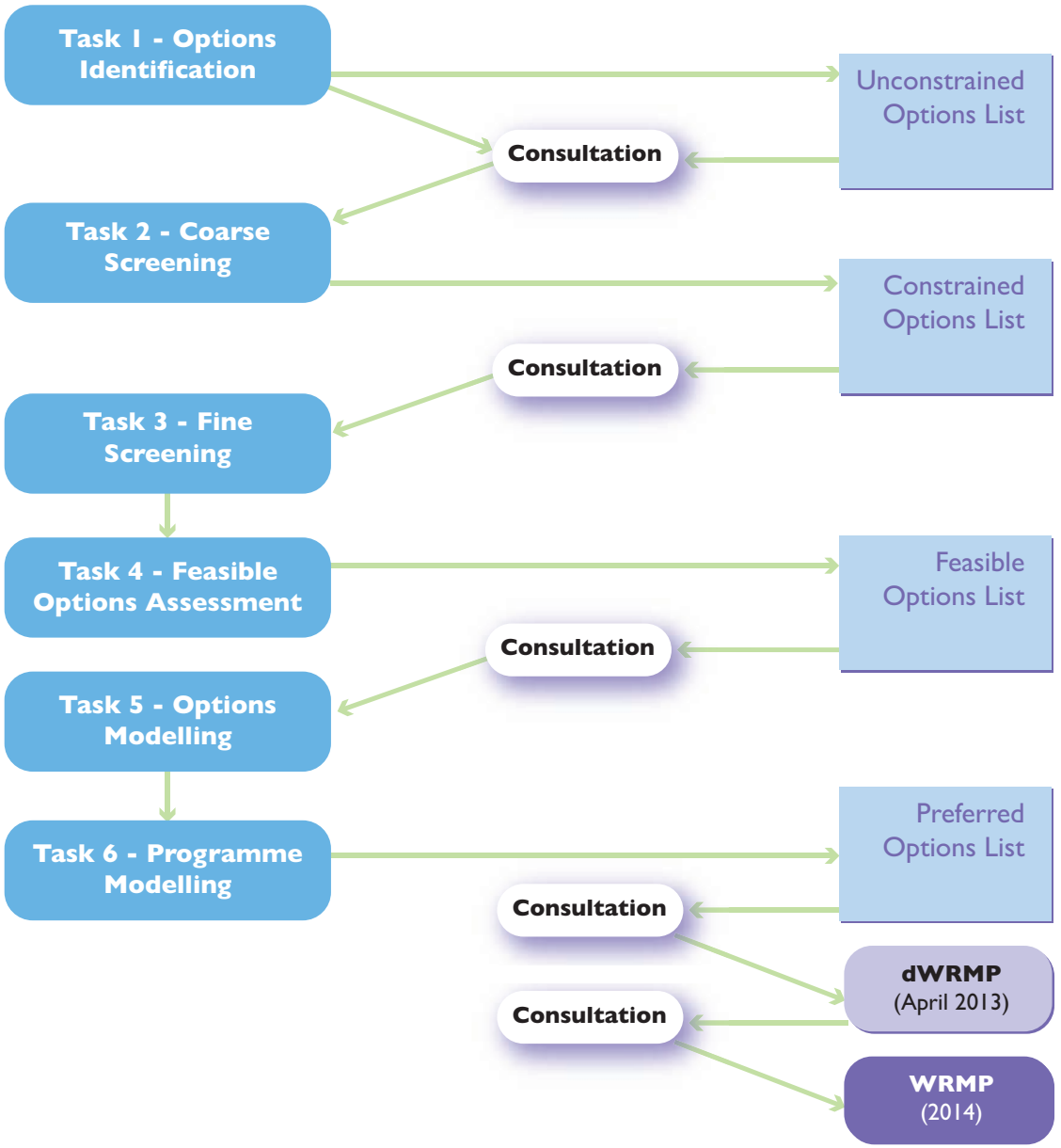
7.7 The establishment of the EFG, in conjunction with regular meetings with Natural England and the Environment Agency, was instrumental to achieving an open and transparent decision-making process as part of the options appraisal work.

7.8 To ensure our customer priorities were built into WRMP14 we undertook some specific research activities with domestic and commercial customers. Focus groups were used to test customer preference for various resource options and in particular the acceptability of water re-use and numerous demand management options.

Overview of the option identification and appraisal process

7.9 Options identification and appraisal are important stages in the development of WRMP14. Key stages are set out in Figure 7.1 and stages 1 - 4 are summarised below. An explanation of stages 5 and 6 are included in Sections 7 and 8 respectively.

Figure 7.1: Overview of options identification and appraisal process



Task 1: Identify an extensive list of potential options, the unconstrained options, which either increase the water resource or reduce the water supply demand.

7.10 The options we identified as part of the WRMP09 process provided us with a sound starting point, however additional options were included in our unconstrained list for WRMP14 and this is explained further in Appendix 7. These were identified by:

- Establishing where potential surface water and groundwater surpluses exist by carrying out a water availability review by river catchment;
- Producing Water Availability Maps for both the groundwater and surface water schemes together with a long list of existing groundwater and surface water options;
- Meeting with the WRSE Group to determine options, in particular regional water transfer options;
- Including new options raised directly with us by customers, stakeholders, including the EFG and Environment Agency, and private licence holders. This included two new option groups: catchment management and network reinforcement;
- A review of other companies' options through the WRSE Group;
- A review of current abstraction licences; and
- A literature review to identify options especially for demand management options.

7.11 The first draft of the unconstrained options list was consulted on with the EFG, which provided comment on options and added new options for the final list of unconstrained options.

7.12 In total our unconstrained options list included over 900 options as shown in Table 7.2.

Table 7.2 WRMP14 Options list summary

Option Type	WRMP09 Options List	New Options Identified	Superseded	Unconstrained Options List	Constrained Options List	Feasible Options Modelled
Groundwater	115	121	80	156	118	21
Surface Water	81	220	46	255	131	10
Licensing	27	31	25	33	33	0
Water re-use	46	19	9	56	30	5
Desalination	13	13	2	24	11	3
Water Transfers*	77	69	76	70	61	89
Conjunctive use	35	14	36	13	13	2
Water treatment works	15	2	0	17	17	6
Demand management	215	231	158	288	288	184
Total	**624**	**720**	**432**	**912**	**702**	**320**

*Water transfers includes inter-company and intra-company transfers and bi-directional transfers are counted twice

Task 2: Screen out 'show stoppers', that is options that are not promotable or environmentally acceptable, to establish a shorter list of constrained options for further study and fine screening.

7.13 We carried out coarse screening to ensure that options taken forward are:

- Feasible;
- Promotable/implementable or deliverable; and
- Environmentally acceptable.

7.14 A short-listing process was developed that was both practical and simple. The reasons for excluding an option at this stage were clearly recorded. Where impacts were marginal or uncertain, options were taken forward to the next stage for further examination.

7.15 Specific criteria were developed for each option type to ensure that they were relevant for assessing options against the overarching principles. Full details are provided in Appendix 7 in the section on 'Task 2 Coarse Screening'.

7.16 The following options were not subject to coarse screening and were carried forward to the constrained option list as either no 'show stoppers' could be identified or further option definition was required:

- Licence trading;
- Company transfers and inter-company transfers (this includes all the WRSE Group transfers);
- Conjunctive use;
- Demand management (water efficiency, metering and leakage management); and
- Water treatment (expansion and process losses)

7.17 We undertook consultation on the coarse screening exercise with the EFG, the Environment Agency and Natural England, which resulted in the following:

- Further clarification of definitions and terminology used to describe the option types;
- Exclusion of a number of options from the constrained options list based on comments received and further analysis. Reasons for excluding options included, duplication of options, viability and uncertainty;
- Clarification on the exclusion of direct water re-use at the coarse screening stage. The EFG were concerned that we were not supporting this option. Further detail was provided on the industry view that direct re-use for potable supply is not currently successfully promotable. We explained that our focus was on indirect re-use schemes, in particular those involving effluent that would otherwise be discharged to sea, and which are more likely to be acceptable; and
- The retention of desalination options and conjunctive use options on the Constrained Option list for more detailed consideration.

7.18 The results of the coarse screening exercise produced 150% more options at this stage than with WRMP09. Our constrained options list included over 700 options as shown in Table 7.2.

Task 3: Undertake a fine screening process to reduce the constrained list of possible options to a shorter list of feasible options for detailed study and costings.

7.19 Fine screening involves further analysis of the options against a range of issues or criteria, through a process known as Multi Criteria Analysis (MCA). The reason for using MCA is that it is often not possible to identify a clear showstopper especially with limited option information available; however, MCA allows a combination of issues to be considered together. This can then help indicate that an option is likely to be less or more environmentally acceptable, promotable or feasible when compared to other options. MCA is a well structured approach which provides openness on the decision-making process and aims to remove subjectivity, as far as reasonably possible, from the fine screening process. MCA recognises that both monetary and non-monetary objectives may influence decisions.

7.20 A full list of our MCA objectives and how these were applied to the selection of feasible options is explained in Appendix 7. By applying the MCA process to the constrained options list we were able to rank the options in order to establish the best performing options and screen-out the worst performing. Criteria for scoring options were developed using the following:

- SEA/Sustainability related objectives including climate change, carbon cost / energy considerations;
- Promotability objectives related to planning or regulatory approval;
- Technical objectives covering yield or savings, certainty and risk, flexibility, technical difficulty; and
- Cost/Financial objectives - development and operational cost based on generic assumptions, potential mitigation costs and financial uncertainty.

7.21 We recognised that it was important that the options going forward included a good mix of types, locations and alternatives with overall sufficient yield to ensure that real choices could be made for meeting demand for water in the future. Options were therefore grouped to take into account factors such as proximity to demand locations, different catchment areas and water zones.

7.22 The best performing options were added to a 'take forward' list for further study, with the remainder either rejected or retained on a 'reserve' list of options.

7.23 To ensure the robustness of the short listing process, we undertook an internal and external review of the 'take forward' list. The purpose of the review was to consider the 'whole picture' and ensure that the options reflected the ultimate objectives of the WRMP14 process. The review focused on issues distinguishing between acceptable and unacceptable options, how the criteria and the weighting used affected the ranking and analysis of the scoring methods used to rank the options.

7.24 In a final screening exercise for those options broadly considered to be deliverable, further cost analysis was undertaken to leave only the most cost-effective options in the feasible options list.

7.25 We recognised that some options were not sufficiently defined for us to fully undertake the fine screening process. These options were therefore taken forward to the feasible option list and included options for:

- Licence trading;
- Demand management (water efficiency, metering, leakage management);
- Company water transfers and inter-company/regional water transfers;
- Catchment management; and
- Network reinforcement.

Task 4: Refining feasible options and production of dossiers

7.26 Further assessment and definition of the feasible options was undertaken in order to provide detailed costings for the options and establish whether or not they were 'realistic', that is, capable of being included in our preferred plan in order to meet our objectives.

7.27 As part of the evaluation process a dossier was prepared for each feasible option. Typical designs were prepared to ensure consistency across options types and to establish scope and costs.

7.28 Details of how this information was collated and the methodologies used to cost the options, including demand management options, is included in Appendix 7 along with information as to how we have undertaken carbon and environmental costings. Detailed option dossiers were available to view at our offices throughout the dWRMP14 consultation period, and remain a permanent reference of information available to support WRMP14.

7.29 The dossiers were produced in October 2012 for review by the Environment Agency and the EFG. Feedback on these led to further refinement of the feasible options list to ensure only 'realistic options' were taken forward. Reasons for exclusion from the list included insufficient yield, rejection by the EFG, environmental sensitivities and conflicts with other options. Updated versions of the dossiers were made available in March 2013. We also made the dossiers available at our Local Planning Authority workshops held in November and December 2012.

7.30 In total, our final feasible options list for WRMP14 included 320 options as shown in Table 7.2. The list included 30 intra-zone Company transfers to support other resource options as well as 59 inter-company options, which we have discussed with Southern Water, Affinity Water, Portsmouth Water, Thames Water and Sutton and East Surrey Water. Details of our most recent discussions with our neighbouring water companies are included in Appendix 9.

Options appraisal: Summary

7.31 In summary, we show the outcomes of the option appraisal process in Table 7.2 and graphically on Figure 7.2.

7.32 In accordance with the guidelines we undertook an options appraisal, which is robust and transparent to produce our list of feasible options. We have provided option costs for these feasible options, including financial costs, fixed operational costs, variable operational costs and environmental and social costs, determined using the Environmental Agency's Benefit Assessment Guideline, for the WRSE modelling exercise. As part of this process the option costings were peer reviewed for consistency with other companies in the region. This peer review did not raise any concerns. A summary of the methodology and key assumptions in the environmental and social costing for the feasible options submitted to the WRSE Group modelling is included in Appendix 7D.

7.33 Section 8 and Appendix 8 explain how the economic analysis we undertook of our feasible options list and our own modelling exercise determined our preferred plan for dWRMP14 (Tasks 5 and 6 in Figure 7.1). In October 2012 we consulted on a scoping report in order to determine the objectives for the SEA process for dWRMP14. A detailed Environmental Report has been produced which is in a separate document available from our website (South East Water, Strategic Environmental Assessment, Environmental Report, November 2013). This Environmental Report considers the outcome of this process and provides a further analysis of how the preferred plan meets the SEA objectives and how the SEA informed the development of our WRMP14.

Figure 7.2: WRMP14 Principal feasible supply options