

Method Statement: Multi-sector Approach

November 2021

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Author	Meyrick Gough, Sarah Green
Approved by	Meyrick Gough
WRSE Director approval	Meyrick Gough

Email: contact@wrse.org.uk

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A consultation on the WRSE Method Statements was undertaken in Autumn 2020 – the consultation details can be viewed on the WRSE engagement hq platform at <https://wrse.uk/engagementhq.com/method-statements>.

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Executive Summary

Water Resources South East (WRSE) is developing a multi-sector, regional resilience plan to secure water supplies for the South East until 2100.

We have prepared Method Statements setting out the processes and procedures we will follow when preparing all the technical elements for our regional resilience plan. We consulted on these early in the plan preparation process to ensure that our methods are transparent and, as far as possible, reflect the views and requirements of customers and stakeholders.

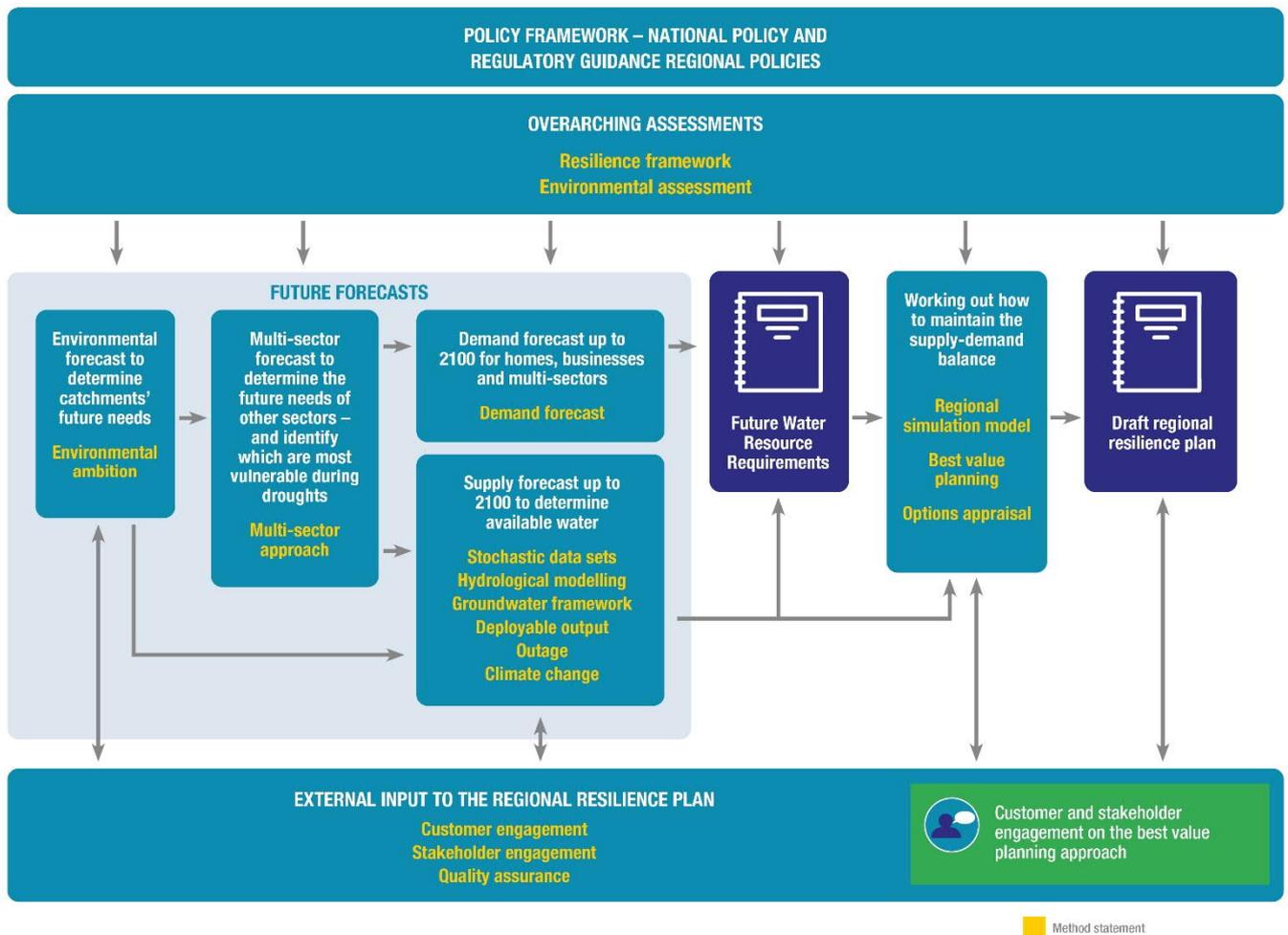
Figure ES1 illustrates how this multi-sector approach Method Statement will contribute to the preparation process for the regional resilience plan.

The water industry has planned for the potential requirements of industry, which are connected to their supply systems, based upon a range of economic and growth forecasts for the region. The Environment Agency's National Framework for Water Resources set the requirement for regional plans to consider the long-term water needs of other sectors, therefore enhancements were needed to the approach so they could be integrated into the development of the plan.

The enhancements will look at what additional water resource requirement might be required for the future to meet the needs of other sectors, what potential options there are and how the plan could improve the resilience of water supplies for all users within the region.

This Method Statement sets out how we will incorporate the key multi-sector requirements into our regional plan.

Figure ES1: Overview of the Method Statements and their role in the development of the WRSE regional resilience plan



1 Introduction

Background

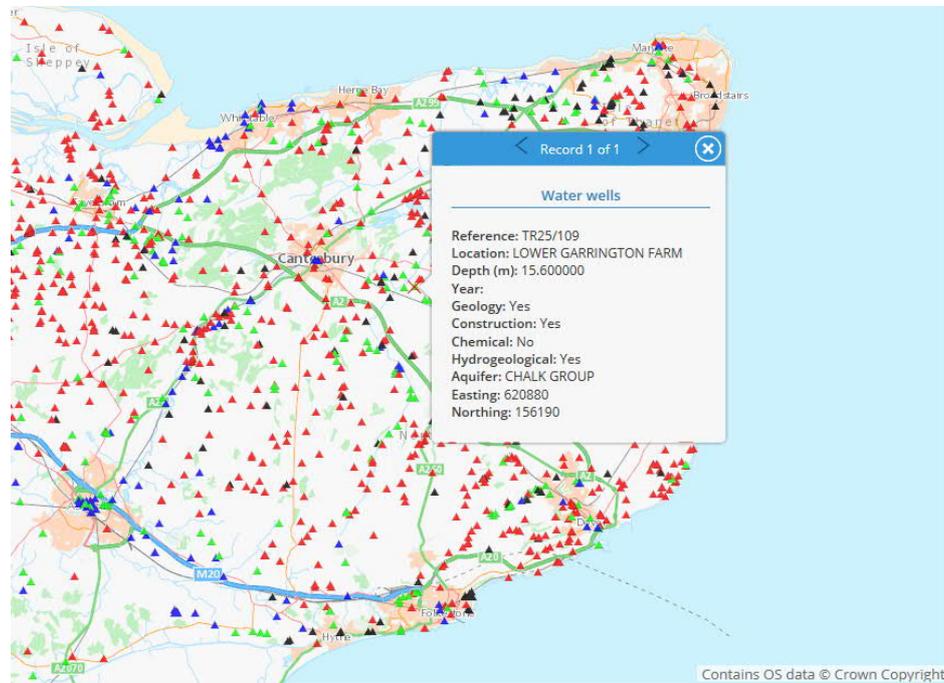
- 1.1 Water Resources in the South East of England (WRSE) is one of five regional groups developing a regional plan which will be consulted on at the beginning of 2022 and used to inform the draft Water Resources Management Plans (WRMPs) produced by water companies later that year. The National Framework for Water Resources set the requirement for regional plans to take a multi sector approach so the future water needs of sectors that have their own water supplies are considered in a more integrated way.
- 1.2 WRSE has committed to developing a multi-sector, regional resilience plan to achieve this. For the first time, we will consider the future water needs of other sectors; a more diverse range of solutions which could benefit other sectors, the environment as well as the water companies; and an improved understanding of how resilient some of the sectors are to events now and how this will change as a result of the implementation of our preferred plan
- 1.3 This overall approach was set out in our Regional Multi-Sector Resilience Plan document, which we launched at a stakeholder event in September 2019. Since then, we have continued to develop the methodologies and approaches we will use. The purpose of this report is to set out our proposed multi-sector approach which will be used for the development of the next regional plan.
- 1.4 In this report the multi-sector group are defined as the industries which have a licence, or an equivalent legal permission, to abstract water from the environment in order to support their manufacturing or specific activity requirements. We have established a multi-sector stakeholder group comprising representatives from these sectors to support and inform our work.

2 Multi-sector approach

- 2.1 To develop a regional assessment of the future water requirements it is important to understand how much water is required for the public water supply system and the other sectors over the planning period and how much water will be available from the environment to support these requirements. The difference between the requirements and the availability provides an indication of the scale of the challenge in the future.
- 2.2 Just like the water industry, several other industries in the South East of England abstract water from the environment. The National Framework set out the volumes of water that were currently abstracted through a number, but not all, of these abstractions. It has been assumed that the current abstraction rates that have been reported through the abstraction returns represent the current requirements of the industries. However, these abstractions do not represent all the abstractions in a catchment. Industries such as trickle irrigators and navigation authorities, such as the Canal and Rivers also abstract water from the environment; they are not currently included in the National Framework Assessment report. Therefore, the volumes of water reported in the National Framework underestimate the amount of water, outside public water supply, that is currently abstracted each day and how much extra water may be needed in the future.
- 2.3 The future water requirements of the other sectors, which will need to be found through the regional plan, is dependent on how much they currently use; an estimate of growth for the sectors and the amount of water that would be available to them during the extreme drought events from their own sources.
- 2.4 Building on the work of the National Framework we will update the forecasts by working with the key sectors and using information from the non-household demand forecast to better understand the range of potential future requirements for each sector in the region. In this context we will focus on the key industries outlined in the National Framework report along with the Canal and Rivers Trust, trickle irrigators, and abstractors for the purpose of maintaining an environmental habitat (e.g. wetlands). During our work with the multi-sector group, other sectors might be considered and incorporated into the assessment for the regional plan.
- 2.5 The current water requirements of the other sectors will be based on abstraction returns and the voluntary returns of those who are currently exempt abstractions. Some of these abstractors exempt from licencing will be brought under the abstraction licence regime in the future, this includes sectors and organisations such as the Canal and Rivers Trust and trickle irrigation.
- 2.6 The anticipated growth rates of these sectors will be aligned, where possible, with the non-household growth forecast methodology used by water companies that provide public water supplies. Where these forecasts do not exist then additional expert advice through the multi-sector group will be used.

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- 2.7 Through the process above and by working with the multi-sector group we will be able to generate a series of future requirements for the key sectors in the region.
- 2.8 Typically, these other sectors' availability of water during extreme drought or low flow events will be assessed through a vulnerability assessment using the river flow and groundwater levels based on the stochastic sequences. If the water available for the individual sources is insufficient to meet the current and or future requirements of the sector then an assessment of the shortfall between the requirement and the availability will be undertaken and recorded as the net additional water required for the sector. This net additional water requirement for the sector will be recorded and aggregated with the net requirements for other sectors and assigned to the appropriate water resource zone.
- 2.9 The requirements of each water resource zones will be taken into the investment model which will be used to help determine a suitable portfolio of options, including multi-sector options, that will meet the requirements of the sectors but also improve the overall resilience of the environment and non-public water supply sector.
- 2.10 The potential growth in demand is one side of the overall assessment approach. The other part is to understand the potential availability of water from their own abstractions. For surface water abstractions we propose to use the hydrological flow records generated through the Method Statement 1330 WRSE Hydrological Modelling.
- 2.11 For groundwater we will have to undertake a screening exercise using a combination of well data, abstraction licence database and estimates of groundwater levels. Figure 1 shows an extract of the [BGS geoindex](#). This database provides the coordinates, geology and depth information.
- 2.12 The process we will follow is to:
- Correlate the BGS water wells layer with the with the licence data.
 - Estimate the depth to water by reference to topographical data and regional GW model outputs for dry years (which should be readily available) and a simple GIS processing exercise
 - Use any scaling from aquifer block indicator boreholes or from distributed regional groundwater modelling to estimate depth to water in severe/extreme drought and determine those where water level goes below the base or some fixed proportion of the well
 - Identify those wells at most risk of losing yield.

Figure 1: BGS geoindex



- 2.13 Between the assessment of the multi-sector future needs and the potential availability of water from their own sources we will define a range of future requirements. The final step in this part of the process before we consider potential multi-sector options (see Method Statement 1328 WRSE Options Appraisal) is to understand what level of resilience each sector wants to achieve. This is an important step for each of the sectors as there will potentially be a cost associated with improving resilience, which will need to be taken into account through their own future plans. We also recognise that this will likely be an iterative process as we share the costs of achieving different levels of resilience so the sector in question can make an informed choice.
- 2.14 The combination of steps and the iterative discussion will allow us to agree and include a final set of multi-sector requirements into the plan. Initially we will associate these additional requirements with a water resource zone to allow the investment model to select appropriate multi-sector solutions. However, we recognise that some sector solutions might be accounted for at a catchment level. If this is the case, then we shall take account of the solution within the catchment portfolio of options and check that the influences of any changes in abstraction rates or patterns are considered in the catchment hydrology for the regional simulation model.

3 Multi-sector options

- 3.1 The options workstream will be the central focus for capturing and holding the option set for the investment model. The water companies have already identified several multi-sector options within their plans and there are also several options which, if modified, could provide other sectors with a solution. There are also options which can provide solutions for the environment, sectors and water companies.
- 3.2 All these options that are identified through the multi-sector stakeholder group will be passed through to the options workstream and shared across the other sector groups to get their views and comments on them.
- 3.3 Method Statement 1328 WRSE Options Appraisal and Method Statement 1333 WRSE Environmental Ambition set out the process we will follow in collating and screening these options in order to derive a set of options for our investment modelling stage.

4 The multi-sector plan

- 4.1 The investment modelling Method Statement and the resilience framework set out the process we will follow to derive a regional plan. Along this journey it will be critical to discuss, iterate and assess the benefits different solutions can provide the various sectors and the environment. This iterative, collaborative process will take time which is why we have built into our overall programme several months in 2021 to go through these stages with the specific groups, stakeholders and customers (see Method Statement 1327 WRSE Stakeholder Engagement and Method Statement 1326 WRSE Customer Engagement).
- 4.2 The regional multi-sector plan will be consulted on in early 2022. Following this process, we will review the comments and revise the plan appropriately. The plan will set out the portfolio of options that will be required to be delivered over the short, medium and long term and suggest the likely delivery mechanisms, sectors or third parties who could implement the solutions.
- 4.3 During the sensitivity testing stage of the regional plan we will also undertake a number of scenarios to determine what would happen if some parts of the plan are not delivered by third parties or other sectors to identify alternative plans should economic circumstances limit the ability of other sectors to deliver certain parts of the plan.

5 Summary

- 5.1 This Method Statement sets out our proposed approach for incorporating the needs of other sectors into our multi-sector, regional resilience plan. As this is the first time that we have included these sectors into the planning framework there might be some aspects of this approach that would benefit from being enhanced, modified or replaced. If this happens then we will update the Method Statement.
- 5.2 The approach seeks to establish the future requirements of the sectors, what the potential options could be, and how these will be considered in the regional plan. In addition, given the complexity of some of these solutions it also recognises that some solutions could be integrated into a catchment solution whilst other solutions could be aligned with an infra-structure type solution. Whilst this is increasing the complexity of the problem trying to be solved, the flexibility can be accommodated in the planning framework.
- 5.3 The approach is iterative and collaborative with the multi-sector group, stakeholders and customers. This will be an important step in generating a robust plan. The regional plan will indicate the likely delivery routes of the various solutions including those which the multi-sector group might deliver either by themselves or jointly with other groups.

6 Next steps

- 6.1 We will continue to work towards producing our regional resilience plan, which will take multi-sector requirements into account. We will continue to review our processes to ensure we are aligned with the approach set out in this Method Statement. If there are any changes to our approach, the Method Statement will be revised, and an updated version will be published on our website.
- 6.2 If any relevant guidance notes or policies are issued, then we will review the relevant Method Statement(s) and see if they need to be updated.
- 6.3 When we have revised our Method Statement(s), we will ensure that we explain any changes we have made and publish an updated version on our website.