



A review of investment decisions at small drinking water supply systems with declining water quality issues

Background:

Since 2002 Scottish Water, supported by the Scottish Government, has successfully delivered a capital investment program which has brought about measurable improvements to drinking water quality and service levels across Scotland aimed at delivering compliance with the Water Scotland Act, and reducing risks of non-compliance. While the vast majority of treatment systems deliver cost effective drinking water, there remains a sub-set of drinking water treatment works that have challenges that are manifested as either deterioration in drinking water quality and/or require intensive capital investment to mitigate the stress on drinking water quality compliance at small rural treatment works. Investment drivers typically include DOC, Fe, Mn, turbidity, cryptosporidium and disinfection control. This project seeks to review the challenges in delivering drinking water compliance, with focus on the investment drivers listed above, and to assess the associated proposed or deployed solutions to the identified challenges at three case study sites, which will necessitate consideration of the precursor/antecedent factors that can affect compliance. The research team will be required to work with the CREW Protecting Drinking Water theme steering group to identify the three case study sites and confirm the investment drivers and environmental and/or operational concerns to be covered for each of the case study sites.

Impact:

The outputs of this project will help to:

- Identify value for money criteria for investment in a range of drinking water treatments
- Identify how the policy and regulatory framework influences the choices for drinking water treatment, levels of compliance risk and the costs and identified how changes to the policy framework could improve value for money and sustainability,
- Inform policy on drinking water treatment based on economics and quality enhancement

Objectives and research required:

The research will include the identification of three case studies - small drinking water supply systems with declining water quality issues - and an evaluation of the capital investment decisions made which are designed to meet drinking water regulatory compliance with a view to establishing:

- Effectiveness of interventions, and how the decisions made have been influenced by the regulatory and policy framework
- Value for money
- Sustainability
- Improvements to public health
- Improvements to social justice aspects

The objectives are as follows:

1. The research team, in collaboration with the CREW Protecting Drinking Water steering group, will identify three case study sites
2. The research team will review the drinking water treatment systems performance relative to the drinking water regulatory requirements, and the legislative framework that defines the requirements to supply safe and wholesome water.
3. The research team will assess the capital investment plans to improve compliance at the case study sites and investigate the effectiveness of the decisions in relation to the supplies, interventions and cost effectiveness of the interventions proposed.

Outputs required:

1. A full report detailing each of the objectives above
2. A stand-alone research summary
3. A review of the case study systems that will inform assessment criteria for the review.

Field trip(s) to the case study sites to conduct data gathering and the review of the drinking water systems which will inform the effectiveness of interventions

Key dates:

1. Project start up: 1st March 2017
2. Project start up meeting: March 2017
3. Progress updates: June, September 2017
4. Draft report: 2nd October 2017
5. Final project meeting: late October 2017
6. Final report: 27th November 2017

Maximum funding available (excluding VAT):

£30k