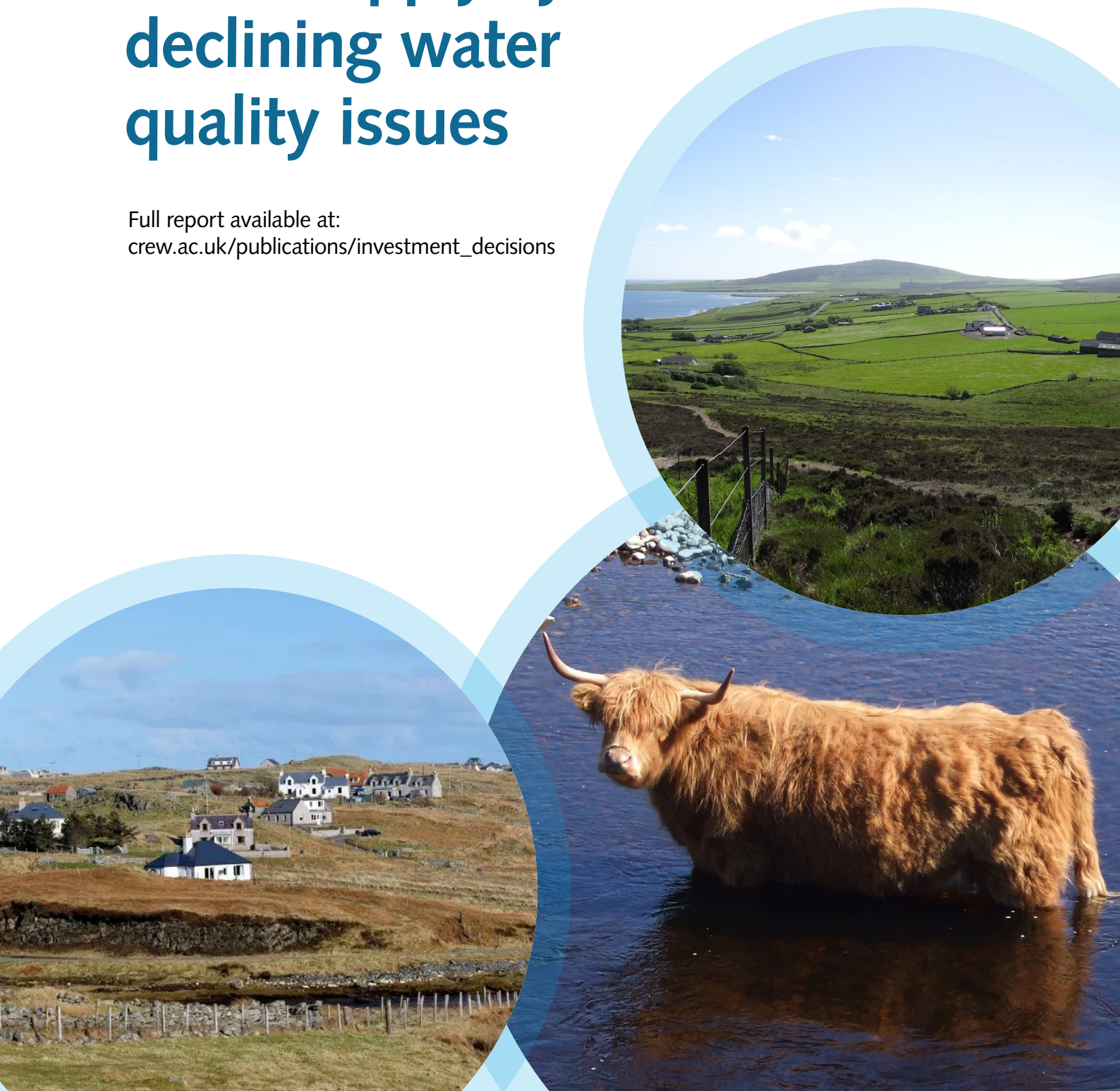


A review of investment decisions at small drinking water supply systems with declining water quality issues

Full report available at:
crew.ac.uk/publications/investment_decisions



Executive Summary

Aim of the Project

This project seeks to review the challenges in delivering drinking water compliance, with a focus on the quality and quantity of investment drivers, and to assess the proposed or deployed solutions against these criteria. These outputs will assist in identifying value for money criteria for investment; identify how the policy and regulatory framework includes water treatment choices, risk appetite and costs; identify how changes to the policy framework could improve value for money and sustainability and inform policy on drinking water treatment based on economics and quality enhancement.

Research Undertaken

The reviewed investment processes related to existing water supply schemes that are in the process of undergoing improvement or have already undergone improvements to meet appropriate qualitative and quantitative standards. The methodology adopted was as follows:

- Identification of three case study sites in collaboration with the CREW Protecting Drinking Water theme steering group and Scottish Water (SW): Fair Isle WTW, North Hoy WTW, Yarrowfeus WTW.
- Review of 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.
- Assessment of capital investment plans to improve compliance at the case study sites and investigation of the effectiveness of the decisions in relation to the supplies, interventions and cost effectiveness of the interventions proposed.

The review of case study sites included consideration of the precursor or antecedent factors that can affect compliance and confirmed the investment drivers and environmental, operational and other concerns related to achieving compliance at each of these sites.

Key findings and recommendations

The review has revealed that the decision-making processes employed by SW to address declining water quality issues in small supplies are underpinned by the need to ensure overall cost effectiveness, sustainability and provision of a reliable and wholesome water supply. It has been found that SW procedures are generally effective and informed by stringent application of internal procedures underpinned by the relevant regulatory and policy framework.

The current intervention definition process appeared to be robust, seeking to improve cost benefit analysis and value management while involving a wide range of stakeholders. The process is well aligned with drinking water safety plans and seeks a high level of protection for water consumers, regardless of the size of the supply. The study has also identified several challenges in capital investment process for small systems and suggests that the current robust nature of the Intervention Definition Process (IDP) process makes it lengthy, and potentially complex. The requirements of regulations limit the level of risk that SW is able to take when considering treatment options as all products and materials used in provision of drinking water need to be on an industry approved list¹. Risk appetite influences the scope of decisions made by SW when considering new innovative treatments rather than tried and tested alternatives. Consideration of risk also appears to involve further iterations in internal process that involve additional time and cost which may not result in increased value for the customer. The study suggests that an opportunity exists for further enhancing the IDP process for small systems through improved engagement with academic and professional specialist support and harnessing the technical capacity and innovation where available within SW operations across all regions, whilst still balancing risk and the need for a secure provision of service. The latter will ensure cross functional learning within SW and ensure that regional differences and technology preferences for these systems are better understood and aligned. SW may also consider providing the optimised internal processes available to private water suppliers.

Key words

Drinking Water Supply, Compliance, Investment Drivers, Cost Effectiveness, Sustainability

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¹ <http://www.dwi.gov.uk/drinking-water-products/approved-products/soslistcurrent.pdf>