Executive Summary

The DWI currently manages the Defra funded Drinking Water Quality and Health (DWQH) evidence programme. This publicly-funded research is intended to provide evidence for policy development by Government (both directly and via the EU) and to ensure that Ministers can discharge their obligations (in this case to ensure that drinking water is safe to drink and aesthetically pleasing to consumers).

The DWQH evidence programme is governed by the Drinking Water Quality and Health Evidence Plan agreed in 2013\(^1\) which updated the previous ROAME (Rationale, Objectives, Appraisal, Monitoring, Evaluation) Statement\(^2\). The research funded under the evidence programme is intended to meet the objectives of the Evidence Plan by guiding the execution and delivery of drinking water policy (in particular by the DWI) and addressing the issues on which Ministers may need to take decisions in future (e.g. issues concerning new and emerging risks to health, new technology and new processes).

The overall objective of this study was to carry out an assessment of the research completed under the DWQH evidence programme between 2005 and 2013 and report on the following seven objectives:

1. Whether the objectives of the DWQH evidence programme have been appropriate, given the responsibilities and policy objectives of the DWI and Defra;
2. The scientific quality of research outputs and where appropriate, performance of contractors;
3. Whether the content and objectives of the evidence programme were appropriate, taking into account the role and responsibilities of other organisations both national and international that have interests in drinking water research;
4. Whether outputs from the DWQH evidence programme have been effectively disseminated to customers and the scientific community in general (e.g. success of newsletter approach); (awareness of the programme of activities in the water industry, related stakeholders and elsewhere)
5. Whether value for money has been achieved, including consideration of whether advantage has been taken of opportunities for collaborative or complementary activities at the national and international level (success in attracting EU funding to research new areas of interest);
6. Wider technical or policy implications that warrant consideration in future evidence programmes;
7. The future scale and development of the DWQH evidence programme

The approach taken by the review team, which consisted of experts and researchers from Ricardo-AEA, CREH (the Centre for Research into Environment and Health) and Icaro Consulting, consisted of three aspects: a preliminary desk study, in-depth reviews, and interviews with key stakeholders.

During the preliminary desk study, our review team provided scores from 1 (poor) to 5 (excellent) for each objective (and subcategories within objectives) for each of the 74 projects completed during the review period. Ten projects, selected by a random sampler methodology, were then subjected to an in-depth review. Interviews were carried out with key stakeholders, including Defra, other government departments and agencies, the water industry and contractors, to provide an alternative perspective on the programme and its future development.

The assessment of research delivered under the DWQH evidence programme between 2005 and 2013 against the seven objectives has demonstrated that the programme is generally of a very high standard and the research undertaken is policy-relevant and addresses current and future public health issues. The findings of this research can be summarised as follows:

Policy Relevance

- The preliminary desk study scores for this objective were good (an average of 3.9 across all projects). 66% of total projects scored a 4 or above.

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Performance against the ROAME statement policy objectives was good, with some projects meeting more than one criteria. The vast majority of research areas mentioned specifically in the ROAME statement were covered by at least one research project.

Stakeholders were able to provide examples of where research under the DWQH evidence programme has led to changes in policy and legislation on drinking water, therefore demonstrating the relevance of the research.

Stakeholders also provided examples of where research had been useful in other contexts, including responding to the press regarding potential health issues, and issuing health advice.

Collaboration with the World Health Organisation (WHO) gives the DWI an insight into issues that may be arising in other developed and developing countries and thus ensures that the DWI can contribute and respond to the international evidence base.

Scientific Quality

- Generally the scientific quality of the projects reviewed was considered to be of a high standard with nearly two thirds achieving scores of 4 (“very good”) and above.
- Appropriateness of methodology was found to be variable across research projects. In most cases methodologies chosen were considered to be sound and sufficient to meet the project objectives. However, in a few cases, the project assessment team considered the methodology proposed, or used, was problematic.
- Quality and availability of data reviewed within projects had an impact on the strength of confidence in the findings.

Performance of Contractors

- 89% of total projects scored a 4 or above for this objective in the preliminary desk study. However, the scoring at this stage was based on a series of assumptions. The detail found during the in-depth reviews and interviews provided are more reliable means of assessment.
- Contractor performance was generally considered to be good. However, the in-depth reviews revealed that in some cases, the DWI project officers had to work closely with the contractor to rectify difficulties and ensure that research projects were delivered to time and specification.
- Some contractors went above what was required of them. However, in other instances there were discrepancies between the specification and the work delivered, including methodology changes, which impacted on the reliability and value of the work.

Fit with role/remit

- 85% of total projects scores a 4 or above for this objective.
- It was felt that in some cases projects carried out and funded under the DWQH evidence programme were of particular significance to water company operations, planners or environmental and economic regulators. This suggests that funding should have been provided from other sources.
- Collaboration was utilised in some cases to support the remit of the work, but the expert team felt that frequency of collaboration could be increased.

Effectiveness of dissemination

- 70% of total projects scored a 4 or above for this objective.
- Reports were generally considered to be accessible to those who needed to see it, although stakeholders made several suggestions for how dissemination could be improved.
- 78% of total projects were included within the DWI newsletter, introduced in 2008 to raise awareness of research carried out under the DWQH evidence programme. However, a number of stakeholders were unaware of the newsletter, suggesting that the promotion and dissemination of the newsletter could be improved.

Value for money

- 76% of projects scored a 4 or above for this objective.
- There were good examples of collaborative funding of projects, particularly with the World Health Organisation (WHO), the Water Research Foundation (WRF), and UK Water Industry Research (UKWIR).
• However, in some instances, it was difficult to determine the total costs and the costs to individual contributors of collaborative projects, as access to this information was not always provided.

• The expert team found that research projects that enhanced understanding, created legislation, or provided outputs such as handbooks or spreadsheet tools were especially good value for money.

Future evidence programme
The findings indicate there is a close match between the research carried out and the criteria set out in the ROAME statement and its 2013 successor. There were however some gaps identified in the research topics and it is recommended that the DWI consider the following when selecting further research:

• Any issues identified from the Drinking Water Quality and Health Evidence Plan without publications during 2005 – 2013 programme, and which would benefit from further research going forward, should be considered for the evidence programme.

• The DWI review the recommendations provided by projects at the annual research ideas meeting, which determines whether sufficient research has been completed in relation to that topic. The outcomes of the review should be clearly and consistently communicated to relevant stakeholders and relevant, high priority recommendations should be taken forward in a future evidence programme.

• There was widespread agreement from stakeholders that the programme would benefit from additional and wider stakeholder engagement with respect to how the research projects are decided and how the findings are disseminated back to the stakeholders. This two way communication will assist in the identification of emerging issues.

In view of the DWI’s responsibilities being limited to England and Wales the scale of research is usually limited accordingly. Where research is relevant to other devolved administrations DWI should engage with them at each stage of the project going forwards. The ease of this has reduced in recent years due to the formation of national Governments and Assemblies in Scotland, Wales and Northern Ireland. Stakeholder engagement needs to ensure that a full representation is included when developing the evidence programme going forward.

Recommendations
There are some aspects of the programme which could be improved and this report makes the following key recommendations for the ongoing DWQH evidence programme:

1. It is recommended that DWI should develop a communication plan to communicate to relevant stakeholders the outcomes of the research review meeting to determine whether sufficient research has been completed in relation to the issues set out in the Drinking Water Quality and Health Evidence Plan 2013.

2. The formation of an expert working group would assist in identification of potential new research areas and also with dissemination of existing research from the programme.

3. It is recommended that DWI should take steps to raise stakeholder awareness of the value of the DWI newsletter. Stakeholders may not appreciate that the newsletter is primarily a means of disseminating valuable research information.

4. Increase the use of workshops or seminars to disseminate research delivered under the DWQH evidence program.

5. To ensure the scientific quality and calibre of proposals submitted during the tendering process it is recommended that the tender period is extended from four to six or eight weeks.