Department for Environment Food & Rural Affairs

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Water Availability and Quality Evidence Plan

Policy portfolio: Water & Flood Risk Management

Policy area within portfolio: Water supply and function, water quality and water industry reform

Timeframe covered by Evidence Plan: 2013/14-2017/18

Date of Evidence Plan: March 2013

This evidence plan was correct at the time of publication (March 2013). However, Defra is currently undertaking a review of its policy priorities and in some areas the policy, and therefore evidence needs, will continue to develop and may change quite rapidly. If you have any queries about the evidence priorities covered in this plan, please contact StrategicEvidence@defra.gsi.gov.uk.

PB 13933

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1. Policy context

What are the key policy outcomes for the policy programme/area?

1.1 Policy outlook

Water is essential to life and the functioning of the natural ecosystems that support all human activity; a precious resource and a key element in the regulation of the earth's climate. The products and services that water provides sustain economic growth and need to be protected and managed efficiently. While it would not be advisable to seek to put estimates on the total value of water, recent research[1] has given values to some of the services provided by the water environment; these include water quality benefits from inland wetlands of up to £1.5 billion/yr and the potential of planned river quality improvements to generate values of up to £1.1billion/yr.

Most economic sectors depend to some degree on the provision of water supplies. Approximately 13 billion cubic meters of water are abstracted from non-tidal waters per year in England and Wales. Around half of this amount is used for public water supply; another third is used for energy generation; 10% for industry purposes; and 9% by aquaculture and amenity. Spray irrigation accounts for less than 1% of total abstraction and it is concentrated in the relative dry Anglian water region in the summer.[2]

It is the Government's responsibility to develop an adequate legal, regulatory and policy framework to safeguard water ecosystems and guarantee water supplies whilst promoting a sustainable and fair use of water resources.

In December 2011, the Government published the Water White Paper '*Water for Life'*,[3] which sets out its long-term vision for water in England. The White Paper describes a future for water management in which the water sector is resilient to the challenges presented by climate change and population growth. By working alongside water companies, *'Water for Life'* encourages innovation and more efficient and customer-focussed water supplies in which water remains affordable for all.

Supporting this vision is the June 2011 Natural Environment White Paper *'The Natural Choice: securing the value of nature'*.[4] This covers broader issues of water quality and

[1] National Ecosystem Assessment (NEA); http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx

[2] Source: NEA

[3] http://www.official-documents.gov.uk/document/cm82/8230/8230.asp

[4] http://www.defra.gov.uk/environment/natural/whitepaper/

availability, such as how to safeguard the ecosystem services provided by the natural environment (e.g. biodiversity, landscape, clean water and food production) upon which our well-being and economy depend. Together these White Papers set out the Government's approach to safeguarding water quality and availability in England.

1.2 Key policy outcomes for the policy programme

The Water Availability and Quality (WAAQ) Programme delivers the Government's policy priorities in the areas of water supply and function, water quality and water industry reform, supporting the top three departmental priorities within Defra's Business Plan: [5]

- Support and develop British farming and encourage sustainable food production;
- Enhance the environment and biodiversity to improve quality of life; and
- Support a strong and sustainable green economy, including thriving rural communities, resilient to climate change.

The Programme provides the underpinning evidence for two Ministerial priorities: *Achieve a more sustainable balance between demand for and availability of water, whilst improving water quality* (Water supply & function; Water Quality); and *Enhance competition, efficiency and affordability through a reformed water industry* (Water Industry Reform). The evidence needs for these priorities are managed as an integrated programme which helps ensure recognition of linkages and exploit value for money opportunities for evidence projects to deliver to more than one Ministerial priority.

1. 2.1 Water supply and function

The core of this policy objective is *to maintain secure water supplies, current high standards of drinking water quality and ensure effective sewerage services for households and businesses that are resilient to climate change.*

The scenarios within the Environment Agency's report *Case for Change – current and future water availability*[6] *,* predict a future with less water available for people, businesses and the environment. Everyone therefore has a role to play in using water more efficiently.

The establishment of a balanced supply-demand regime is crucial to achieving sustainable water management. We need to make more efficient use of water; reduce the number of sites unsustainably abstracted; create a more resilient public water supply and sewerage; and establish effective management of surface water drainage and sewage water.

[5] http://www.number10.gov.uk/wp-content/uploads/2012/05/DEFRA-2012-Business-Plan.pdf

[6] http://cdn.environment-agency.gov.uk/geho1111bvep-e-e.pdf

In practice this entails a regulatory framework for competition that promotes innovation in the water industry and where long term planning takes place alongside short-term efficiency savings. An aspiration of the *Water for Life* is that water companies become more customer-focussed and implement fair, affordable and cost-reflective water charges that incentivise environmentally responsible behaviour and protect vulnerable groups.

1.2.2 Water Quality

The overall Water Quality objective for WAAQ is to *achieve healthy rivers, estuaries, coasts and groundwaters to provide maximum resilience to climate change and biodiversity through delivering the Water Framework Directive.*

Water for Life proposes an ambitious agenda for improving water quality in England by reducing pollution, tackling unsustainable abstraction and managing sewage and surface water drainage effectively. This is to be achieved by building an approach based around payments for ecosystem services and a focus on the delivery of EU obligations, particularly those set out in the WFD.

1.2.3 Water industry reform

This policy objective aims *to enhance competition, efficiency and affordability through a reformed water industry.*

In July 2012 Defra published a draft Water Bill to take forward the legislative changes with regards to “Reforming the market for business customers” and “Protecting customers” in England as set out in *Water for Life*. The draft Bill includes measures to strengthen the resilience of the water sector to future pressures and improve the deal it offers to its customers by enhancing competition, driving efficiency and promoting innovation. The Water Bill will set out measures to give businesses in England more choice to switch their water and sewerage suppliers. It will also remove some of the existing regulatory burden for new entrants to enhance market competition.

2. Current and near-term evidence objectives

What are the current and near-term objectives for evidence and how do they align to policy outcomes?

The overarching objective of WAAQ’s Evidence & Analysis Programme is the delivery of high quality and high impact evidence that supports existing, and shapes future, policy and practice in water availability and quality. The Programme faces a wide range of evidence challenges, covering natural sciences and socio-economics, across which our knowledge varies considerably. Evidence needs are carefully planned in consultation with policy teams to ensure best possible support to the objectives within WAAQ’s business plan and the two Ministerial priorities it supports.

A priority underlying all near-term needs is a better understanding of the economics behind policy measures and instruments and ways of determining critical pathways to facilitate cost-effective approaches to support policy implementation.

The geographical scope for WAAQ Evidence and Analysis is England, there is however extensive collaboration with the Welsh Government and its agencies.

2.1 Near-term evidence needs for water supply and function

Primary high priority evidence needs for water supply and function are:

- Assessing opportunities and barriers to achieving an optimum water supply-demand balance to increase resilience in the water sector;
- Producing the evidence to support the design of an improved abstraction licensing system which considers alternative options for water allocation and charging while protecting environmental flows; and
- Improving our understanding of the costs, benefits and barriers to the adoption of sustainable urban drainage systems, local rainwater harvesting and storage schemes.

2.1.1 More efficient use of water

A top evidence priority for this policy area is to achieve a good understanding of public perception on sustainable water measures, including water conservation, water efficiency and attitudes to water pollution, with the aim of promoting public engagement with more sustainable uses of water.

Evidence to inform how to drive innovation is also a high priority. Innovation includes a range of activities on a domestic and global scale, both within the water sector and supply chain, and will be fundamental to achieve sustainable and secure water resources for the future. To support innovation, WAAQ and Defra's Flood Management Programme contributed £1m towards a water scarcity competition run by the Technology Strategy Board.[7] Other evidence activities supporting innovation include: Waterwise Evidence Base for Large Scale Water Efficiency; the Water Efficient Building Network based at Brighton University; research in support of the Green Deal Guidance for Water Companies; and an initiative for assessing a Sustainable Economic Level of Leakage.

[7] *The Technology Strategy Board is an executive non-departmental public body (NDPB), established by the Government* to stimulate technology-enabled innovation in the areas which offer the greatest scope for boosting UK growth and productivity.

Water Efficiency	
Policy Objective	
Achieve a sustainable supply-demand balance	- Improve our understanding of customer behaviours and barriers to the uptake of water efficiency measures - Assessing the effectiveness of different interventions to encourage water savings and behaviour change -Investigating new technologies for water re-use - Review the effectiveness of enhanced capital allowance schemes for water efficient products - Develop innovative approaches to reducing water consumption - Examine how incentives might stimulate businesses to reduce demand i.e. innovative products, financial incentives
Reduce water consumption by domestic and non-domestic users	
Reduce leakage levels	Investigate how social and environmental costs and benefits are included in water companies' sustainable, economic level of leakage
Encourage new large domestic developments and non-domestic buildings to be highly efficient in their water use, especially	Develop guidelines to ensure water is fully taken into account in new developments, particularly in water stressed areas.

2.1.2 Reforming the water abstraction regime to address increasing risks of water scarcity and environmental damage due to climate change and increasing water demand

A key evidence priority in the near term for WAAQ is to develop the evidence base in support of the upcoming reform of the water abstraction regime, originally set up in the 1960s. The new regime will need to consider current pressures of climate change, population growth and be designed to better protect the environment.

The programme has now started a three year plan of research which aims to quantify the level and distribution of impacts on abstractors in England and Wales, (in the period 2025 to 2050 and beyond) of reform options that will meet environmental flow targets to protect water ecosystems in line with legal requirements.

Water Abstraction	
Policy Objective	
Develop a new abstraction regime that responds to pressures from climate change and population growth, while protecting the environment	Understand and quantify the implications, including any risks, of future abstraction reform options for meeting targeted environmental flow requirements to protect water ecosystems in line with legal requirements
Support water companies meeting Water Resources Management Plans objectives	Understand how policy options under water scarcity scenarios will affect water companies' strategies for meeting their public water supply requirements and wider business interests, and the impacts on customers
Ensure a fair distribution of the impacts of the review of the abstraction on non-water company abstractors	Identify potential response strategies available to different abstractor sectors (excluding water companies) to mitigate the risks of changing water availability and reliability Assess, and as far as possible quantify, the level and distribution of impacts (benefits, risks and costs) of reform options

Setting environmental requirements for water flows	Understand better the evidence base for setting flows to protect water ecosystems and explore approaches to improving this evidence base and the approach to setting flow requirements.

2.1.3 More resilient public water supply and sewerage - including appropriate response to emergencies

In the near term, WAAQ needs to assess policy options within the water companies Water Resource Management Plans (WRMPs) to promote resilience in the sector, including a better alignment with drought plans to ensure future supply needs are efficiently met. WAAQ will also conduct an early evaluation of the impact of implementation of section 42 of the Flood and Water Management Act 2010, which will introduce mandatory adoption and new build standards for new sewers and lateral drains.

Increasing interconnections and the trading of bulk supplies of treated water have been identified as important options to meet future water availability requirements in a cost effective manner. Further research is needed to explore options and opportunities for water companies to work together on local or regional grid basis to improve the supply-demand balance and the resilience of supply security through greater interconnectivity.

2.1.4 Establish an effective management of surface water drainage and surface water

WAAQ will continue developing the evidence to support the development of a more strategic approach to drainage planning and standards, including drainage connectivity to enhance resilience against surface water flooding. The Government intends to implement measures to increase the uptake of sustainable urban drainage systems (SuDS) in new developments. This will include national standards for SuDS.

In recognition of an increasing necessity to manage low flows and flood flows in an integrated manner, WAAQ research in is this area is planned jointly with our Flood and Coastal Erosion Risk Management Programme.

Near-term research priorities for surface water drainage include:

Surface Water Drainage	
Policy objective	
Implementation of provisions within the Flood and Water Management Act on SuDS	Continue improving understanding of the costs, benefits and barriers for the adoption of SuDS Appraise the benefits of existing SuDS in alleviating the impacts of floods Monitor and evaluate the implementation of SuDS
Promote behaviour change towards the adoption of measures to tackle surface water run-off and diminish the risk from surface water flooding	Improve our understanding of how to influence people's behaviours to increase resilience to the associated with surface water drainage
Attain an efficient management of surface water drainage – capture, storage, slow release & separation from foul sewers	Evaluate the costs and benefits of local rainwater harvesting schemes and derivation of appropriate quality standards Understanding of barriers to the uptake of rainwater harvesting and storage Improve our understanding of the effectiveness of

	current policy dealing with misconnections, determine the scale of the problem and possible solutions

2.2. Near-term evidence needs in the area of water quality

High priority evidence needs for the Water Quality sub-programme are:

- To improve our understanding of the impacts of key catchment pressures;
- to identify the reasons for failure of WFD objectives and select cost-effectiveness measures to bring water bodies to good status;
- to develop innovative approaches for stakeholder engagement, and identification of solutions, in water quality matters.

An evidence priority for water quality is to continue to develop the evidence base on effective mechanisms to tackle the impact of diffuse pollution sources on water bodies. Evidence in this area is developed in close collaboration with Defra's Sustainable Land and Soils Programme through joint research activities such as the Demonstration Test Catchments (DTC). DTC delivers the evidence to support the development of the Catchment Based Approach and, more widely, delivery of WFD objectives.

WAAQ is undertaking secondary research[8] on effective measures to tackle agricultural diffuse pollution. New solutions that engage stakeholders at the catchment scale are also being explored, in line with Government goals for more community-based initiatives to deliver public benefits. An important requirement in the near term will be assessing the implications of the reform of the Common Agricultural Policy and the Nitrates Directive. Objectives such as the promotion of sustainable nutrient management link to other Defra programmes, including the Sustainable and Competitive Farming Strategy, with which WAAQ collaborates extensively.

A key objective for Water Quality in the near term is to take forward the Catchment based Approach to improve water quality and tackle diffuse pollution. The Catchment Based Approach aims to engage stakeholders in new ways in order to ensure common ownership of problems and their solutions. A series of catchment-level partnerships are being developed through a pilot phase. WAAQ is undertaking an evaluation to test these new approaches and assess which pilots work best and whether significant returns can be achieved through a relatively modest investment in the catchment based approach.

Whilst agriculture is a significant contributor to water pollution, contamination from the built environment is also a considerable factor. Recent research shows that non-agricultural

[8] Independent systematic review of impact of on-farm mitigation measures for delivering an improved water environment – Defra project: WT0965

diffuse pollution (NADP) accounts for approximately 1200 water bodies failing to meet WFD standards. WAAQ has planned research to characterise and estimate the scale of impact of NADP sources, as well as to identify cost-effective remediation measures to support this process.

Another major source of diffuse pollution comes from non-coal abandoned metal mines (NoCAM). These contribute to 8% of failures to achieve WFD good status objectives in surface and groundwater bodies in England and Wales. Since most metal mines are abandoned, the Government and its agencies are responsible for tackling NoCAM pollution in a cost-effective manner. WAAQ has set up a group of projects, in partnership with EA and the Coal Authority, to assist in delivering WFD obligations by refining characterisation of NoCAM sources, improving understanding of ecological impacts and extending the range of sustainable treatment options for mine waters.

The list of priority substances under WFD is currently being reviewed and it is expected to strengthen environmental quality standards for existing hazardous substances and include new additions. Therefore, in the near term there is likely to be a need for evidence to synthesise existing knowledge on new additions to the priority substances list and primary research to develop standards and determine physicochemical parameters and conditions of surface waters.

Another emerging area of research is the investigation of morphological pressures on surface waters, responding to a WFD requirement to ensure that the physical condition of surface waters supports ecology. This work will include identifying best practice with regard to land use planning and river restoration, to be promoted to help meet WFD water quality objectives.

Water Quality	
Policy Objective	
Water Bodies and Ground Waters meet Good Ecological Status	- Better understanding of the fate and transport of individual pollutants -Evidence to establish the reasons for failure of WFD environmental objectives and biological response to catchment pressures - Identification of cost-effectives measures for river restoration and solutions to the barriers for adoption of measures
Reduced diffuse pollution from agricultural and non-agricultural sources to support Improve ecosystem function	- Continue developing the evidence on effective measures to tackle agricultural diffuse pollution - Assessing the levels of investment needed to tackle urban runoff, misconnections and industrial estates - Refining characterisation, improving understanding of ecological impacts and extending the range of sustainable treatment options for waters affected by non-coal abandoned mines pollution
Develop innovative approaches which take account of the value of the ecosystem services provided by the water environment	-Improved evaluation of costs, benefits and their distribution over water stakeholders, including the value and quality of water and the cost-effectiveness of measures -Evaluation of the relative cost-effectiveness of catchment-source protection versus treatment

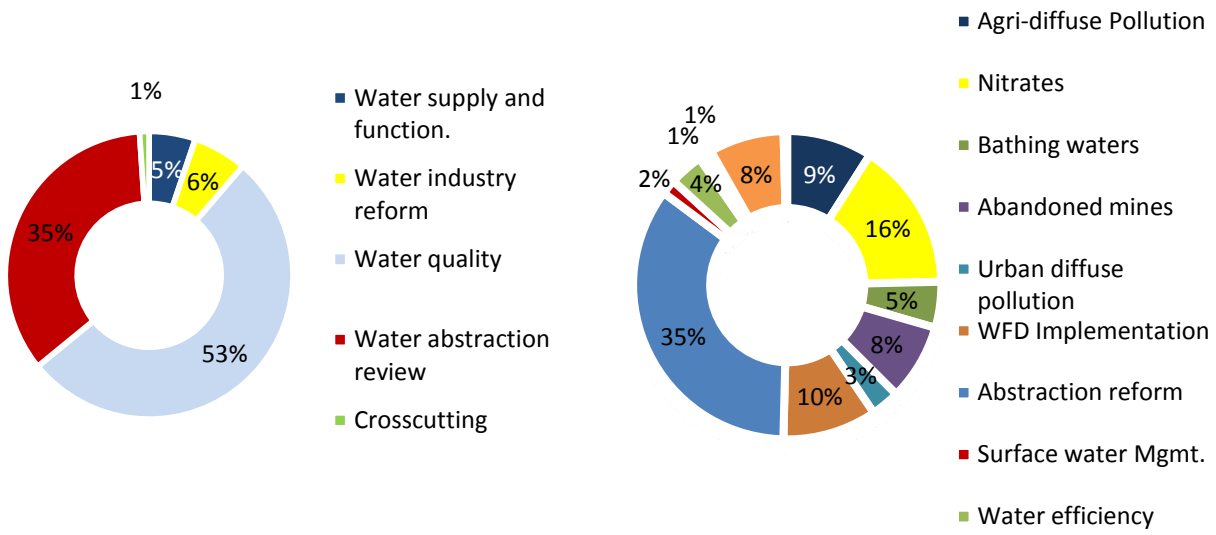
Integrated River Basin Management (IRBM) & Integrated Catchment Management (ICM)	- Analysis of approaches to meet EU Water Blueprint requirements - Improve approaches for eco-system service valuation - Assessment of appropriate forms of Integrated Catchment Management for England & Wales
Monitoring & Modelling	- Review and design of next stage monitoring and modelling capability. - Review of environmental standards and their use. Understanding the impacts of climate change on water quality and water quality metrics
Ensure standards are met for urban waste water treatment bathing waters, shellfish and fresh water fish to meet societal needs	-Continue producing technical advice on shellfish pollution -Develop the evidence base to inform policy on action for the prevention of outbreaks of noroviruses -Economic assessment of benefits from improved models to forecast bathing water pollution events

2.3. Near-term evidence needs: Water industry reform

A top priority for water industry reform is identification of the major factors that determine the resilience of the water sector to future pressures. Other evidence priorities include: the development of guidelines for the next water resources management planning cycle; the development of policy on new water charges; and assessing the opportunities for, and barriers to, enhancing competition in the water industry and the implications on affordability and fairness.

Regulatory framework competition and innovation	
Policy Objective	
Achieve fair affordable & cost reflective water charges that incentivise environmentally responsible behaviour	- Evaluate different models of charging for water and sewerage services, using various criteria including economic efficiency, fairness and influence on environmentally responsible behaviours - Assessment of costs and burdens of current charging schemes and distribution of costs
Ensure protection for vulnerable and poorer customers	Update the evidence base on the impacts of domestic metering with special consideration of the impact on vulnerable and low income households
Gain customer appreciation of services & benefits paid through water bills	Investigate customer understanding and attitudes relating to the water services they pay for

WAAQ's expenditure by sub programme and policy area 2012-13



3. Future evidence needs

What are the longer-term evidence needs for the policy area/ programme?

In the longer term, high evidence priorities for WAAQ will be shaped by the main challenges facing water resources management and the protection of water ecosystems: population growth; urbanisation; behavioural change in reference to water usage; and climate change. In order to respond effectively to these challenges, we will continue to develop methods to predict how climate variability and extremes are likely to impact water resources and evaluate the capacity of freshwater ecosystems to respond to climate and demographic pressures. Future water resources management will also need to be supported by evidence that anticipates future conditions and differences in the social weave of England and Wales, which may affect water uses and demand and access to affordable water supply for all consumers.

There is also a need to continue developing the evidence base on household practices and behaviours related to water and the effectiveness of interventions to encourage behaviour change that is sustained over time. Continued evaluation and learning from good practice interventions and engagement to change behaviours and encourage action to tackle water pollution will provide valuable evidence to inform the future direction of water policy.

Additional high priority research areas for WAAQ in the longer term include the evaluation of water-related environmental issues such as the effects of new pharmaceuticals and nano-products on the aquatic environment. Understanding the effects of these pressures will underpin decisions on how best to tackle the challenge of achieving good status under the requirements of the WFD, without incurring disproportionate costs.

Water has an economic value in all its competing uses and should be recognised as an economic good. [9] In the long term WAAQ will continue to develop research on the value of water and the wide range of products and services it provides, to support a policy framework for water that promotes sustainable, efficient and equitable use. This may include exploring the use of deliberative methods to engage with a wider range of stakeholders in water valuation.

Following the publication of the National Ecosystems Assessment, WAAQ will strive to develop innovative and effective approaches which take account of the value of the ecosystem services provided by water by improving our understanding of the benefits that the natural environment provide to society. This may include exploring cultural, shared and plural values related to water.

Box I. Integrated Water Resource Management

WAAQ promotes the adoption of the principles of Integrated Water Resource Management (IWRM) as an over-arching conceptual framework to help facilitate the mainstreaming of ecosystem services theory in catchment management in England. This is to be achieved by developing a more inclusive and open approach to river basin planning and management for the WFD, in which IWRM contributes significantly to the Government's 'big society' agenda.

Evidence needs in this area include improving our understanding of the opportunities and barriers to the adoption of IWRM principles and identification of existing and emerging good practice relating to WFD Integrated River Basin Management (IRBM) and Integrated Catchment Management (ICM).

In the longer term, work is needed to identify the best means for fully incorporating ecosystem service valuation, flood and drought management, climate change, and behavioural change into specific IRBM and ICM programmes. Further work is needed to identify best practice for Integrated Urban Water Management approaches to reduce pollution risk and where possible improve amenity and diminish flood risk (e.g. evidence to support work on SUDS & dealing with sewer misconnections).

To support all this work, WAAQ will horizon-scan to anticipate new threats to the water environment and water supplies, and to identify new ways to deal with existing and new challenges, from technology to social solutions. This work will entail the development of tools and operational approaches to enable policy leads at WAAQ to look ahead, to identify long term pressures and respond to future challenges in a strategic manner.

[9] The Dublin Statement on Water & Sustainable Development; International Conference on Water & Environment Dublin 1992; http://www.wmo.int/pages/prog/hwrp/documents/english/icwedece.html

4. Meeting evidence needs

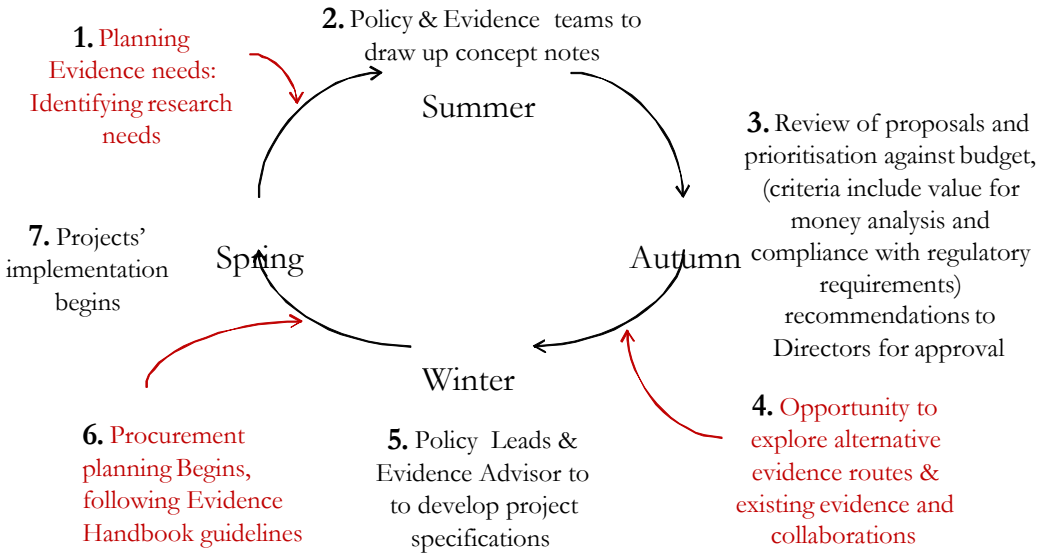
What approach(es) will be taken to meeting evidence needs?

Evidence needs are drawn together by the Analysis and Evidence Team within Defra's Water and Flood Risk Management (WFRM) Directorate, following consultation with policy area teams across the Directorate. In support of an interdisciplinary approach, the Analysis and Evidence team encompasses scientists, economists and a social researcher. In addition, the team is supported by other experts within the Directorate (engineers, environmental scientists) and elsewhere in Defra (statisticians, operational researchers).

By working closely with the Directorate, the WFRM Analysis and Evidence team ensures maximum linkage between policy development in water availability and quality, water industry regulation and flood risk management. The team will continue working closely with policy teams to ensure evidence findings are aligned with the main policy milestones within business plans at the Directorate. Our general approach to meeting evidence needs includes:

- Understanding and developing evidence needs and priorities, working closely with policy staff and Ministers;
- Providing the right balance between externally-commissioned evidence and analysis and that provided by in-house experts;
- Providing an expert programme management service to help ensure the efficient delivery of evidence initiatives to time, quality and cost targets;
- Developing and maintaining a good understanding of, and improved coordination with, other evidence programmes at Defra and its partners;
- Establishing innovative and more efficient ways of working with others and making best use of existing evidence and knowledge (i.e. secondary research);
- Ensuring that all evidence initiatives deliver good rates of return on investment with a high degree of benefit realisation;
- Achieving wider influence on the direction of evidence initiatives outside the Defra family and a greater uptake of evidence outputs through improved communications;
- Producing and maintaining an evidence plan for WAAQ that encompasses all of the above; and
- Providing robust in-house scientific and research advice, economic analysis and peer review to policy teams.

Most project proposals are assessed and prioritised as part of the annual planning cycle, see Figure 2 below, although 'in-year' evidence needs are also accommodated, subject to availability of funds, and assessed as they arise. Evidence needs are evaluated and prioritised against cost-benefit criteria and their significance to support compliance with statutory requirements.



WAAQ works very closely with the Environment Agency and CEFAS and is reliant on much of their data, analysis, specialist advice and research. WAAQ's joint work with Defra's Laboratory Agencies is carried out mainly in the form of collaborative projects. Besides the Environment Agency and CEFAS, important external partners are Natural England, the UK Water Industry Research, Natural Environment Research Council, Centre for Ecology and Hydrology, British Geological Survey, The Water Services Regulation Authority OFWAT and the Water Companies.

WFRM and the Marine Environment and Fisheries Evidence and Analysis teams hold monthly meetings as part of an initiative to promote knowledge exchange and communication of successful research activities and practice. The WFRM Analysis and Evidence team also has close ties with other Defra research programmes including: Climate Ready, the Drinking Water Inspectorate, Sustainable Land and Soils, Sustainable Development and Consumption and Biodiversity (mainly at a project level basis).

WAAQ's Analysis and Evidence team is committed to sharing knowledge, expertise and resources across the Defra network in order to maximise value for money and ensure all benefits from evidence are fully realised.

In 2011, the Joint Water Evidence Group (JWEG) was set up to bring together evidence teams from Defra, the Environment Agency and Natural England to work together to: *help secure a healthy water and wetland environment in England which delivers the ecosystems services required by society and helps provide resilience to climate change and other pressures*. JWEG promotes communication and sharing of information and data to inform evidence based policy and practice and encourages best use of current knowledge by developing and applying the most effective and efficient techniques to access and summarise findings from existing research outputs and expert knowledge.

In addition, JWEG makes use of expert review and increased levels of collaboration with external evidence partners and programmes whilst seeking to influence external research

programmes and funding streams in order to deliver high quality evidence outputs. WAAQ's Evidence and Analysis team plays a leading role in the JWEG group. WAAQ is planning to make use of the 'Evidence Assessment' approach developed by JWEG, which synthesises knowledge in a particular subject area or in response to a specific question. Synthesising all that is known in a particular area will help policy and evidence teams at the Water Directorate to assess the state of knowledge in that area and identify evidence gaps, thus ensuring any newly commissioned research has maximum impact and benefit.

Social research from a broad range of social science disciplines (such as psychology, sociology and politics) will contribute to multi-disciplinary research and evidence projects related to a number of water policy areas. Insights from practitioner experience and evaluation can help to further understand opportunities and barriers to positive change in behaviours and action by different stakeholders to help improve the water environment and use less water. Social research will be used to understand the distribution of social impacts and support rigorous evaluation. There are also opportunities to explore ways of making better use of data sets collated by others to understand public attitudes and trends related to water.

Throughout the policy cycle, current and near-term social research needs will be met in the first instance by providing in-house analysis or commissioning Rapid Evidence Reviews. Internal social research capacity will draw on existing tools and frameworks for example evaluation guidance and segmentation models), practitioner experience and social research commissioned in other parts of the Defra family to explore implications to existing and emerging policy priorities.

The Policy Evaluation Board and Social Research Expert panel will also provide support and peer review where appropriate.

The key outputs of our research programme are made available to the public domain via publication on the Defra Science and Research Project database website[10]. Additional communication activities are designed according to the particular characteristics of individual research projects. Further dissemination routes include contributions to scientific research journals and the delivery of workshops and conferences to ensure transparency of our research initiatives and allow the integration of considerations from stakeholders and the wider society into public funded research.

[10] http://randd.defra.gov.uk/

5. Evaluating value for money and impact

What approach(es) will be taken to maximise and evaluate value for money and impact from evidence?

The interaction of policy and evidence is an iterative process whereby policies are informed by the latest evidence but may also require specific evidence to support policy development. Most evidence project proposals are assessed and prioritised as part of the annual planning cycle, although urgent in-year evidence needs are also accommodated as they arise. Evidence needs are assessed and prioritised against a number of criteria including: cost-benefit; alignment to policy outcomes or statutory obligations; risk and timeliness.

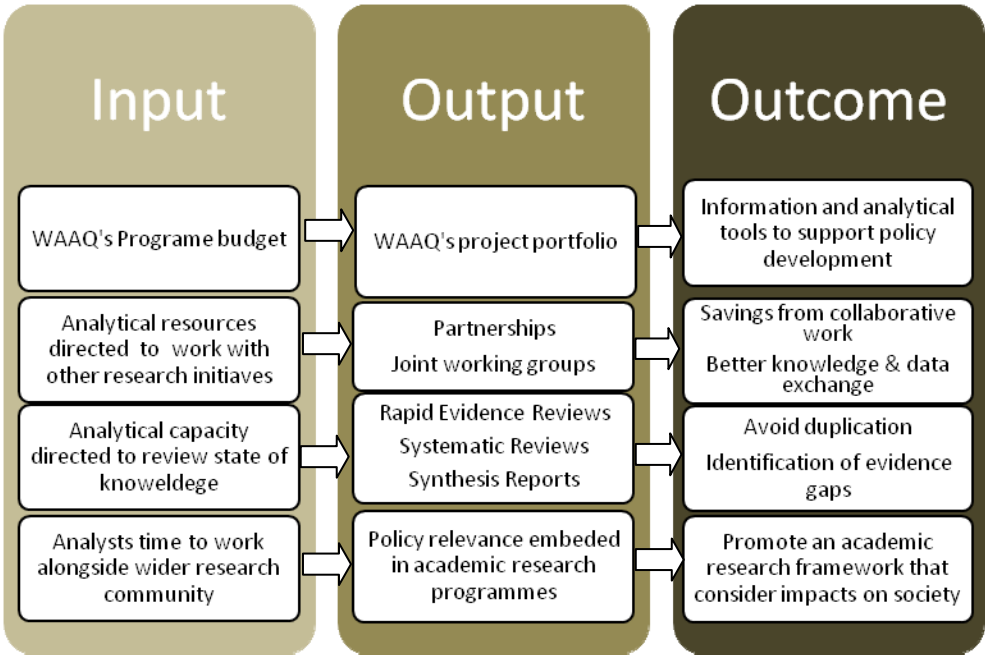
All the procurement processes are carried out following the Defra Evidence Handbook guidelines to ensure fairness and transparency in our research competitions. Planning, tendering and evaluation of results from our research projects are, as a rule, overseen by a panel of relevant experts from Defra and its partners.

We assess the success of our evidence activities in the following ways:

- Evaluating the uptake of results from research activities by key legislative developments (e.g. evidence underpinning the review of the abstraction regime);
- monitoring benefits of initiatives as a result of evidence activities (e.g. enabling wider society to deliver WFD objectives by facilitating the Catchment Based Approach);
- supporting compliance with European legislation (e.g. monitoring the effectiveness of the Nitrates Vulnerable Zones Action Programme); and
- assessing the wider benefits as a result of developments in water legislation (e.g. benefits from catchment management initiatives to the water industry and other stakeholders).

The WAAQ Analysis and Evidence programme is due to be reviewed within the next evidence planning cycle. The approach for the review has yet to be decided, but is likely to be in the form of an independent panel of experts tasked with: evaluating the outcomes of the programme; providing assurance that the programme has met its objectives and delivered value for money; assessing the programme's fitness to meet future objectives; and identifying areas in which the programme could be improved.

In order to maximise value for money WAAQ will increase its efforts to employ innovative forms of knowledge exchange and make more use of secondary research and leveraging the work of others. The figure below describes the conceptual framework by which WAAQ aims to optimise the impact of existing resources and capture the benefits of its investment on evidence activity:



Key success measures and programme outcomes:

- Fully integrated multidisciplinary evidence
  Benefit: alongside the science evidence base, an understanding of behaviours and the development of economically attractive actions is essential to incentivise people and bring about the environmental improvements we are seeking.
- Improved focus on Benefit Realisation

  Benefit: Improved prioritisation of evidence proposals and an increase in efficiency of benefit realisation over time.
- Working in partnership with others and developing new ways of working

  Benefit: More efficient use of resources through stronger networks (in particular JWEG) to coordinate work, encourage collaboration and maximise use of existing knowledge.
- Communicating our work

  Benefit: Increased impact of our evidence through improving visibility and accessibility of our evidence outputs.
- More joining-up of longer-term strategic projects delivering to multiple objectives
  Benefit: More efficient support for Defra's strategic priorities and goals through more integrated evidence-gathering.