

ASSESSING CLIMATE CHANGE RISKS AND OPPORTUNITIES

Case study: Scottish Water and Mott MacDonald



Scottish Water
Always serving Scotland

This case study explores how Scottish Water undertook an update of its strategic Climate Change Risk Assessment (CCRA) for assets, to refine the understanding of future climate-related risks and to identify knowledge gaps for further research.



Where does this fit in the adaptation process?

The adaptation process consists of 5 stages to help you get started with adaptation, understand and assess the impacts of current and future climate change, identify your significant climate risks and prioritise your adaptation options. It will also help you to implement your adaptation actions, evaluate them, and continuously monitor and review your work. This case study sits within stage 3 of the process. Scottish Water are identifying their significant climate risks to inform, identify and prioritise their adaptation actions.



View the adaptation process on our website and access tools such as the Five steps to managing your climate risks. www.adaptationscotland.org.uk

Adaptation Scotland
supporting climate change resilience

Why revisit the risk assessment?

Scottish Water conducted a CCRA in 2011-2012. An update was necessary to incorporate new climate impact research and resources developed by the water industry. It also provided an opportunity to include an updated asset base in the assessment.

The process

The work was undertaken over a six-month period (2015-2016) by embedding a consultant from Mott MacDonald into the team at Scottish Water – bringing in expertise, but also integrating this into the organisation.

This was particularly important because the most substantial component of the work involved engaging with key staff across Scottish Water.

Scottish Water have a large and diverse asset base subject to a wide range of climate-related risks. This strategic CCRA focused on risks to asset type, rather than to individual assets. The approach chosen was largely qualitative, synthesising key industry guidance and stakeholder knowledge to arrive at a best estimate of risk. Adaptation Scotland's 'Five steps to managing your climate risks' risk assessment template was used to inform the methodology, in addition to the UK Water Industry's research guidance.



Backwater Reservoir, Angus, during the drought



Aviemore wastewater pumping station control panel raised above the flood level

Recommendations

From working through and revisiting the CCRA process, there are a number of lessons learnt that others who are planning to undertake a similar approach may wish to consider. These are as follows:

1. Clearly scope out your approach

The scope of a CCRA is potentially wide, ranging from corporate-level risks to those for individual assets. Even more so if third party and supply chain risks are considered. The first key step is to agree on the scope of a CCRA, what's in and what's out. Budgets and timescales provide additional constraints and set the boundaries of the work. This project was carefully planned, with a scoping document developed that helped a number of different stakeholders understand the aims, inputs and outputs required.

2. Define your risks and make them specific

There needs to be a clear risk description. It is important to relate a specific climate *hazard* with an *impact* on an objective, service or asset. It is tempting to amalgamate or generalise risks to create a smaller set of risks. However, this

often makes risk scoring difficult – especially when it comes to assessing future climate change.

3. Identify your current climate risk first

Some start a CCRA with a detailed assessment of future climate. However, it is difficult to undertake a useful CCRA if you don't understand the relationship between an asset/service and the risk from current climate impacts. Our approach to this strategic CCRA used, where appropriate, a detailed climate assessment for specific risks (based largely on existing information) and the use of expert judgement from a range of sources.

4. Explicitly deal with uncertainty

Embracing uncertainty is a cornerstone of a good CCRA. It's important that this aspect does not paralyse a CCRA nor should it be ignored. For a number of the climate-related risks faced by Scottish Water incomplete information or significant uncertainty exists. The availability of probabilistic projections, to some extent, provides an indication of model uncertainty – although we also took account of a 'worst case' scenario to ensure robust decision-making.

5. Make use of available information

The CCRA needed to be able to readily assimilate existing relevant information from a variety of sources to avoid reinventing the wheel. For example, the UK Water Industry Research (UKWIR) and Water UK both provided guidance on a general climate change risk assessment approach for water utilities, as well as detailed information on specific risks.

6. Embed climate change within existing risk management frameworks

Climate change is just one of a number of future risks that an organisation needs to address. If it is to be implemented consistently it needs to be compatible with the existing mature risk management policy and framework. This was explicitly considered at the scoping stage of the project.

Next steps

This work has helped Scottish Water identify key climate change risks that may affect both drinking water and wastewater assets. It informed the prioritisation of research on specific climate change risk, which is currently underway.

Further information

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Adaptation support

Adapting to climate change takes time and Adaptation Scotland are here to provide support and advice with all your adaptation queries and projects. Get in touch to discuss how we can help you with your climate change adaptation work.

www.adaptationscotland.org.uk

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