

Policy Position Statement

New public water supply reservoirs

Purpose

The purpose of this position statement is to describe the issues that apply to developing new public water supply reservoirs in the UK. This document will set out CIWEM's position on developing these new reservoirs and this will be used to inform future debates.

CIWEM calls for:

1. A review of the planning process to ensure that the development of large water infrastructure schemes is undertaken in a timely manner.
2. Where a new reservoir is included in the final Water Resources Management Plan, after stakeholder consultation, this should be recognised as an enabler to making the planning process more timely.
3. Early stakeholder engagement and continued consultation with all relevant parties throughout the planning, design and construction of the scheme.
4. Continual justification of need up to construction.
5. Reservoirs only to be considered as part of a wider mix of schemes including demand management options.
6. Justification over all future scenarios using best available data.
7. Maximisation of environmental, social and economic benefits including use of best practice mitigation measures.

CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector.

Context

There are hundreds of reservoirs within the UK with a variety of uses from public water supply, supply to inland waterways for navigation, winter storage reservoirs for agriculture, generation of hydropower, flood alleviation and river regulation.

The growth of large dam building for public water supply peaked in the 1960's and today there are over 450 large dams for public water supply in the UK, of which 80% are in upland areas.

The majority of these large dams were constructed during the industrial revolution when the needs of industry and the health of the population in the expanding industrial cities were paramount. This often meant that the environmental consequences were given a lower priority.

The last major public water supply reservoir to be constructed in the UK for water supply purposes was Carsington in 1991, and although a number of water supply reservoirs have been proposed since the 1960's very few have made it to completion.

The reasons for this are complex and include an increased awareness of the environmental consequences of large construction schemes in general, and of the loss of flooded land in particular; expressions of public concern; considerable effort on reducing leakage, increased metering, increased efficiency of water using appliances, Code for sustainable homes, greater demand management; availability of other feasible options and improved regulation of the water environment.

However, currently within the UK water companies are proposing a number of new reservoir schemes. The reasons can mainly be attributed to the pressures on water supply availability experienced in recent droughts, reduction in supply due to need for increased river flows to meet sustainability criteria, and to the prospect of serious shortfalls in the future, under many climate change scenarios. Water companies produce water resource management plans that describe how they will maintain security of supply over the planning horizon (normally 25 years). Each plan is based on the principles of the twin track approach, which is a range of measures to both reduce demand as well as improve supply.

Key Issues - Discussion

Justification of Need

Water companies have done much to reduce the demands for water including significant reduction in leakage as well as promoting and implementing water efficiency measures.

The level at which it is no longer economical to continue to reduce leakage is termed the "economic level" and some water companies believe they can demonstrate that they have reached this level.

Water companies also have a duty to promote water efficiency and have done much to raise public awareness and deliver improvements. However, the government predictions of population growth, especially in the South East and East Anglia, will place more pressure on the water resources in these areas. The increased need for water can be mitigated to a certain degree by water efficiency measures including metering and water-efficient appliances but there is still likely to be a residual increase in the demand for water. There is some uncertainty around the achievable reduction in demand that can be delivered by water efficiency measures alone.

Water companies also face a reduction in the yield of some of their existing water sources due to new environmental legislation driving improvements in the status of our water environment. The Environment Agency's review of abstraction licences in England and Wales is indicating that a number of catchments are currently over-licensed or over-abstracted including a number of designated sites (SACs and SPAs) which are adversely affected by abstractions for

public water supply. The ecological flow requirements of the Water Framework Directive will also reduce the amount of water available from both surface and groundwater sources.

The contamination of some groundwater sources is likely to reduce the yield available from some groundwater sources and/or increase the costs of treatment.

The predictions of climate change on water resource yield, although containing much uncertainty, suggest that summer rainfall will be lower and so water availability for abstraction from existing supplies in periods of peak demand will be reduced.

The consequence of these demand and supply side pressures have resulted in some water companies identifying a need for significant extra quantities of water and including new reservoirs in their water resource management plans. For example Thames Water has included a new reservoir in the Upper Thames catchment.

However, the initial inclusion in the water resource plan is only the starting point of a process, which for a large capital construction project such as a reservoir could take up to twenty five years to reach final completion. This lengthy period of studies, investigations, public consultation, public enquiries, Secretary of State approval, design, construction and filling etc means that when a new reservoir is initially proposed the justification of need is based on assumptions with a great deal of uncertainty. If approvals are granted with too much uncertainty then reservoirs could be constructed which are not fully required. With the environmental, social and economic consequences being so great this is an unacceptable result. In the UK we do have examples of this happening, e.g. Kielder Reservoir was hardly used for water supply during the first 20 years of its life. It is therefore important that proposals are supported by robust justification.

Environmental Impacts

A reservoir will inundate a large area of land and alter the environment of the reservoir site, surrounding land and any upstream and downstream effects on the watercourse. The reservoir proposer cannot mitigate fully this loss of habitat however the environmental mitigation measures should seek to maximise environmental benefits and minimise environmental costs.

The types of environmental benefit which can be derived include creation of new habitats and improvements to wetlands. Best practice approaches to environmental mitigation should always be included in the scheme design. There are many best practice examples around the UK and internationally and this should be seen as a minimum requirement. The scheme should innovate and create best practice. It should be an exemplar project for environmental mitigation. It is essential that environmental stakeholders are consulted very early in the consultation phase so that best practice and innovation are delivered.

Social Impacts

A reservoir will inevitably involve the loss of land and depending on the location this may involve the loss of many community benefits which resulted from this land. The proposer should seek to minimise the cost and maximise the benefits to the community of losing this land. A major part of this will be in the site selection and it is important that a baseline survey

of any site identifies all the community and public benefits gained from the land. This could include heritage and archaeology, leisure and amenity, local history, wildlife, ecology etc.

One of the major issues regarding reservoir development can be the displacement of people living in the area planned for inundation. The site selection should minimise the number of people that have to be displaced and also derive robustly the costs associated with any displacement. This should not just include the compensation costs to the individual but the full costs to the community. Having reviewed a number of dams in developing countries the World Commission on Dams advocated in 2000, amongst many proposals, "participatory decision making" to gain public acceptance and "free, prior, informed consent" of those affected to ensure they really did gain from the scheme."

It is also important to recognise the increased risks to communities downstream of the dam and ensure that these costs are included. This may include increased flood risk associated with a 'worst-case scenario' possible failure of the dam and its effect on the value of homes.

Many reservoirs attract large numbers of visitors to enjoy the scenery and leisure facilities that a reservoir provides, including walking, fishing, boating and visitor centres displaying local interest information. There are examples where the social benefits have been evaluated as greater than the environmental costs (after mitigation).

Economic Impacts

The construction of such a large capital project as a reservoir can realise economic benefits during all phases of the project from design to the final running of the scheme. The benefits will apply at a local, regional and national level and will include direct and indirect benefits.

Public Consultation

The development of a new reservoir will raise significant interest from many stakeholders locally, regionally and nationally. It is essential that these stakeholders are identified and engaged in the process at a very early stage. If the new reservoir is to gain support at public enquiry stage then the earlier in the process the stakeholders are engaged the more likely a positive outcome can be achieved.

The consultation should take many forms to ensure that all stakeholders have been identified and engaged. The need to be inclusive and targeted in the public relations strategy is essential.

Water companies plan the strategic development of water resources over 25 years. Each company's water resources management plan will highlight any supply shortfall over the planning horizon and outline the options available to deal with this supply shortfall. These plans have historically only been sent to the Environment Agency, OFWAT and the appropriate Secretaries of State. However, the Water Act 2003 makes it a statutory duty on the water companies to consult on these plans. If one of these options is a new reservoir then detailed studies will be commissioned to improve the justification of need. These studies and investigations may take a number of years to complete and will include consultation with stakeholders, communities and customers. Provided the conclusion of these studies and consultations support the continued justification for a new reservoir, the proposals will be put

forward for planning approval. Sometimes a public inquiry is required before a decision is made on the planning application.

September 2011

Note: CIWEM Policy Position Statements (PPS) represents the Institution's views on issues at a particular point in time. It is accepted that situations change as research provides new evidence. It should be understood, therefore, that CIWEM PPS's are under constant review and that previously held views may alter and lead to revised PPS's. PPSs are produced as a consensus report and do not represent the view of individual members of CIWEM.