

eWater CRC is working on water-management issues in the ACT region, in partnership with local and interstate organisations.

Focusing on Canberra's water-supply catchments, the project teams are applying new software that can help the region's water managers evaluate options for best outcomes in water quality and quantity, for people and ecosystems.

# Australian Capital Territory

## CATCHMENT CONTEXT

The occupied area of the ACT region is small but it supports about 350,000 people, and growing. With no local coastline, all Canberra's and Queanbeyan's water supply (and wastewater treatment) needs are met by inland catchments.

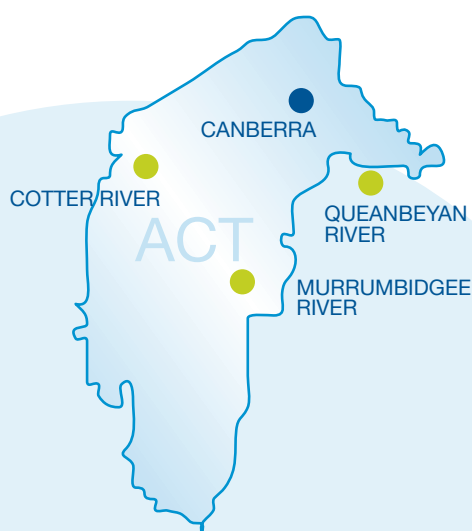
Most of ACT's water comes from storages on the Cotter River within the Territory and the Queanbeyan River in adjacent NSW, and it is also pumped from the Murrumbidgee River as it crosses the ACT. Household rainwater tanks contribute a proportion of the total, and stormwater-treatment lakes and recycled waters are also potential non-potable supplies. The region's waterways are valued for residential amenity and recreation such as fishing, swimming, boating and picnicking, and for their ecological importance including their roles as habitat for threatened species.

After years of adequate water supply from the Cotter and Queanbeyan rivers, ACT water managers now face a much larger demand caused by a growing population and less rainfall. As well as the sources already mentioned, managers are juggling the possibilities and implications of: storing water supplies in urban lakes; buying in water from Tantangara Reservoir in NSW; and applying policy and incentive mechanisms for reducing demand.



## APPLICATION

To investigate the range of water options for the region, eWater and partner organisations are trialling our pioneering water-management software. Managers are testing how it performs on scenarios that balance water security, water quality in relation to future demand, and the region's social, economic and ecological values.



# Australian Capital Territory

## FOCUS CATCHMENT

The team is:

- (i) using integrated urban water-management modelling to evaluate options in numerical detail in ways that have not been possible before;
- (ii) modelling movement of surface-water and possible contaminants across the catchments;
- (iii) seeing how supplies from storages, stormwater and wastewater can be manipulated for best outcomes (security of supply, sustainability), using decision science that combines simulations of water quantity and quality with local information on social and economic factors;
- (iv) choosing patterns for releasing or delivering environmental flows for best ecological effects;
- (v) compiling information about how fish, waterbugs and other life respond to various flow patterns and reductions.

### eWATER'S INPUT

eWater's activities in ACT will involve testing the potential of integrated urban water management (IUWM) for achieving a sustainable water supply. At selected case-study locations the trial will investigate optimal use of both centralised (e.g. water-supply reservoirs) and decentralised water sources (e.g. stormwater reuse and wastewater recycling), while protecting and enhancing river ecosystem health and minimising the impacts of urban water use.

The eWater models explore water use at suburb scale, and also test regional-scale scenarios of water supply and demand and water quality, simulating a range of current and projected rainfall events. The regional-scale software examines best and worst cases rather than averages; it provides completely new ways of modelling actual systems or conversions or replacement systems to meet future needs, and the tradeoffs that might be involved.

What is exciting is that these next-generation IUWM modelling and decision-support systems allow such detailed evaluations that they can underpin million-dollar investment decisions. They let managers optimise water management to meet multiple objectives including ecological and water-quality targets, in the context of the ACT's social and economic characteristics.

A large amount of data and knowledge already exist in ACT on, for example: varying water levels in lakes; patterns of water use and output across suburbs; water quality and quantity in rivers; and ecological aspects of the region's streams in relation to flows. This information and more is being incorporated into the eWater models to make them specific to the region and its challenges.

### OUTCOMES

This application will show the potential of eWater's software to help ACT water managers optimise combinations of supply and quality options for city and ecosystem needs, for greater confidence in future planning.

At the same time the application will road-test and expand the eWater models' functionality so they will be more capable when applied in other situations.

All eWater tools demonstrated in focus catchments are part of our integrated modelling suite.



### PARTNERS INVOLVED

ACTEW Corporation, ACT Government Department of Environment, Climate Change, Energy and Water (DECCEW), University of Canberra, The University of Newcastle, The University of Adelaide, CSIRO, BMT WBM Pty Ltd., Queensland Department of Environment and Resource Management.

### KEY CONTACT

ACT Focus Catchment Coordinator  
Sue Nichols, University of Canberra  
[sue.nichols@canberra.edu.au](mailto:sue.nichols@canberra.edu.au)