



Water is Life

Critical research investigates drought risks to our future water supply

NSW's future water supply is the focus of a team of researchers whose well-matched skill sets, resources and expertise have been harnessed in an important Linkage Project.

"Essentially, the aim of our research is to understand how likely and how severe future droughts might be, and how this information can be used to guide adaptive management of water resources," says Dr Fiona Johnson, project lead and senior lecturer at UNSW's School of Civil and Environmental Engineering (CVEN).

*At the end of our research we aim to have developed a new framework for **understanding future drought risk** that DPI Water can use to guide policy decision-making and inform water sharing arrangements*

Water across the state is managed by the Department of Primary Industries (DPI) Water as Richard Beecham, Manager of Surface Water Modelling, explains. "We are responsible for managing NSW's surface water and groundwater resources and making sure that agriculture, towns and the environment all have sustainable access to water. We develop water resource plans that set rules for sharing water between these users over the long term, as well as determining operationally how much water is allocated based on current and expected water availability."

Having identified some crucial information gaps in previous research concerning future drought severity and variability, DPI Water approached Dr Johnson and her team at CVEN to initiate the project.

This high degree of trust in the relationship with the University has developed over a number of years and a number of successful research collaborations. "My past experience of working with the University has been excellent," says Beecham. "Members of my team have close professional relationships with both of the key

investigators, Dr Johnson and Professor Ashish Sharma, who right from the start, understood what we were after.”

This research will also inform the development of the water resource plans as part of the Murray Darling Basin Plan which aims to restore and protect water dependent ecosystems and greater certainty for water users during periods of low water availability, thereby safeguarding the future of the Murray Darling system as a whole. Covering over one million square kilometres the Basin plays an essential role in supporting biodiversity for a vast array of plants, animals and ecosystems; but more importantly for us, it is also Australia’s most productive agricultural area. This area produces over one-third of Australia’s total food supply which means we all have a stake in this essential research project, especially in drought-prone Australia and particularly with climate change hot on our heels.

At a glance:

Project partners: UNSW Civil and Environmental Engineering, NSW Office of Water

ARC grant: \$300,000

Aim: Develop a new method for understanding drought drivers in eastern Australia, how well these are portrayed by climate models, and how these may change in the future.

Timeframe: 3 years

Did you know?

The Murray Darling Basin consists of 23 river valleys, generates 39% of the national income derived from agricultural production, covers 14% of total area of Australia and encompasses 30,000 wetlands.