

Setting a Global Standard for Sustainable Irrigated Catchments



CSIRO Land and Water has won global recognition for innovative sustainable irrigation systems research that delivers practical on-ground results for local communities, and now leads an international research effort.

The Murrumbidgee catchment, in the Murray-Darling Basin, provides a 'best practice' example of community engagement in research and development for integrated catchment management.

For this reason, it was selected by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Meteorological Organization (WMO) as the first global reference basin during the pilot phase of their new network: the 'Hydrology for Environment, Life and Policy' (HELP) program.

This groundbreaking joint initiative is transferring knowledge, skills and technology to some of the world's biggest and most intensive irrigation regions, including catchments in North, Central and South America; Europe; the Middle East; Africa; Australasia and Asia.

Modelling tools and participatory methods used in the Murrumbidgee catchment are already being used by communities in the Liuyankou Irrigation Area along the Yellow River in China and Rechna Doab in the Indus basin.

Having also been selected as HELP's Australasian Regional Coordinating Unit, CSIRO's Sustainable Irrigation Systems research team, based in Griffith, will play a part in the ranking and accreditation process for other basins in China, India, Pakistan and Philippines.





The Australian experience in the Murrumbidgee is an excellent example of solutions-oriented science that delivers practical benefits for people in real catchments, locally as well as globally. CSIRO's Sustainable Irrigation Systems research team is helping farming communities translate regional targets to on-farm actions for integrated catchment management.

Setting an example



The Murrumbidgee catchment covers a total area of 84,000 square kilometres, and shares a number of features with other arid catchments around the world – including problems with water productivity, water quality, soil, salinity, rising water tables and surface-ground water interactions.

Issues that impact on the region's water resources include the environmental uses of surface and groundwater, concerns about the health of river ecosystems, groundwater depletion and contamination. Water quality downstream of the catchment is also a concern.

CSIRO researchers based in Griffith work with many different stakeholders including growers, irrigators, state government managers and policy makers, farmer and irrigator organisations, international

research centres and other water users in the Murrumbidgee catchment.

The scientific team provides advice on how to optimise water use by applying the right amount of water at the right time and distributing the water to every part of the property that needs it. Scientists are also helping farmers with hazards such as salinity, contamination and rising groundwater tables in irrigation areas, and downstream impacts of irrigation.

Farmers get involved through farmers' open days, participation on project steering committees, information newsletters, interactive presentations and formal training.

So far, the project has met with a tremendous response from local communities. More than 150 farmers in the Coleambally Irrigation Area have seized the opportunity to undergo formal training on the project's models.

Every bit helps

HELP aims to bridge the gaps between policy, water resource management and science. The program strives to increase the dialogue between communities, which in turn influences the research agenda and fosters on-farm adoption.

In its regional HELP coordinating role, the Griffith laboratory will continue to promote the exchange of research outcomes, information and experiences. This knowledge transfer is helping catchment communities around the world to deal with problems with water use efficiency, salinity and wider environmental management.

HELP action areas

- **Water and climate:** understanding and predicting the influence of global variability and climate change
- **Water and the environment:** striking a balance between different water needs and demands
- **Water quality and human health:** developing an integrated view of how catchments work
- **Water and Food:** increasing water-use efficiency in rain-fed – as well as in irrigated – agriculture
- **Water and Conflict:** creating the basis for rational management of water by a nation, and among neighbouring countries
- **Improving Communication:** achieving effective communication between researchers and those charged with managing the water environment.



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