

Incorporating climate change in catchment management strategies

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Location: Murrumbidgee, NSW and Swan/Avon catchment, WA

Principal investigator

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The need

Despite the importance of climate change, catchment management authorities do not find changing climate easy to incorporate in their catchment planning and management strategies. If there are to be climate-sensitive catchment plans, there is a need for a simple, community-friendly decision aid to incorporate the implications of climate change in sustainable water management.



How this project fits with MCV objectives

This project directly addresses the MCV objective relating to increased adoption and development of products and approaches responsive to natural and water resource management.

Project objectives

1. Using downscaling techniques, assess the effects and risks of projected climate change on two study catchments
2. Assess these risks in multidisciplinary terms in relation to the availability of water for human and environmental use on the catchments, and the implications of this for current water management and catchment plans
3. Develop a simple planning aid to assist catchment bodies with their community processes in making similar assessments for their catchment planning and water resources management

Methods

The project initially worked with stakeholders in the Murrumbidgee catchment in NSW to develop a prototype planning process for incorporating climate change in catchment planning. Through a series of interviews with local community members, catchment authorities, irrigation area managers, and local and state government decision makers, we identified the likely effects of key water resource changes on individual operations and the management of the catchment at different levels. We then surveyed a cross-section of the catchment stakeholders to determine actions that they might take to ameliorate the likely impacts of three possible climate scenarios.

Using one climate scenario, a multi-disciplinary team of scientists considered the impact of the climate scenario on catchment water security given the range of actions nominated by the catchment stakeholders. Using this information, we created a questionnaire to determine the common decision making paths at different levels of operation in the catchment. We administered the questionnaire in three workshops with farmers, local government officials, and catchment decision makers. The workshop setting was chosen so the researchers could understand the basis of people's decision paths, which is essential in developing the prototype planning tool.

A similar process has been undertaken in the Swan/Avon catchment to test the applicability of the decision process to planning in a vastly different catchment with different NRM issues.

Desired outcomes

- › The effects of climate change on water security can be substantially more specific and issues of uncertainty clearly identified on a catchment basis
- › The potential for a wide range of stakeholders on the catchment to incorporate realistic local estimates of climate change in their strategic catchment planning

Achievements to date

- › We developed a planning process that helps catchment authorities incorporate the implications of climate change in their catchment management plans.
- › We tested the applicability of the decision process in two vastly different catchments with different NRM issues—Murrumbidgee and Swan/Avon. For each catchment, we captured important impacts and favoured/unfavoured actions at the farm, local government and catchment scales.

What is left to do?

A final milestone report is currently being prepared. It includes a structured deliberative process to assist communities in including adaptation to climate change in catchment strategies.

MCV is a collaborative program between the Grains, Rural Industries and Sugar Research and Development Corporations; the Australian Government Natural Heritage Trust and Department of Agriculture, Fisheries and Forestry; Dairy Australia; Meat & Livestock Australia; and Land & Water Australia. The National Farmers Federation and Australian Wool Innovation Limited are associate partners.

For more information on MCV, visit <http://www.managingclimate.gov.au>
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