

# Enabling NRM decision makers to make better use of climate science

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**Location:** Southern Australia

## Principal investigator

Dr Peter Hayman, Principal Scientist (Climate Applications), SARDI  
Dr Greg Hertzler, The University of Western Australia  
Dr Mark Howden, CSIRO

## The need

Australia is investing heavily in programs such as the NAP and NHT to improve natural resource management (NRM) and has also invested substantially in improving climate science. However, reviews of MCV (eg Hassalls 2001, Howden et al. 2002, Cox Inall 2004) have drawn attention to the fact that, while most degradation of natural resources in Australia is strongly influenced by climate variability, there is a gap between natural resource managers and information from climate science.

In discussion with NRM decision makers and climate scientists, we have found that, generally, they have limited knowledge of what climate science has to offer, and the applied climate science community only vaguely understands the context of NRM decision making.

This project will develop and evaluate frameworks that enable NRM decision makers to integrate the advances in climate science into their planning and decision making.

## How this project fits with MCV objectives

This project contributes to improved use of seasonal climate forecasts (SCF) by industries and resource managers. It may also improve the communication of climate-related science.

## Project objectives

1. Work with three sets of NRM decision makers (farmers, catchment authorities and conservation estate managers) to detail a range of specific climatically risky decisions
2. Develop and apply a framework for thinking about uncertainty, based on Bayesian revision and 'Real Options', which enables NRM decision makers to better manage climate risk for the three case studies
3. Evaluate the framework(s) and produce a manual on applying the framework(s) to any climate-sensitive NRM decision



## Methods

We propose to develop several ideas to 'proof-of-concept' level, leveraging the considerable conceptual development and application of approaches such as Bayesian revision or Real Options in the financial and economic domains.

- › Previous experience in participatory research with farmers in large GRDC-funded farming systems projects indicates that proceeding from a general area of concern or problematic issue to a clearly defined decision that can be analysed and solved is not a trivial task. However, with patience, it is often the most valuable part of the engagement between managers and professional agricultural scientists and economists.

The process of constructing, populating and testing a map of the decision problem through processes such as influence diagrams generates many valuable insights. This also presents an opportunity for dialogue between different sources of knowledge and presents information in formal but accessible ways.

- › The framework will be a series of worked examples and spreadsheets whereby decision makers can follow a number of steps. We aim to work on at least one specific example with each group of decision makers; this will give a real world example for the abstract concepts that can be evaluated.

This project will not develop any new SCF tools. It will use two independently peer-reviewed SCF tools (SOI Phase plus BoM). We intend to link into the experimental processes of downscaling from the GCMS in the proposed South East Australian Climate Initiative. Although we may use the APSIM cropping systems model, we will not be restricted by the use of any model or restrict ourselves to analogue years.

- › While developing and applying frameworks to specific case studies, we will be looking to more generalised learning about opportunities and constraints. The manual or guidance material will consist of written material, worked examples, worksheets, supported by simple Excel™ spreadsheet templates. We will evaluate the process as we go and record a log of barriers and areas for future improvement.

## Desired outcomes

The desired outcome of this project will be NRM decision makers better equipped to access climate science and climate science with a better understanding of NRM decision makers.

As this is a proof of concept, we hope to avoid advocacy research by being open to and documenting limits to the frameworks we are evaluating.

## Achievements to date

The project starts in March 2006.

## What is left to do?

The project starts in March 2006.

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>  
Land & Water Australia is the managing agent for MCV.  
Land & Water Australia  
Level 1, 86 Northbourne Avenue, Braddon ACT 2612  
GPO Box 2182, Canberra ACT 2601  
Phone: +61 2 6263 6000 Email: [managingclimate@lwa.gov.au](mailto:managingclimate@lwa.gov.au)

