



Dealing with complexity and uncertainty: frameworks to support irrigation and water management decision-making in northern Australia

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Abstract

Northern Australia is largely undeveloped and holds an iconic status for many Australians. The interplay between the landscapes, rivers, groundwater and strongly monsoonal weather patterns has resulted in unique and diverse ecological systems that will need special attention to ensure that their integrity is retained in any changes are made to the system. With some 60 to 70 per cent of Australia's fresh water discharging from tropical rivers, and reduced water availability throughout much of Australia due to drought and climate change, there is rapidly growing interest in developing the land and water resources of the north. There is a unique and historic opportunity to ensure that management and use of Australia's northern land and water resources takes place within a strategic, sustainable framework. However, deciding on whether to expand irrigation in northern Australia, and if so what irrigation should look like, where it should be located, and how it should be managed, requires improved understanding of groundwater, river and catchment attributes and of the risks and benefits associated with irrigation.

The Northern Australia Irrigation Futures (NAIF) project is a collaboration of the four national and state Governments responsible for northern Australia and several research organisations, including CSIRO and the Cooperative Research Centre for Irrigation Futures. Established in 2003, a key focus has been the development of decision-making frameworks that help governments and stakeholders deal with the

many complexities and uncertainties associated with water allocation and land management decisions in this vast, as yet poorly understood area of Australia. This presentation will describe the tools developed and how they are now being used in decisions about northern Australia's future.

Key-words: Northern Australia; irrigation; decision-making; complexity; uncertainty.