

Accounting for Behavioural Complexity in Evaluating Policy for Sustainable Irrigated Agriculture

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Climate change leading to reduced water availability, increasing allocation of water for consumptive uses including growing demand for irrigated food production are placing increasing environmental stress on the worlds river system. If a balance is to struck between goals such as supplying a growing world population with food and maintain and enhancing the level of ecological health of river systems, increasingly sophisticated management of these system will be required including increasing emphasis on influencing behaviour of human actors in river systems as opposed to an emphasis on primarily engineering approaches that has been a predominant river management paradigm over the past century.

The proposed presentation and paper will report on evaluation of policy to influence irrigator decisions in Murray Darling Basin in ways that lead to more sustainable use of water. The evaluation uses an agent based modelling methodology that accounts for salient features characterising the how decision making paradigms and informational, economic constraints and learning vary across sub-populations of irrigators. By combining the model of behaviour with models of the biophysical dynamics of water and salinity flows the model allows examination of the social and environmental resilience that result from a range of policies to influence irrigators.