

**EVALUATION OF POLICY OPTIONS TO
MANAGE NET RECHARGE IN IRRIGATION
AREAS OF THE SOUTHERN MURRAY-
DARLING BASIN**

BY

John Christopher Madden

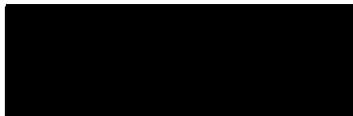
BAGec (Sydney)

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Declaration

I certify that the substance of this dissertation has not been submitted for any other degree and is not currently being submitted for any other degree.

I certify that, to the best of my knowledge, any help received in preparing this dissertation, and all sources used, have been acknowledged.



John Madden

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Abstract

Irrigation areas in the Southern Murray-Darling Basin face a number of environmental and agricultural production problems. Two of the major on-farm environmental concerns for farmers are waterlogging and soil salinisation. Excess water use during irrigation can lead to salinisation and waterlogging by raising the level of the watertable through net recharge.

This study examines three policy options that could be implemented to encourage increased water use efficiency, thereby reducing net recharge. The three policies are; a reduction in irrigation water allocations, an increase in the water price and the introduction of a tiered block water price scheme.

The Coleambally Irrigation Area was chosen as a representative of irrigation areas in the Southern Murray-Darling Basin. A representative farm approach was used for modelling purposes. A farm level spreadsheet financial model and a linear programming model were developed to examine the effects of the policy options on farm financial performance and enterprise mix.

A reduction in farm irrigation water allocation will provide a strong incentive to improve water use efficiency. However, the impact of this policy on financial performance is substantial.

A flat water price increase saw no change in the land use patterns of the four representative farms though farm financial performance decreased significantly.

Under a tiered block pricing structure 'inefficient' irrigators will be adversely affected financially by the introduction of a tiered pricing structure to a greater extent than under a flat price increase. The linear programming analysis suggests that the tiered pricing structure specified will provide a greater incentive for farmers to change enterprise mix to water efficient crops than a flat price increase.

The results indicate that tiered block pricing for irrigation water has the potential to address the environmental problems of irrigation areas in the Southern Murray Darling Basin. Tiered block pricing provides a direct and ongoing incentive to continuously improve irrigation water use efficiency.

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I'm glad this is over, it is worth it in the end.

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