

A Conceptual Modelling Framework for Integrated Catchment Management of Salinity

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Abstract; Integrated Catchment Management for salinity is currently a central area of policy concern in Australia. The realisation by politicians and policy makers of the costs and importance of salinity has led to major policy initiatives and spending plans. These focus on the management of catchments as an integrated whole by Catchment Management Boards or Authorities or other bodies depending on State. In New South Wales, the Murray-Darling Basin Commission and the NSW government have initiated a project to support integrated catchment management in the Lachlan and Macquarie catchments (TARGET). This will involve cooperative work by Department of land and Water Conservation (NSW) and the Integrated Catchment Assessment and Management Centre (iCAM) at ANU. iCAM will be responsible for developing a conceptual framework for integrated catchment management involving development of producer profiles, Regional Integrated Management Information Systems and multiperiod models integrating land use, hydrology and salinity management on a land management unit basis within catchments. This paper describes possible modelling approaches to support Integrated Catchment Modelling and presents an outline of the approach planned for TARGET. Future papers will describe progress of the model through to application and regular use in the Lachlan and Macquarie catchments.

Keywords; Integrated modelling; Conceptual framework; Salinity; Integrated Catchment Management

1. INTRODUCTION

The degree of land use change required for mitigating the effects of salinity in some catchments and sub-catchments may need to be extensive. Best management land use options to ameliorate the salinity hazard include farm forestry, increased use of perennial pastures, modified cropping practices and vegetation establishment/retention for carbon trading.

Under recent legislation, the management of catchments in NSW for water and salinity issues is the responsibility of Catchment Management Boards. Some of the challenges facing these new Catchment Management Boards are those of making decisions with limited data and trying not to oversimplify complicated natural resource systems. In particular, there is very limited data on the social and economic profiles of the community.

There is a need to develop and implement innovative actions with major impact on the catchments with limited understanding of the tradeoffs involved and their acceptability to the

community. Large changes in resource use are envisaged in some areas. Adoption of these massive changes needs the community and Boards to be more concrete about cost sharing arrangements, market based solutions and social constraints.

The Tools to Achieve Landscape Redesign Giving Environmental /Economic Targets Project (TARGET) is a cornerstone project of the NSW Salinity Management Strategy. The TARGET project will facilitate large-scale land use change in catchment areas, which have been identified as being major contributors to Basin wide salinity. These areas are the Lachlan and Macquarie catchments, and in particular, the Warrengong, Mid Talbragar, Weddin and Little River sub-catchments.

As part of the TARGET project, the aim of this project component is to analyse the financial consequences of current and proposed land use options and to better understand the economic factors affecting producer land use decisions in each of the six focus catchments. Economic impediments to land use change will be identified