

**Submission for House of Representatives Standing Committee on Science and Innovation Inquiry into the Coordination of Science to Combat the Nation's Salinity Problem**

Deakin University welcomes the current inquiry into the coordination of science to battle the nation's salinity problem. The terms of reference of the enquiry will ultimately lead to policies, structures and strategies that will better manage the science required in order to achieve better management of salinity but the University feels that there are some important issues overlooked in the terms of reference and these are addressed below.

**1. *How is the relevant scientific knowledge being utilized in the development, management and implementation of salinity?***

A recently completed review of the "*Implications for Rivers from Salinity Hazards: Scoping Study*"<sup>1</sup> states "research into the effects of salinity on freshwater biota in riverine and wetland systems in most cases remains unfocussed, uncoordinated and not designed to address specific management needs or questions". Therefore a cooperative, interdisciplinary and integrated investigation into the ecological effects of salinity on waterscapes and landscapes is required. Salinisation of waterscapes appears to be an area that, whilst widely acknowledged as important, has not received the consolidated or focused attention. The "waterscape" is the network of aquatic environments (rivers, lakes, floodplains, wetlands and estuaries) within their landscape setting. The landscape is the matrix in which the waterscape is embedded. *Understanding the interactions between landscapes and waterscapes is of paramount importance in effective long-term management of salinity.* All water-related problems (eg. overuse of water, water quality impairment, decline in aquatic ecosystem health, over-utilization of aquatic resources) have their origin directly or indirectly on the land surface. Pollution of waterways from saline discharges resulting from either runoff from land surfaces or from leaching from groundwater results in loss of significant amenity and diminution of aquatic ecosystem service. Therefore, the debate on the science required for the prevention of salinity should not primarily

focus on the treatment, amelioration and adaptation (p.4) in landscapes but rather should consider a more comprehensive model that includes impacts and interactions in associated riverine environments. Research is required to address problems of saline waterscapes including riparian zone management, links between salinized aquatic environments and aquatic species, impacts of salinization of aquatic environments on adjacent soils and groundwaters (and vice versa), water quality in surface and groundwater, species-specific, community and ecosystem effects particularly in the context of resilience of aquatic communities to salinization, landscape processes as they impact on salinization of waterscapes, risk assessment of effects of salinity on aquatic ecosystems, and treatment of saline open water bodies. As already addressed in the terms of reference, the application of geophysical modelling (eg. remote sensing) to address issues of spatial and temporal trends will be a valuable tool in assessing waterscapes as well as landscapes.

**2. *How current research into salinity and information are being distributed across jurisdictions, agencies and all relevant decision makers?***

On p.6 “among the programs and agencies contributing to the science effort to address salinity are the following: the National Dryland Salinity Program; National Land and Water Resources Audit; Bureau of Rural Sciences; Murray Darling Basin Commission; and CSIRO Land and Water”. Whilst recognizing the contribution and role of these organizations to salinity management, Deakin is concerned about the apparent lack of coordination of research effort within these organizations and between other major organizations including the Universities, Australian Research Council, CRCs, Land and Water Australia, Grains Development Corporation, Rural Industries Research and Development Corporation, Dairy Research Corporation, State Government research organizations, and environmental groups such as the Australian Conservation Foundation. Also of concern is how information generated within the broad network of organizations is disseminated to stake-holders and the wider community. Research management will be aided by establishing an independent, overriding, national research coordinating body or council that is responsible for

liaising with major research organizations, community and stake-holder groups, advising governments of research needs and knowledge gaps, setting priorities and agendas, acting as a repository for project information and reports and regularly communicating the results of research programs to the wider community. To ensure that the best scientific knowledge is delivered, well-trained young scientists are required. Universities are the only institutions that have the capacity to provide the intellectual environment for new research trainees. Universities can provide quality research supervision matched with formal quality assurance mechanisms, but they are starved of funds to actually conduct the research. More formal partnership structures with the State and Federal agencies, the Australian Research Council, the CSIRO, and NGOs should be investigated in order to better facilitate the required training to meet the research needs and deliver future quality research outcomes