

Submission to a Senate inquiry into the extent and impact of salinity in the Australian environment

Centre for Salinity Assessment and Management, Faculty of Agriculture, Food and Natural Resources, University of Sydney

The Centre for Salinity Assessment and Management is best informed about (a) and (b) in the terms of reference, and this submission will mainly address those points.

Attainment of goals of national programs

The National Action Plan for Salinity and Water Quality, the National Heritage Trust and the National Landcare Program have been very successful in raising public awareness to the threat and impact of salinity. However, the time that has elapsed since the institution of these programs is too short to meaningfully assess their effectiveness as landscape remediation and management strategies. Salinity is the result of complex interactions between biophysical and socioeconomic factors, which have taken considerable time to become evident in many landscapes (50 or more years in some cases). Remediation measures are likely to require a similar time frame to be effective. Regular monitoring over a period of say 10-20 years would be needed to be able to assess the long-term effectiveness of remediation or management strategies. Nevertheless, it is important to review the programs regularly to ensure they are on track.

The role of regional catchment management authorities

The regional catchment management authorities (CMAs) are good vehicles to coordinate and manage catchment scale projects on salinity and other natural resource issues. CMA involvement ensures strategies address local problems, and are driven by communities rather than research providers. However, there are risks in CMAs primarily focusing on local and community-based activities, including local knowledge not being linked with the best contemporary national and international research, and not giving appropriate weight to scientific endeavours. It is also important to recognise that natural resource management problems in Australia are too large to be solved by local scale activities alone, and that landscape management needs to be coupled with water management. The resources available will not make a difference unless targeted to measures with highest impact. In some situations it may be necessary to accept that if the damage is too great, the best option is to drastically change land use, including taking it out of production. Such a decision could be difficult to make at a local level.

CMAs should ensure they seek expert input in a number of areas in designing scientifically sound, effective management options likely to have the most impact in the catchment.

These include:

- scientifically establishing cause and effect in relation to salinity (somewhat limited at present)
- the feasibility of management/remediation strategies from technical, economic, and social perspectives
- developing meaningful indicators to assess the success of implemented measures
- risk analysis of salinity in the catchment, including identifying areas of greatest risk and where actions are best targeted.

The preferred long term option would be to address *causes* of salinisation (eg, sites of deep-drainage), rather than focusing solely on mitigating *effects* that are observed. This

needs to be approached from an integrated (or triple bottom line) biophysical and economic perspective, since the causes of salinisation have to be identified and prevented in a cost-effective manner. Of great importance is to make use of the available new technologies of geo-spatial information systems, to be able to determine specific spatial aspect of the causes of salinisation, as well as to determine the most economical (cost effective) methods to address those causes, given that spatial aspect. It is also important that all major projects undertaken by the CMAs include a baseline study of the project area to establish the current status of indicators relevant to surface and groundwater quality, water tables, soil health, land use and productivity, and extent of salinisation (at present this is mostly lacking). Evaluation of the effectiveness of the project would be based on follow up monitoring of the same attributes over an extended period after the implementation of the remediation and management measures.

Close partnerships between the CMAs and local universities and research providers should be more actively promoted to help to ensure that evidence-based innovation can be incorporated into the various phases of development, implementation and monitoring/evaluation of the programs. Public funds allocated to CMAs are unlikely to be sufficient to solve the whole problem in a catchment, but should be applied to help build ownership and capacity, and prime the process for developing project-based solutions that attract additional stakeholders.

A key success factor for the programs to deliver outcomes over a long timeframe will be capacity building, nationally and regionally. There many needs, including well trained natural resource managers, risk assessment tools, management tools, information management systems, and analytical capacity. Again, partnerships with universities and research providers will be critical in this regard.

In conclusion, it is pertinent to note several strong and concerted messages that the emerged from presentations and discussions at a recent (27 May 2005) Faculty of Agriculture, Food and Natural Resources Symposium on "Agricultural Sustainability: the interface between sciences and economics", which was attended by about 100 participants from industry, state and federal government departments, universities, research agencies and farmers. These were that

- (i) we need to understand what constitutes a healthy landscape,
- (ii) we need better indicators to measure progress of remediation (or decline) of soil health and water quality,
- (iii) the success of any environmental program will depend on being able to identify and implement land and water use practices that engage stakeholders through relevance to local communities, environmental and social sustainability, and financial profitability.

Professor Les Copeland and Drs Tiho Ancev, Dhia Al-Bakri, Inakwu Odeh, and Willem Vervoort,
Centre for Salinity Assessment and Management
Faculty of Agriculture, Food and Natural resources,
University of Sydney

2 June 2005