



25 August 2005

The Committee Secretary
Senate Environment, Communications,
Information Technology and the Arts References Committee
Department of the Senate
Parliament House
CANBERRA ACT 2600

Inquiry into the Extent and Economic Impact of Salinity Land & Water Australia Submission

Land & Water Australia is pleased to make a submission to the Committee's inquiry into the extent and economic impact of salinity.

Land & Water Australia is an Australian Government research and development corporation within the Agriculture, Fisheries and Forestry portfolio. It was established as the Land and Water Resources Research and Development Corporation in 1990 under the Primary Industries & Energy Research & Development (PIERD) Act 1989.

Land & Water Australia is specifically responsible for research and development (R&D) aimed at the productive and sustainable management of the land, water and vegetation resources underpinning Australia's primary industries and regional communities. As an Australian Government Authority it has a particular charter to foster national collaboration in order to improve the efficiency and effectiveness of this R&D effort. The majority of the corporation's research investment occurs within national research programs, supported jointly by several partner organisations. These programs bring together resource managers and researchers to identify priorities and to ensure that research findings are adopted and implemented.

A key Land & Water Australia program focussed on the problem of salinity was the National Dryland Salinity Program (NDSP), established by the then Land and Water Resources Research and Development Corporation in 1993, in large part in recognition of the need for a more coordinated national approach to investment in dryland salinity R&D. The Corporation was the largest investor in the program and managed the NDSP over eleven years. We continue to support the legacy of the program in close consultation with the Cooperative Research Centre for Plant-Based Management of Dryland Salinity.

The attached submission is Land & Water Australia's response to the Committee's Terms of Reference. I would be pleased to discuss the response with the Committee at its convenience.

Yours faithfully

Andrew Campbell
Executive Director



Senate Committee on the Environment, Communications, Information Technology and the Arts

Inquiry into the Extent and Economic Impact of Salinity

Submission by Land & Water Australia

Whether goals of national programs to address salinity have been attained, including those stated in the National Action Plan for Salinity and Water Quality, Natural Heritage Trust and National Landcare programs.

The natural resource problems that confront Australia have developed over more than two hundred years of European settlement but the most pervasive impacts have only been broadly recognised in recent decades. National programs recognise that the task of repairing the natural resource base (where the benefits of so doing outweigh the costs) will take many decades and that changes to the natural resource condition may not become immediately obvious during the program life. National programs also have goals that are broader than salinity alone. The regional model is a broad and ambitious attempt to establish long-term arrangements that allow integrated, landscape-scale and community-based responses to these problems. As such, it will be difficult in the short-term to determine conclusively whether the goals of each program have been attained.

Current national programs have recognised the difficulty of tracking and reporting progress on natural resource condition change and have incorporated a series of short and longer-term targets and outcomes to reflect assumptions that specified actions will lead to improvements in resource condition in the long-term. A credible monitoring and evaluation framework has been structured around this program design that will enable governments to form a judgement on program success over time. However, to be effective the framework will require:

- a robust suite of decision-making techniques and modelling tools to refine the targets that regional groups are expected to develop; and
- considerable investment in data collection, analysis and reporting to maximise its value in demonstrating trends in salinity and natural resource issues over time.

Land & Water Australia is host to the National Land and Water Resources Audit which is playing a significant role in the second of these difficult tasks. The Audit's *Australian Dryland Salinity Assessment 2000* remains the most authoritative overview of the causes, extent and impact of dryland salinity across Australia.

While we continue to develop new knowledge to assist decision-making, much of this is generated for specific parts of the whole system. Land & Water Australia is actively developing 'synthesis products' for each of its programs, which draw together knowledge from those programs and more broadly to provide an integrated product for users. The most comprehensive such product for dryland salinity in Australia (or indeed internationally) was developed in the final year of the National Dryland Salinity Program (NDSP) and is described in more detail in Box 1.

The role that regional catchment management authorities are required to play in management of salinity-affected areas, and the legislative and financial support available to assist them in achieving national goals.

In conjunction with the development of the National Action Plan for Salinity and Water Quality (NAP), Natural Heritage Trust (NHT) and National Landcare Program (NLP), and in response to the challenge of balancing the often competing demands on rural landscapes, governments across Australia have fostered the development of new organisations at catchment and regional scales. These new regional bodies are charged with important planning responsibilities, and often with the demanding task of prioritising and allocating NAP and NHT and additional programs at State and Territory level. The regional approach is generating new questions related to prioritising investments, working out appropriate interventions and monitoring and evaluating progress. These organisations are becoming important players in the natural resource management knowledge system, and critical clients for NRM research outputs. Their roles, and rightly so, extend beyond single NRM issues such as salinity, and incorporate natural resource management (NRM) more broadly.

In this respect, legislative and financial assistance are not the only means of support required by regional groups to contribute to national goals. Skills, knowledge and the capacity to use these effectively to maximise the impact of legislative and financial inputs are crucial for the success of the regional model.

Healthy regional organisations rely on skilled employees and good working partnerships with farmers and other resource managers. The ability to plan strategically and deploy resources (including knowledge and ways of learning) is fundamental to catchment level operations and the people doing this need training and research support.

It is inevitable that newly developing regional groups operating under tight timetables and high expectations will initially focus on getting regional plans developed and approved, investment strategies endorsed and funds flowing for on-ground activities. While some have sought and adopted contemporary tools and techniques to assist in planning and investment decisions, it is apparent that significant advances could be made across-the-board through better awareness and delivery of state-of-the-art knowledge. A highly relevant example of such knowledge is the suite of tools and products that have been generated through the National Dryland Salinity Program (see Box 1 overleaf).

These products represent the state of the art in Australian knowledge of the salinity problem – and the best such compendium in the world at this time. A copy of the CD is at **Attachment 1**. While the NDSP program has officially ended, we continue to support the legacy of the program in close consultation with the CRC for Plant-based Solutions to Salinity, although limited by available resources. Land & Water Australia would be pleased to organise a presentation to the Committee of this exciting suite of knowledge products.

As noted earlier in this submission, while high quality knowledge products such as these exist, they may not be being used to the extent possible by regional groups. Key considerations for the Committee might be ‘to what extent are they actively used by planners and land managers?’ and ‘what can be done to improve the use of this knowledge’.

BOX 1. The National Dryland Salinity Program toolkit

The National Dryland Salinity Program (NDSP) was a collaborative research, development and extension (R, D & E) program which investigated the causes of, and solutions to, the national problem of dryland salinity. It was funded in three phases over eleven years, commencing in 1993 and concluding in 2004. The initial phase had a strong technical focus and it aimed to improve the knowledge of causes and impacts of salinity. It made significant headway in developing better research methods, coordinating research efforts and engaging rural communities in catchment management planning. Phase 2 examined catchment processes, industry, engineering, policy, local government, environmental and regional dimensions of salinity.

The final phase in 2003-04, focused on enhanced communication during which the partners in the program drew together the R&D knowledge that they had accumulated over the past ten years and developed six specific resource kits and communication modules for land and water managers across Australia, including:

- Dryland Salinity: On-farm Decisions and Catchment Outcomes – a guide for leading producers and advisors.
- Dryland Salinity and Catchment Management – A Resource Directory and Action Manual for Catchment Managers.
- Managing Dryland Salinity – a report on the key research findings
- Breaking Ground - Salinity Key Findings and Research Outcomes – An Overview Report.
- Breaking Ground – Key findings from 10 years of Australia’s National Dryland Salinity Program – the full report.
- PRISMS – Practical Index of Salinity Models – a CD ROM incorporating information on over 90 practical tools, models and frameworks for natural resource management and planning at the regional scale.

The great value of these products is that the three key products were specifically developed with and for their intended audiences: farmers and their advisers; catchment managers; and policy makers. Each product is tailored for the specific audience, both in terms of the questions tackled and the language used. In effect, more than a uteload of over 400 separate research reports are distilled and brought together in one highly accessible and searchable package

In many regions, the second cycle of plans and strategies is more likely to incorporate this knowledge. The challenge for Land & Water Australia, and other knowledge generators and providers, is to develop effective means of engaging with the NAP and NHT initiatives, and in particular with the regional and catchment bodies through which most investment flows. We need to ensure that these major public programs are informed to the optimum degree by our research portfolio and that our research investments are informed by the questions they are generating.

The need to connect regional groups with national knowledge generation also has lessons for the design of national programs. Clearly it will not be the most effective use of resources for 57 regional groups to develop and implement research programs that duplicate each other. However, under funding arrangements for the NAP all Australian Government funds were committed at the regional level, through state agreements. The difficulty in coordinating funding contributions from each region to support a national research initiative on fundamental problems means such research simply may not be undertaken. The need for some form of national funding pool should be recognised in future program arrangements.

Recognising the critical need for effective brokering to facilitate uptake of knowledge, Land & Water Australia has established Knowledge for Adoption as one of its three core strategies within its new five-year Strategic Plan. Under this strategy we are developing a broad suite of methods to manage for adoption, from direct engagement or collaborative research through to tailored communication products and finally to indirect information provision. An important new initiative that goes directly the heart of the issues is the “Knowledge Brokering for Regional NRM” project, funded through the Natural Heritage Trust and managed

by Land & Water Australia, that is responding to demand from regions for improved delivery of science (see Box 2 below).

BOX 2. Knowledge Brokering for Regional NRM

The National Knowledge Brokering for Regional NRM project is supporting regions to build stronger links with national research and information providers. Through better information support, regions will be able to undertake more informed NRM planning, decision making, implementation and evaluation activities. Access to good scientific information and knowledge is paramount to the success of NRM; as is responsiveness by relevant research organisations to regional needs.

The project's Scoping Report included a survey with Regional NRM bodies that was designed to identify how regional bodies see their knowledge needs. Five key areas of concern were identified by regional bodies in relation to knowledge exchange.

- Fragmentation – the information base is highly fragmented
- Volume – the sheer volume of information is daunting
- Relevance – much of the information seems of dubious relevance
- Two-way-flow between regions and national organisations
- Information sharing – within and across regions

The project is working with regions to investigate and test ways to overcome these and to improve knowledge connections. Some of the mechanisms that will be used include:

- A feasibility study into a 'first-stop knowledge shop' that would assist regions to find the most appropriate source of information for specific needs
- Improving the use of existing tools and the development of tool kits
- Synthesis documents, case studies and best practice manuals
- Workshops, regional roadshows and national forums
- Region-to-region mentoring and information exchange

National Knowledge Brokering for Regional NRM is a national project funded through the Natural Heritage Trust managed by Land & Water Australia.

Land & Water Australia will report the findings of the project over the next two years and believes it will provide lessons that will be highly relevant to the development of future national NRM programs and initiatives.

What action has been taken as a result of recommendations made by the House of Representatives' Science and Innovation Committee's inquiry '*Science overcoming salinity: Coordinating and extending the science to address the nation's salinity problem*', and how those recommendations may be furthered to assist land-holders, regional managers and affected communities to address and reduce the problems presented by salinity.

Land & Water Australia notes that the government response to the House of Representatives Science and Innovation Committee's inquiry has yet to be tabled and is therefore unable to make specific comment against a number of the Committee's recommendations. In this respect, Land & Water Australia's submission to that Inquiry remains relevant and is provided here at [Attachment 2](#).

However, since the tabling of the House of Representatives Science and Innovation Committee's report, the following actions have been taken that are relevant to this Committee's deliberations:

Collaborative investment by Rural Research and Development Corporations (RDCs)

A Working Group on natural resource management across the RDCs was established in September 2004 by the RDC Chairs' Committee, at the urging of Senator Judith Troeth, then Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry. The Australian Government through DAFF was keen to see greater collaboration, investment and reporting on investment in NRM research and development by Rural Research and Development Corporations.

The Working Group, coordinated by Land & Water Australia, comprises Program Managers responsible for NRM R&D within each R&D Corporation. It is undertaking three main tasks:

- developing a common framework for reporting NRM-related R&D that adds value and is not too complex, cumbersome or costly to implement relative to the benefits provided;
- undertaking strategic analysis of NRM R&D issues, investments and priorities; and
- organising an annual RDC forum to review NRM R&D activity and recommend future priorities.

A draft report by the Working Group will be presented to the RDC Chairs' Committee in September 2005. It summarises NRM research investments by RDCs totalling more than \$80m, which equates to about 20% of the total R&D investment across the 14 corporations and related companies.

This has direct relevance to the HoR Committee Recommendations 9 and 11. Collaborative activities between the RDCs continue to be developed, including several of direct relevance to HoR Committee Recommendation 9(b) such as the Grain & Graze and Land, Water and Wool programs.

"National Knowledge Brokering for Regional NRM" project

This project is described in the body of this submission and Box 2. It has direct relevance to the HoR Committee Recommendation 10.

Land & Water Submission to the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry Inquiry into Rural Skills Training and Research

Land & Water Australia focussed its submission to the Inquiry into Rural Skills Training and Research on the issue of education and extension for natural resource management and sustainable agriculture. This has relevance to the HoR Committee Recommendations 16 and 18. A copy of Land & Water Australia's submission is at [Attachment 3](#).

In that submission we noted that, like other R&D funders and providers in Australia, LWA can no longer assume that the outputs of its research investments will be picked up by a well-structured, well-organised, well-trained and resourced rural extension system. In production agriculture, the decline in state-funded extension services has largely been offset by private advisory services through consultants and agribusiness firms. However in natural resource management, public funding remains dominant and there has not been a similar emergence of private service providers. It should be noted however that as the regional model matures, it may well foster private sector provision of services to regional organisations on public benefit NRM matters.

There has been a marked shift in expenditure on extension (broadly defined) from the States to the Commonwealth over the last fifteen years. Commonwealth funding of facilitators and coordinators through

Landcare, the Natural Heritage Trust and the National Action Plan has been critical in facilitating community involvement and on-ground activities funded through these large national programs. However, there has been a gradual disinvestment in the underlying extension profession, and the infrastructure that supports it.

Australian Agriculture and Natural Resources Online (AANRO) (www.aanro.net)

Australia currently has a world class research database, evolving from the mid 1980s into Australian Agriculture and Natural Resources Online (AANRO), that provides comprehensive links to current (6000 projects in progress records) and past research (150,000 publications and on-line resources) through the agriculture and natural resources sector. This initiative of State and Federal governments working through the Standing Committees on Primary Industries and Natural Resource Management and in conjunction with most Rural Research and Development Corporations is an exemplar of the type of knowledge management tools that are needed.

However, Land & Water Australia has found that AANRO remains underused by the research and extension community and is concerned that financial support for the continuation of this valuable tool may be in jeopardy. We are working with both the Primary Industries and NRM Standing Committees to ensure that AANRO is better marketed to potential users across Australia.

Support for the continuation of AANRO and the expansion of its coverage and usage would directly contribute to the HoR Committee Recommendation 15.