The Committee Secretary
House of Representatives Standing Committee
on Science and Innovation
Suite R1 – 116
Parliament House
CANBERRA ACT 2600

Standing Committee on Science and Innovation Inquiry into coordination of science to combat the nation's salinity problem

Land & Water Australia Submission

Land & Water Australia is please to make a submission to the Standing Committee's inquiry on coordination of science to combat 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.

The National Dryland Salinity Program (NDSP) was 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 has managed the NDSP since 1993, and has been the largest investor in the program.

The Inquiry's Terms-of-Reference are addressed comprehensively in a separate submission from the NDSP. This submission complements the NDSP submission and does not seek to duplicate the more technical information presented in that submission.

Salinity science coordination can and should be improved

Notwithstanding the NDSP, which has put in a separate submission to this Inquiry, it is the view of the Land & Water Australia Board that there is both a need and an opportunity to improve the coordination of investment in salinity science in Australia.

When the NDSP commenced ten years ago, the number of players in salinity R&D and the total national investment were both relatively modest, and were captured to a large extent by the partners in the NDSP. All States with known salinity problems, the

Commonwealth (DPIE), CSIRO, the Rural Industries R&D Corporation and the Murray Darling Basin Commission, were represented on the NDSP Board. Australia's key salinity experts comprised the Operations Committee of the NDSP. The Operations Committee remains the most important national forum for technical experts to consider salinity research issues on their technical merits, largely free from jurisdictional concerns.

As recognition of salinity problems has increased, investment in tackling salinity and the number of people and organisations involved has increased commensurately. We now have a National Action Plan for Salinity and Water Quality, in addition to the Natural Heritage Trust, and together these major national initiatives have considerably increased investment in work related to salinity at an Australian Government level. Most States now have comprehensive strategies for addressing salinity. The Cooperative Research Centre for Plant-Based Management of Dryland Salinity has been established (the CRC bid was facilitated and funded by the NDSP), with well over $20 million in Australian Government funding through DEST. Research providers including CSIRO, Universities, ABARE, the Bureau of Rural Sciences and Geoscience Australia have all increased their research capacities in the area of salinity and their investment in salinity research. Finally, Australia's major agricultural commodities, in particular the grains, meat and wool industries, have considerably lifted their investment and involvement in salinity research (primarily through the NDSP and the CRC) over the last decade.

These are all extremely welcome developments.

In recognition of the substantial increase in investment in salinity research by other parties, the Land & Water Australia Board in December 2002 decided that the corporation would no longer be a major investor in salinity research after the current Enhanced Communication Year of the NDSP ends in June 2004. Having been the main investor in the program for ten years, and having catalysed a significant increase in the overall salinity research effort by government and industry, the Board believes that it is time for the corporation to direct its research investments into other areas that are not yet recognised by mainstream research and policy – as was the case with dryland salinity ten years ago.

However, if resourced to do so, Land & Water Australia is quite prepared, and very well placed, to continue to play a coordination, brokering and knowledge management role in salinity R&D at the national level. Such a role would be consistent with the direction to Land & Water Australia from Senator Troeth (Minister responsible for the R&D Corporations) that Land & Water Australia should 'promote, integrate and coordinate' natural resource management R&D across the rural R&D corporations and related companies, recognising that this is a critical national research priority.

Land & Water Australia, on behalf of the Science and Information Working Group under the Standing Committee on Natural Resource Management, in January 2003 developed a proposal for a more coordinated national approach to science and R&D under the National Action Plan for Salinity and Water Quality (NAP). This proposal was broadly endorsed by the Programs Committee but was not submitted to the Standing Committee because several jurisdictions argued that all NAP funds have already been allocated through bilateral relationships between the Commonwealth and each jurisdiction. Extracting any funds from the 'glass jar' of pooled funding for multilateral investment such as a coordinated national approach to R&D has proven to be too difficult at this stage in the process.

As overall funding levels for salinity R&D have increased, the commitment of State agencies to the NDSP itself has declined, with the larger States tending to 'do their own thing' rather than invest in salinity R&D through a coordinated national approach.

The National Land and Water Resources Audit salinity assessment (jointly funded with the NDSP) illustrated that the salinity processes operating across many regions, and in fact across state boundaries, are similar. Research funded by the NDSP and overseen by its Operations Committee had revealed that there are three broad categories of Groundwater Flow Systems that are the key determinants of salinising processes. While regionally specific information at a fine-grained resolution is critical for management purposes, it makes little sense to research the broader generic issues that should inform priority setting and resource allocation, in every region or even every State. However the architecture of the National Action Plan, based around highly structured bilateral agreements, does not facilitate a nationally coordinated approach. It also makes it difficult for industry to 'plug in', whereas in recent years the NDSP has developed very constructive partnerships with the grains, meat and wool industries through the Grains Research and Development Corporation (GRDC), Meat and Livestock Australia (MLA) and Australian Wool Innovation (AWI) respectively.

The challenge for the future is to develop coordination arrangements that are flexible enough to cope with both the existing architecture of the NAPSWQ and NHT and the generic demands across regions and by industries. The most efficient means of coordination often requires an element of authority, yet we know from experience that various jurisdictions do not easily relinquish authority to others. We need a management and reporting mechanism that makes transparent the range of salinity R&D investments, and consequently any duplication and gaps in effort, as the basis for collaborative decision-making and resource allocation.

As a statutory authority with a strong track record as a salinity research investor and broker, with close relationships to both Australian Government and State research agencies and investors, as well as with industry, Land & Water Australia is well placed to play a key role in an improved national coordination effort.

Science coordination should also encompass capacity building

Land & Water Australia views coordination of science from two angles. The first is the coordination of current and emerging research effort. This comprises, in an environment of collaboration, adequate analysis of the issues and their context, unambiguous problem definition, proper understanding of the costs and benefits of intervention, clear goals and pathways forward, and appropriate mechanisms to ensure that monitoring, evaluation, communication and adaptive learning are integral.

Second, and perhaps more importantly, is the issue of technical capacity – in research, extension and policy. The scientific and technical capacity needed to tackle particular issues in Australia is rarely scoped in as much depth as the nature of the problem to be researched. There is an important coordination role in identifying the demands for certain fields of expertise, supporting the training of graduates, post-graduates and post-doctoral workers where expertise is lacking, and reviewing and responding to the capacity of advisory services to meet the demands for particular kinds of information. Coordination of service delivery is difficult to separate from coordination of knowledge generation in many cases.

These are strategic issues that require focus at the highest levels to bridge apparently widening gaps between the science system, government and industry program delivery, and community needs. They are also issues about knowledge brokering. Land & Water Australia is at the forefront of work on knowledge management in this area.

Coordination of salinity science must be placed within broader contexts

Some key conclusions of ten years of research through the NDSP are that:

i we don't have profitable 'non-leaky' farming systems that will ensure adequate levels of change-on-ground at the scale required;

ii salinity is expressed in many different ways; and

iii there are potential trade-offs between managing salinity and managing other environmental issues such as water yield and water quality.

These findings suggest that salinity cannot be tackled in isolation from the broader decision-making processes of individuals, community groups, industries and governments.

Similarly, salinity R&D needs to be coordinated within the context of the full suite of natural resource management issues, not as an isolated phenomenon. This is where single issue-based programs such as the NDSP have their limitations. While focusing on single issues can draw the critical mass of attention needed to resolve them, it is difficult to focus both inwards and outwards at the same time. Institutional structures for coordinating salinity science must be well connected to other scientific programs, information delivery systems and policy and management frameworks.

Land & Water Australia, as a coordinator of national research programs across a broad spectrum of natural resource management issues, and with a focus on integration and knowledge brokering, has the capacity to act with governments, industry and communities to deal with salinity science in its appropriate context.

Industry involvement

Australia's rural industries are increasing their levels of research investment in sustainability, recognising that this means moving beyond the farm boundary to consider catchment and regional resource condition. These investments are as significant as those made by government; perhaps even more so, for they are closely tied to industry extension programs that engage a wider spectrum of producers than government programs, and are based on explicit levy-paying relationships that ensure more direct ownership by producers of these programs.

The majority of Australia's rural industry research investment funds are administered by R&D corporations created under the Primary Industries & Energy R&D Act 1989, or related industry research Acts under the Australian Government's Agriculture, Fisheries and Forestry portfolio. Recently Senator Troeth wrote to each of these bodies making it clear that she expects Land & Water Australia to play the coordinating role for cross-industry investments in natural resource management. Land & Water Australia is already playing this role in coordinating industry programs such as Land Water & Wool, the Managing Climate Variability Program, the National Dryland Salinity Program, Grain & Graze and the Sustainable Irrigation R&D Program.

In total, these programs involve major rural industries (including grains, meat, wool, dairy, sugar, cotton, horticulture and rural water authorities) in working collaboratively to support natural resource management science efforts. Further, they enable Land & Water Australia to straddle the critical issues of scale, from farming systems at a paddock scale and the industry-based extension programs needed to promote them; to work at catchment, regional, state and national scales with the full range of government, community and non-government organisations involved at those levels.

Conclusion

The National Dryland Salinity Program provides an excellent basis for improved coordination of the science to combat the nation's salinity problems. Its board, operations committee, communication network, and high quality and well-used publications and web interface offer an established and efficient framework that is currently operating effectively with modest resources. It would appear more strategic and cost effective to build on the success of these existing structures than to establish new ones.

There are already more than enough organisations involved, and probably sufficient aggregate levels of investment in salinity research. We don't need another institution, but rather, better coordination of existing institutions and existing investments. Land & Water Australia, subject to resource constraints, is very willing to work with the Australian Government, our industry partners, and the State and Territory Governments, to develop and implement improved coordination mechanisms for salinity research.

In summary, the Board of Land & Water Australia asks the Standing Committee to note:

1) the coordination of science to combat the nation's salinity problem could be improved significantly;
2) the coordination challenge needs to be viewed not only in the context of science's research activities, but also in the context of its capacity;
3) salinity should not be viewed in isolation, but rather in the context of the economic, environmental and social factors at play, as well as among other environmental issues and specifically the challenge of developing more sustainable farming systems;
4) industry (through the relevant R&D corporations) has a vital role to play in the overall effective coordination of natural resource management research;
5) Land & Water Australia has the statutory basis and the Australian Government, State, industry and community connections to play a key role in any enhanced national effort to better coordinate science to combat salinity.

I would be pleased to discuss these issues further with the Committee.

Mrs Roberta Brazil
Chairperson, Land & Water Australia
30 October 2003