5

The coordination of salinity research

> *[T]here would be resounding agreement across the board that we need a highly coordinated, sustained commitment to R&D, with nationally, regionally and basin directed R&D, depending on what the work is; it all has to come together. We have to keep our nerve for the long term.*[1]

5.1 The chapter addresses six issues:

- the coordination of salinity research at the national level (paragraphs 5.3-5.16);
- research coordination at the state level (paragraphs 5.17-5.31);
- the need for and challenges in research coordination (paragraphs 5.32-5.62);
- institutional proposals for improved coordination (paragraphs 5.63-5.68);
- support for the continuation and expansion of the *National Dryland Salinity Program* (paragraphs 5.69-5.82); and
- functions that could be performed by a coordinating agency or program (paragraphs 5.83-5.85).

5.2 In considering the evidence in relation to salinity research coordination, the Committee notes the urgency of these matters given the imminent closure of the *National Dryland Salinity Program*. The evidence suggests

---

1 Mr Kevin Goss (Murray-Darling Basin Commission), *Transcript of Evidence*, 7 November 2003, p. 35.

there is a need for an on-going national research coordination role, and a range of functions it could perform have been proposed to the Committee.

Salinity research coordination at the national level

5.3 The national coordination and communication of salinity science is supported primarily through committees and working groups under the Natural Resource Management Standing Committee (NRMSC), which in turn reports to the Natural Resource Management Ministerial Council (NRMMC).[2] Government involvement in these groups extends through the networks and project activities of agencies and programs outlined in the previous chapter.

5.4 The Programs Committee of the NRMSC is responsible for several working groups, including two with a direct role in coordinating aspects of salinity science:

- The Science and Information Working Group has identified national priorities for NRM research in five categories, all of which have some bearing on salinity research: sustainable agriculture and land use; biodiversity conservation; climate variability and change; natural resource management and indicators; and managing knowledge for change.[3]
- The Monitoring and Evaluation Working Group is developing indicators with data collection and management protocols to guide region-based monitoring and evaluation of the effectiveness of on-ground investment and action made through the regional NRM plans.[4]

5.5 The Land, Water and Biodiversity Committee of the NRMSC oversees discipline-based working groups such as the Working Group on Land Resource Assessment, and the Executive Steering Committees on Vegetation Information, and Land Use Mapping. These committees and working groups provide an advisory role on salinity issues, where relevant. The National Land and Water Resources Audit (NLWRA)

2 Australian Government Departments of Agriculture, Fisheries and Forestry (DAFF), and the Environment and Heritage (DEH), *Submission no.72*, p. 10. Complementary support is provided through the Primary Industries Ministerial Council and Murray-Darling Basin Ministerial Council. Information on the work of the NRMSC and its three advisory committees is provided on the Ministerial Councils web site, viewed 26 April 2004, <www.mincos.gov.au/nrm_sc_committees.htm#programs>.

3 *ibid.*

4 *ibid.*

coordinates activities associated with indicator development and data collation.[5]

5.6 The Australian Government Departments of Agriculture, Fisheries and Forestry (DAFF), and the Environment and Heritage (DEH), submitted that the operational arrangements made under the Ministerial Councils also ensure intergovernmental coordination of salinity research and development (R&D), including various networks and project activities. Examples of such arrangements include the following:

- The Commercial Environmental Forestry project is a three-year collaboration between the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Fisheries and Forestry Division of DAFF, the Murray-Darling Basin Commission (MDBC) and the National Association of Forest Industries. The project aims to develop a farm forestry investment framework to underpin sustainable land use change for commercial and environmental outcomes.[6]
- CSIRO and the Bureau of Meteorology (BOM) have been commissioned to prepare annual reviews of the scientific and technical robustness of NRM program strategies and plans during their implementation. The reports will also identify new or emerging scientific advances that may enhance the effectiveness of NRM program implementation.[7]
- The Australian Government also supports salinity science networks operated principally through the programs of the Research and Development Corporations (RDCs), notably Land and Water Australia (LWA) and the Rural Industries RDC (RIRDC), relevant Cooperative Research Centres (CRCs), and the conferences convened for the Productive Use and Rehabilitation of Saline lands (PUR$L).[8]

5.7 A summary of the roles performed by major agencies and national programs engaged in salinity management is provided in Table 5.1. The table indicates the extent to which the particular agency or program contributes to performing each role, including salinity R&D coordination.

---

5 *ibid.*, p. 11.

6 *ibid.*

7 *ibid.*

8 *ibid.*, pp. 11-13.

Table 5.1 Major agencies and programs engaged in salinity management and their respective roles

Roles	*NDSP*	*NAP*	*CRCs*	*LWA*	*MDBC*	*NLWRA*	*RDC's*	*CSIRO*	*DAFF*	*DEH*	*State agencies*	*Regional management bodies*
National Coordination												
▪ R&D coordination	✓✓✓	✓	✓✓	✓✓✓	✓	✓✓	✓	✓				
▪ Communication coordination												
– Broad	✓✓✓	✓✓	✓✓	✓✓	✓		✓✓	✓	✓	✓		
– Project specific	✓✓✓	✓	✓✓	✓✓		✓✓		✓✓				
▪ Knowledge exchange coordination	✓✓	✓✓	✓✓	✓✓	✓		✓✓	✓✓	✓			
▪ Quality assurance coordination	✓✓	✓	✓					✓			✓	
Funder or provider of R&D												
▪ Generic principles	✓✓	✓	✓✓✓	✓✓✓	✓✓✓	✓	✓✓✓	✓✓✓	✓	✓	✓✓	
▪ Catchment specific	✓	✓	✓		✓✓	✓	✓✓	✓			✓✓	✓✓
Extension provider	✓✓	✓	✓✓	✓✓	✓✓	✓	✓✓	✓✓	✓	✓	✓✓✓	✓✓
Funder of on-ground works												
▪ National level		✓✓						✓				
▪ State level		✓✓✓	✓				✓✓	✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
▪ Regional level		✓✓✓	✓		✓✓		✓✓		✓✓	✓✓	✓✓	✓✓✓
Public policy development												
▪ National level	✓✓	✓✓		✓	✓✓	✓	✓	✓✓	✓✓✓	✓✓✓	✓	
▪ State level	✓	✓✓	✓		✓✓	✓	✓	✓			✓✓✓	
▪ Regional level	✓	✓✓			✓✓						✓✓	✓✓✓

Source *National Dryland Salinity Program, Submission no. 35, p. 21.* Number of ✓ indicates degree of involvement.

5.8 The following abbreviations apply to the agencies and programs listed in Table 5.1:

NDSP	*National Dryland Salinity Program*
NAP	*National Action Plan for Salinity and Water Quality*
CRCs	Cooperative Research Centres
LWA	Land and Water Australia (Research and Development Corporation)
RDCs	Research and Development Corporations
MDBC	Murray-Darling Basin Commission
NLWRA	National Land and Water Resources Audit
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
DEH	Australian Government Department of the Environment and Heritage

The National Dryland Salinity Program

5.9 The *National Dryland Salinity Program* (NDSP), which is described at length in the previous chapter, is a 'collaborative research, development and extension (R, D & E) program investigating the causes of, and solutions to, the problem of dryland salinity.'[9]

5.10 The Australian Government regards the NDSP as 'Australia's major government-based salinity network and information resource':[10]

> Over the past nine years of operation the NDSP has helped to raise awareness of salinity through regular newsletters and media articles (such as the "Silent Flood" series screened on ABC television), supported research and development into the causes of salinity, and … supports regular national forums to share information and insights into salinity and means for its management.[11]

5.11 Established in 1993, the NDSP commenced in an environment where:

> there was no national strategy for dealing with dryland salinity; few statewide strategies existed; experts argued about the size and cost of the emerging problem; catchment management was in its

9 NDSP, *Submission no. 35*, p. 11.

10 DAFF and DEH, *op. cit*., p. 12.

11 *ibid.*

> infancy; and Landcare and production interests were inadequately integrated.
>
> The role for research in this institutional environment was seen as crucial, but was poorly directed and coordinated. There were few frameworks or set of priorities, except within the Murray-Darling Basin, to assist research funding agencies such as Land and Water Australia to invest rationally in dryland salinity R&D …
>
> Whilst there was no shortage of research effort, much of it was poorly conceived and misdirected, lacked rigour, duplicated efforts undertaken elsewhere, or was undertaken in isolation from other essential pieces of the puzzle or from those expected to implement the results.[12]

5.12 In this environment, the NDSP funded and coordinated dryland salinity R&D, and provided a national framework for stakeholders to invest collaboratively and efficiently in dryland salinity research. The NDSP argued that it made a 'critical contribution to the coordination of industry, Commonwealth and State government research and communication on dryland salinity throughout the 1990s', and that much has improved over the past decade as a result of the Program's efforts.[13]

5.13 The NDSP has undergone two five-year phases and is now in a final 'Enhanced Communication' year prior to its scheduled closure on 30 June 2004:

> Both phases of the NDSP attempted to enhance the national coordination of salinity science, establish national research priorities for efforts fundamental to underpinning state and regionally-based management responses, fund and manage research projects against these priorities, and create a network of knowledge exchange at both community and professional levels.[14]

A description of these phases and examples of the range of research products and extension activities they entailed are provided in the previous chapter.

5.14 The NDSP was instigated and is still managed by LWA, which has also been the principal financial contributor to the Program.[15] The Program is

12 NDSP, *op. cit.*, p. 1.

13 *ibid.*, p. 7. See also NDSP, *Exhibit no. 25, NDSP Achievements Report*, and *Exhibit no. 27, NDSP Communication Report 2002-03.*

14 NDSP, *Exhibit no. 134, National Priorities for Salinity Research and Development,* p. 3.

15 In 2002-03, LWA contributed $1.1 million of the Program's total income of $1.6 million. Other partners contributed $338 224. See NDSP, *Exhibit no. 26, NDSP Annual Report 2002-03,* p. 19.

funded by a consortium of industry and government agencies with an interest in salinity management, including: LWA, MDBC, DAFF, CSIRO, GRDC, RIRDC, Meat and Livestock Australia, and the six state governments of New South Wales, Victoria, South Australia, Western Australia, Queensland and Tasmania.[16]

5.15 The operational structure of the NDSP, depicted in Figure 5.1, is comprised of a Board of Management, an Operations Committee and a Communications Team.

- The Board is responsible for setting strategic directions for salinity R&D and then allocating Program funds towards priority research areas. The funds are derived from pooling partner (industry and government) commitments to the Program. As the Program's funding agencies are prominent in their respective state and industry-based salinity networks, the Board is well connected to national salinity efforts.[17]
- The Communications Team is comprised of a network of five state coordinators and a national leadership team. The Team, which is responsible for communicating key messages and research products, synthesises and shares NDSP-generated salinity knowledge as well as salinity knowledge in general. The NDSP argued that the Team is 'critical to the success of bridging both the coordination gap and in establishing effective links between the research outcomes and on-ground users.'[18] It was also argued that the Team is 'without a doubt, one of the most comprehensive and nationally connected communication teams dealing with any aspect of natural resource management existing in the country.'[19] The Committee further explores the communication and extension of salinity science in chapter eight.
- The Operations Committee, which is comprised of key salinity researchers and private consultants, selects projects, maintains technical quality and facilitates information exchange among the nation's salinity researchers:[20]

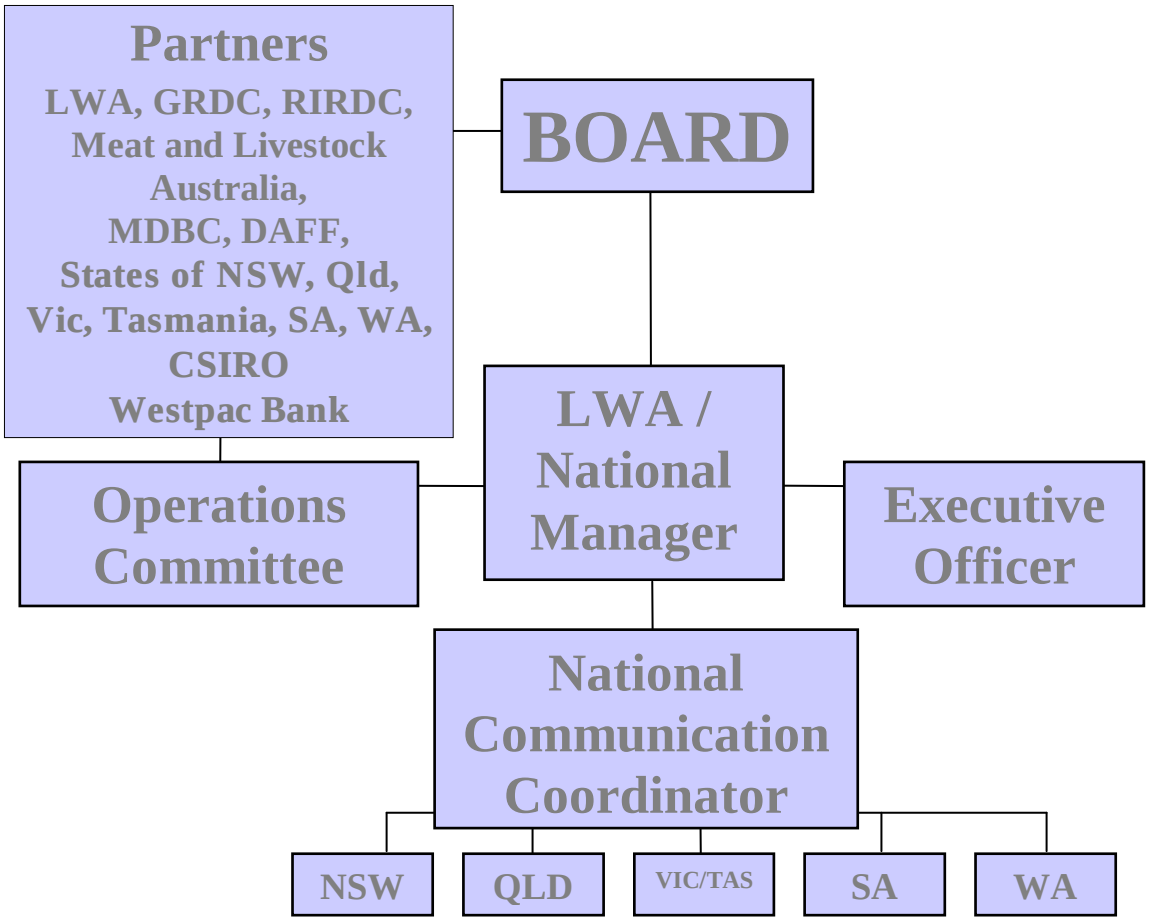
  > This grouping allows for knowledge exchange and then the information is taken back and disseminated to those on-ground extension workers where necessary. By bringing together the

16 NDSP, *Submission no. 35*, p. 12.
17 *ibid*., pp. 12-13.
18 *ibid*., p. 23.
19 *ibid*., p. 13.
20 NDSP, *Exhibit no. 25*, *op. cit*., pp. 2-3.

researchers and advisors from each partner it allows for the ability to tap into the shared knowledge base and improve.[21]

The Operations Committee provides for an independent analysis of the state of current salinity research.[22]

Figure 5.1 Structure of the National Dryland Salinity Program



Source *National Dryland Salinity Program, Submission no. 35, p. 14.*

5.16 LWA emphasised the value of the Operations Committee which 'remains the most important national forum for technical experts to consider salinity research issues on their technical merits, largely free from jurisdictional concerns.'[23] LWA described the importance of the Committee's separation from the NDSP Board:

21 NDSP, *Submission no. 35*, p. 23.

22 *ibid.*, p. 13.

23 LWA, *Submission no. 59*, p. 2.

> One of the critical things about the National Dryland Salinity Program that I think is under recognised is … the Operations Committee, which sits under the Board. The Operations Committee of the NDSP has had in it, throughout its entire history, Australia's main expertise on salinity—from the major science agencies and from some of the key private consultants … They have had some fierce and energetic exchanges over the years … and certainly they have not put all their eggs in one basket in terms of scientific theories, concepts or methodologies.
>
> I would argue that the real strength of the Program has been its ability to get the key players around the table in such a way that they are not wearing a state or territory hat, an agency hat or an organisational hat but just sitting around as experts, because we had a structure that had them separate from the Board. The Board was making the funding decisions and allocating resources but it took advice from the Operations Committee. We think that, in something like salinity, you need to separate the technical understanding from the allocation of money, particularly where it goes across jurisdictional boundaries. You need to be able to free up the scientists to talk about the science in as free flowing and energetic a way as is necessary.[24]

Research coordination at the state level

5.17 Several state governments have taken steps to coordinate salinity R&D efforts. The governments of New South Wales, South Australia and Western Australia made submissions to the Committee's inquiry and details of their state arrangements are summarised here. The efforts of the MDBC were detailed in chapter two.

New South Wales

5.18 A major recommendation of the New South Wales (NSW) Salinity Strategy was the formation of a Salinity Research and Development Coordinating Committee (SRDCC), comprised of representatives of state government agencies, CSIRO, MDBC, the Australian Government's Bureau of Rural Sciences (BRS), and DAFF. The SRDCC provides advice to

24 Mr Andrew Campbell (LWA), *Transcript of Evidence*, 7 November 2003, pp. 27-28.

the State Ministers for Agriculture and for Land and Water Conservation on research priorities and coordinates the State's salinity research efforts.[25]

5.19 The SRDCC has undertaken a process to identify and prioritise salinity research needs in NSW, which has involved:

- developing a strategic framework for salinity R&D, which identifies key questions that need to be answered for effective salinity management in NSW and criteria that can be used to evaluate the potential for research proposals to answer those research questions;
- compiling a register of current salinity research activities at the national and state levels, grouped according to their relevance to the key knowledge questions identified in the framework document;
- identifying and analysing knowledge gaps; and
- developing and prioritising research programs to address the knowledge gaps.[26]

5.20 The strategic framework and inventory of existing research was distributed to government and non-government agencies for their information and use. The SRDCC recommended that the framework be used in determining the R&D elements of investment strategies being developed by NSW CMOs, as well as investments by RDCs, universities and other R&D providers and purchasers. The strategic framework will also be used to assist investment decisions made under the NAP in NSW.[27]

Western Australia

5.21 The Western Australian Government has established a Salinity Research and Development Technical Committee (WA SRDTC). The WA SRDTC is a consortium of scientists from Western Australian State agencies, universities and CSIRO divisions involved in researching salinity problems within the State. The WA SRDTC is a committee of the Western Australian Natural Resource Management Council, which reports to the Minister for the Environment and the Cabinet Standing Committee on Environmental Policy.[28]

---

25 NSW Government, *Exhibit no. 43, A Strategic Framework for Salinity Research and Development in NSW*, p. 2; NSW Government, *Submission no. 61*, p. 1.

26 NSW Department of Agriculture, *NSW Salinity R&D Portfolio*, Government of NSW, Sydney, 2003, p. 1, viewed 27 January 2004, <www.agric.nsw.gov.au/reader/13076>.

27 NSW Government, *Exhibit no. 43*, *op. cit.*, p. 30.

28 WA SRDTC, *Exhibit no. 86, Information on the Natural Resource Management Council of Western Australia*, p. 1.

5.22 The WA SRDTC has identified State salinity research priorities, carried out assessments of the State's Salinity Action Plan, convened conferences and provided technical reviews of solutions to salinity for the State's Salinity Council, the predecessor of the current State NRM Council.

South Australia

5.23 In South Australia, a Dryland Salinity Committee (SADSC) has been established to advise the State's Soil Conservation Council on the implementation, evaluation and review of the State's Dryland Salinity Strategy. The Committee is comprised of regional community representatives, representatives of key State Government agencies, the University of Adelaide and CSIRO.[29]

5.24 In addition to providing guidance to regional integrated natural management (INRM) groups in the development, evaluation and implementation of regional salinity management plans, the SADSC is also responsible for identifying salinity R&D priorities for the State and for communicating research findings. The Committee identifies and coordinates 'the science needed to underpin the implementation of salinity programs' and has 'initiated and developed a wide range of salinity R&D and extension projects.'[30]

5.25 The SADSC is supported by a Technical Advisory Group, comprised of representatives of key R&D organisations, including CSIRO, the NDSP, University of Adelaide, State Government agencies, extension officers and regional groups.[31]

5.26 The South Australian Government observed that the SADSC and its Technical Advisory Group have ensured that the salinity R&D effort in South Australia is highly collaborative and strongly linked to the needs of end users. The Government noted that research collaboration in the State has been strengthened through the co-location of researchers from the relevant state agencies, CSIRO Land and Water and the University of Adelaide at the University's Waite campus.[32]

5.27 In 2002, the South Australian Government also established a Centre for Natural Resource Management (CNRM), the aim of which is to:

29 Government of South Australia, *Submission no. 81*, p. 2. See also: Primary Industries and Resources SA and the Soil Conservation Council of South Australia, *South Australian Dryland Salinity Strategy*, Government of South Australia, Adelaide, 2001, p. 34, viewed 23 February 2004, <www.saltcontrolsa.com/pdfs/sadss_72.pdf>.

30 *ibid.*

31 *ibid.*

32 *ibid.*

> create partnerships between regional INRM Groups and scientists so that integrated natural resource management across South Australia is based on world-class research and development.[33]

5.28 The Centre has established a Technical Working Group, comprised of representatives of peak scientific research agencies in South Australia, which has conducted meetings with regional INRM groups to discuss their information needs that could be met through scientific research:

> The outcome of these discussions has been a commitment from both the research agencies and the regional groups to continue building the relationship and to seek funding from a range of sources to address key issues identified through the process. Where more than one region has raised similar research needs, the Technical Working Group has sought to combine them into one multi-regional bid for funding. In one case, a project has been developed for the greater Lower Murray NAP region, which incorporates an area across South Australia, New South Wales and Victoria.[34]

5.29 A number of salinity projects have been identified through this process, including:

- identifying future trends in salinity and drivers of salinity across whole regions;
- better understanding hydrological systems in dryland and irrigated agriculture at threat of or that cause salinity;
- exploring options to better manage salinity (improved soil management practices, improved irrigation systems, new industries based on perennial vegetation); and
- protecting biodiversity assets from salinity (particularly wetland and floodplain ecosystems).[35]

5.30 CSIRO noted that the South Australian CNRM has:

> reviewed all current regional plans, held workshops with regional groups to discuss their knowledge gaps, prioritised research needs to underpin the regional investment and identified appropriate research providers.[36]

---

33 *ibid*., p. 5.

34 *ibid*.

35 *ibid*., pp. 5-6.

36 CSIRO, *Submission no. 42*, p. 7.

Victoria

5.31 Although the Victorian Government did not provide a submission to the inquiry, the Committee was informed of the NRM program of the Victorian Department of Primary Industries at Tatura, which delivers R&D services to the irrigation sector with a primary focus on sustainability. The Program includes 25 scientific staff and nine technical support staff. Among its four sub-programs, one relates to salinity and water quality and the projects currently supported include:

- groundwater management;
- farm salinity management;
- improved management of re-use dam water and dairy effluent as water sources on dairy farms;
- guidelines for sustainable irrigation with saline-sodic water;
- the effect of salinity and water logging on the productivity of forage species; and
- EM38 (hand-held electromagnetic induction surveying technique) soil salinity surveys.[37]

The need for and challenges in research coordination

5.32 The overview of salinity programs and research activities provided in the previous chapter demonstrates the veracity of the statement that there exists 'a complex landscape of research and science to support salinity management' in Australia.[38] While maintaining that the salinity research landscape is perhaps necessarily complex, CSIRO suggested that the current situation has led to a number of deficiencies:

- there are poor linkages between regional investment strategies and many of the research activities;
- there is a lack of cohesion between state and Australian Government activities;
- the coordination of research priorities from regional plans into state or national programs is currently weak (although state centres such as

37 Victorian Department of Primary Industries, Tatura, *Exhibit no. 59, Natural Resource Management: ISIA Project Summaries, May 2003*, pp. 23-35.

38 CSIRO, *op. cit.*, p. 9.

South Australia's CNRM are having a positive effect with respect to NAP funding);

- CRC programs do not cover all states, are often not well linked to regional bodies nor responsive to state issues;
- RDC's have been isolated from the regional planning processes and have historically been production-oriented—even when sustainability issues have been funded they have been poorly related to catchment-scale issues; and
- the direct BRS / Geoscience Australia (GA) funding for NAP-related activities has been poorly coordinated with state and regional activities and lacks a strategic framework as occurred through the NDSP.[39]

5.33 The WA SRDTC was critical of the lack of science coordination provided by core Australian Government agencies:

> Only the NDSP offers any consistency and coordination of responses … the level of coordination of scientific and technical services provided by the … Commonwealth agencies (DAFF, BRS, GA, MDBC) in the areas of dryland and irrigation salinity is discouragingly low and generally has little relevance outside the Murray-Darling Basin. Any national coordination that has occurred has been through the National Dryland Salinity Program and more recently though the CRC PBMDS (but only for a subset of the relevant agencies and issues).[40]

5.34 Another issue, identified by the Australian Nuclear Science and Technology Organisation (ANSTO), was that individual researchers find it difficult to identify a 'big picture' to which they should be contributing.[41] In this regard Professor James Macnae stated that despite:

> [t]he expressed interest in salinity of a great many federal, state and catchment authorities … there is no obvious single point of contact for a research scientists to make any direct approach to discuss problems and possible solutions.[42]

5.35 Some private sector companies called for improved coordination between the activities of national science agencies and the private sector.[43]

---

39 *ibid.*

40 WA SRDTC, *Submission no. 54*, pp. 4-5.

41 ANSTO, *Submission no. 22*, p. 4.

42 Professor James Macnae, *Submission no. 37*, p. 1.

43 Australian Spatial Information Business Association (ASIBA), *Submission no. 58*, p. 7.

5.36 The Committee provided an overview of the responses to the national NRM programs in chapter two. The evidence pertaining to research coordination is further developed in the sections which follow.

Implications of the National Action Plan and regional devolution

> *It is the fundamental issue of how far you take regionalism versus a generic way of approaching these kinds of coordination tasks.*[44]

5.37 Among the responses to the national NRM programs, outlined in chapter two, was the argument that the architecture of the NAP does not facilitate a nationally coordinated approach to salinity science.[45]

5.38 The NDSP noted that the devolution of NRM planning and delivery to the regional level has produced a 'major shift in the research supply-demand relationship'. While research priorities were previously determined by research and regulatory agencies, with the advent of the NAP 'it is now the community that has the purchasing power to determine research priorities specific to individual regions.' This regional approach was welcomed for the possibility that it might 'enhance the ownership of the results of purchased research and, in theory, increase the likelihood of adoption of the results.'[46]

5.39 However, the NDSP argued that the NAP has had deleterious consequences for science coordination that were hard to foresee. In particular, the NAP has:

> focussed Australia's limited research resources into regional contexts, resulting in an increased amount of activity at the regional level whilst causing the focus at the national level to fragment.[47]

5.40 One implication of the new funding arrangements has been institutional disruption for agencies at the national level. While this disruption has allowed a welcome and timely reassessment of roles and responsibilities for the major research agencies, it has caused confusion:

> For some institutions, such as CSIRO, whose research strengths lie in providing generic scientific underpinnings and frameworks critical across a number of regions, there exists a tension between having a national mandate with a knowledge-base that is

44 Dr Richard Price (NDSP), *Transcript of Evidence*, 3 November 2003, p. 14.

45 LWA, *op. cit.*, p. 3.

46 NDSP, *Exhibit no. 134, National Priorities for Salinity Research and Development*, p. 1.

47 NDSP, *Submission no. 42*, p. 7.

> extremely useful to regions and a lack of capacity to respond on a region-by-region basis. This tension is exacerbated under a funding regime that favours the regional approach, and where many regions are working to similar time schedules that result in the widespread and simultaneous demand for research assistance. Such institutions are currently facing a transitional period of internal adjustment that reflects a microcosm of the broader adjustments taking place across the institutional landscape of R&D providers.[48]

5.41 The CSIRO itself urged that there be a re-assessment of national salinity R&D coordination. CSIRO noted that the increased funding now available under the NAP, combined with the structural changes in NRM policy (notably, devolution of NRM to regional groups), have significantly changed the environment for application of salinity science:

> Additional resourcing and structural changes resulting from the NAP critically call for a re-assessment of national salinity research coordination needs, recognising the vital role the NDSP played since its inception … and its legacy of established networks.[49]

5.42 The shift to regional NRM has presented difficulties for national and state research providers, notably:

- the large number of CMOs has meant high transaction costs in communication for research providers;
- there is potential for creating confusion for the CMOs if approached by several research providers;
- there is a need to convince some CMOs to invest in technical information;
- it is not clear who is providing the balance between emerging technologies and existing technologies, and whether they have the capacity to make those decisions; and
- the difficulty of getting coordination between CMOs to support strategic research.[50]

5.43 At the regional level, CMOs purchasing research expressed frustration with the competition between research providers in what has effectively become an open-market, and the lack of coordination between providers.

---

48 *ibid.*

49 CSIRO, *op. cit.*, p. 1.

50 *ibid.*, p. 4.

For example, the Murray Catchment Management Board (MCMB) noted the challenges of dealing with a number of messages about science and technologies:

> The task of deciding what is genuine or what is being promoted for self-interest, the quality of the science, how to deal with conflicting messages and the risks of ignoring this information are all issues the Board has had to contend with and would therefore welcome a coordinated nationwide, advisory source.[51]

5.44 The MCMB further stated it 'would welcome a nationwide approach in the coordination and sharing of ideas, research and information' and recommended that the Australian Government take a lead role in 'distilling the best science for addressing salinity'.[52]

5.45 Similarly, Mr Philip Dyson argued that:

> The catchment management authority model … has been a big step forward … The real problem we have … is that we seem to have put all our resources into regional catchment communities. I do not think we have the balance right in providing a level of central support for those kinds of organisations.[53]

5.46 The CRC for Landscape Environments and Mineral Exploration (CRC LEME) was emphatic that regional devolution under the NAP has 'stifled scientific cooperation, scientific progress, the generation of new science and … people are doing their own thing in an uncoordinated manner.'[54]

5.47 The NDSP argued that the dilemma faced by individual agencies with a national mandate, such as the CSIRO, has been shared by institutions at subsequent and cascading scales:

> While opportunities are enhanced for State-based provision of regional research, their over-stretched capacity makes it difficult to deal with important and emerging research gaps, especially if it comes at the expense of providing technical guidance to regions on implementing the limited range of options that presently exist to deal with salinity. This dilemma is highlighted further by recent findings that these options have limited adoption appeal in the cold hard light of economic reality.[55]

51 MCMB, *Submission no. 10*, p. 1.

52 *ibid.*

53 Mr Philip Dyson (Phil Dyson and Associates Pty Ltd), *Transcript of Evidence*, 31 October 2003, p. 5.

54 Dr Dennis Gee (CRC LEME), *Transcript of Evidence*, 12 November 2003, p. 17.

55 NDSP, *Exhibit no. 134*, *op. cit.*, pp. 1-2.

5.48 The South Australian Government emphasised that the regional framework, reinforced in the funding arrangements for the NAP and other national NRM programs, may have implications for research activity that is beyond the boundaries and scope of individual regions:

> [T]here is a risk that the science needed to improve understanding of the biophysical processes or to develop alternative and innovative solutions (including policy and institutional mechanisms) to salinity problems will be beyond the resources, charter and scale of individual regions. By their nature the regional … [groups] will be focussed on local or regional issues and will endeavour to maximise the amount of funding directed towards immediate actions to manage salinity and other natural resource issues. Accordingly, there will be a tendency to give investment a low priority into longer-term and potentially more important research and development.
>
> While the option exists for individual regions to pool their funds for larger scale or more basic research and development, this would come at a cost to their on-ground actions and would meet with considerable local resistance. This would also be a fragmented approach as it would be subject to the decisions made by several regions, reflecting the differing priorities within each region.[56]

5.49 The CRC for Plant-based Management of Dryland Salinity (CRC PBMDS) also noted the difficulties of coordinating research activity under the regional approach:

> The way it stands at the moment is that a catchment management authority has to make a decision to support a research project in its catchment. Although $1.4 billion [the total budget for the NAP] sounds a lot of money, their resources at catchment level are fairly limited and there is a strong expectation that the money will be spent for on-ground works, so getting them to contribute to a significant statewide or national research effort is very difficult indeed.[57]

5.50 LWA pointed out the inefficiency of each individual CMO conducting generic salinity research:

> The National Land and Water Resources Audit salinity assessment illustrated that the salinity processes operating across many

56 Government of South Australia, *op. cit*., p. 5.

57 Professor Philip Cocks (CRC PBMDS), *Transcript of Evidence*, 13 November 2003, Perth, p. 18.

> regions, and in fact across state boundaries, are similar … 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.[58]

5.51 More forcefully, the NDSP told the Committee that:

> investing through the regions and then assuming that regions have a capacity to drive the coordinated R&D agenda is aspirational. We do not see that the momentum is built yet for nationally coordinated R&D on the basis of that approach …[59]

5.52 State governments agreed with these assessments. The South Australian Government stated that 'there is a clear and ongoing need for a nationally coordinated and collaborative approach to dryland salinity research, development and communication', such as has been provided through the NDSP.[60]

5.53 Similarly, the WA SRDTC noted that, with the winding back of the NDSP's funding base from June 2004, the national salinity R&D coordination role is 'an urgent issue' and called on the Australian Government to:

> Invigorate the existing and well-respected leadership role in salinity funding, knowledge management and coordination by the NDSP … in the development of targeted programs of R&D.[61]

5.54 The Committee notes that the *Scientific Advice on Natural Resource Management* report (2004), prepared by CSIRO and BOM for the NRMMC, also expressed concern at the lack of science leadership and overview to support the regional implementation of the NAP and NHT:

> Given the size of the NAP / NHT and its significant objectives, there is a striking lack of full-time scientific leadership and overview. Far more attention should be focussed on this area to develop a sense of scientific cohesion and support for CMAs. Otherwise, there is a real probability that investment will be targeted on the wrong areas. The current structures at the state level focus more on administrative issues, project investment and compliance. Whilst each jurisdiction has clearly worked hard on

58 LWA, *op. cit.*, p. 3. See also Associate Professor David Pannell, *Submission no. 13*, p. 4.

59 Mr Kevin Goss (NDSP), *Transcript of Evidence*, 3 November 2003, p. 3.

60 Government of South Australia, *op. cit.*, pp. 3, 7.

61 WA SRDTC, *op. cit.*, p. 5.

> trying to ensure that scientific robustness of the NAP / NHT programs is maintained, the lack of cross-jurisdiction coordination means that this is often done in relative isolation and / or the focus is often moved away from science to delivery.[62]

5.55 CSIRO maintained that, in the new NRM context, without effective science coordination at either state or national levels there is a real risk of:

- disconnection between science providers and NRM program implementation;
- a lack of investment in strategic research required to overcome knowledge gaps underpinning regional plans;
- lack of uptake of new technology;
- lack of coherence between different regional plans and monitoring;
- failure to learn from others' mistakes;
- lack of acceptance of lessons coming from science;
- greater influence of local interest groups; and
- the lack of a regulatory framework to ensure best management practice for engineering schemes.[63]

Increased research activity and complexity

5.56 While the NDSP commenced in an environment where there was no national strategy for dealing with dryland salinity, few statewide strategies existed and there was little agreement about the size and cost of the emerging problem:

> The 1990s saw a burgeoning in the number of organisations becoming involved in salinity research and extension. A nationally focussed Cooperative Research Centre was set up in 2001 to investigate plant-based solutions to salinity. At least three other CRCs have also conducted research into certain aspects of the problem.
>
> Furthermore, some of the member organisations of the NDSP have undertaken research activities independently of the NDSP …

62 *Scientific Advice on Natural Resource Management: A Report to the Natural Resource Management Ministerial Council by the Commonwealth Scientific and Industrial Research Organisation and the Commonwealth Bureau of Meteorology*, report presented to the NRMMC, Adelaide, February 2004, pp. 54-55.

63 CSIRO, *op. cit.*, p. 7.

> Industry R&D corporations and State government agencies have also ramped up their investments in salinity.[64]

5.57 Similarly, Mr Andrew Campbell of LWA observed that:

> I counted at one stage about 50 organisations at the national level that are involved in funding or doing natural resource management research. A large number of those would be involved in … salinity related work. Now that we have regional delivery of major national programs, there are 60 or 70 regional bodies that are charged with putting the information into effect on the ground. So the number of players has increased dramatically, and the difficulty of finding out what all of them are doing at any one point in time has increased accordingly.[65]

5.58 However, rather than detracting from the need for a coordination role, it was argued that the significantly increased number of organisations conducting salinity R&D and extension activities reinforces the need for effective coordination:

> We certainly do need to improve the coordination of science … to address salinity. This is not because there is a lack of activity but because there has been such a huge increase of activity in recent years and the number of players has increased enormously … The last thing we need in an already crowded sector is to create another institution …We need to look at the existing institutions and how they can work better together.[66]

5.59 The NDSP expressed similar views:

> As the political profile of salinity has risen so too has the number of government and industry initiatives for addressing salinity. There is now a degree of "crowding-out" among the various programs and initiatives. While the growth in research and extension effort is welcome, it does add complexity to the network of funding organisations, research providers and extension programs. In order to deal with the maze of information forthcoming from these networks, organisations and research providers it is imperative that there is some coordinated form of managing the science in relation to Australia's salinity programs. This coordination is essential not only to manage "crowding", but

64 NDSP, *Exhibit no. 25*, *op. cit*., p. 3.

65 Mr Andrew Campbell (LWA), *Transcript of Evidence*, 3 November 2003, p. 6.

66 Mr Andrew Campbell (LWA), *Transcript of Evidence*, 7 November 2003, p. 18.

> also to relieve the pressure placed upon existing research talent where expertise is still lacking or only just emerging.[67]

5.60 Similarly, the MDBC observed that:

> The key thing in terms of science and the way we move forward is that there is a wealth of information, there is a wealth of science, there is a wealth of activity going on within CRCs and organisations such as CSIRO and the work initiated through LWA and the NDSP. Yet we cannot bring all that information together … What I suggesting is that, over and above all, we need networks that share information—distributed networks.[68]

5.61 The South Australian Government expressed the 'major concern' that:

> without a national approach, salinity research and development would lose its momentum and resources for research and development would be withdrawn. This has occurred with other NRM issues … when the national approach has been removed.[69]

5.62 The NDSP summarised the value and importance of a coordination role for salinity science:

> Developing an effective coordinating group whether it is at a national or state level is paramount to the success of dealing with salinity. Such groups can help provide the necessary links between those undertaking the research and those utilising the research on-ground. A coordinating body enables information to be brought across the jurisdictions and the range of Commonwealth and State bodies involved in salinity research and finding a single way ahead. All agendas and needs are then discussed and the risks of duplication can be reduced. A coordinating body can also set in place information and consistent advice within state policies and strategies.[70]

67 NDSP, *Submission no. 35*, pp. 10-11.

68 Mr Warwick McDonald (MDBC), *Transcript of Evidence*, 7 November 2003, pp. 37-38.

69 Government of South Australia, *op. cit*., p. 4.

70 NDSP, *op. cit*., p. 23.

Institutional proposals for improved coordination

5.63 The Committee was presented with a range of proposals to improve the national coordination of salinity research and development.[71] These included establishing new organisational structures such as:

- an Australian Centre for Salinity Research (or 'Centre of Excellence in Salinity'), with a mandate similar to the United States Salinity Laboratory, to substantially expand on the efforts of the CRC PBMDS;[72]
- an Australian Salinity Research Program to manage research grants, modelled on the Australian Research Council or industry based research granting groups;[73]
- a peak scientific panel to review and compare latest research findings for the benefit of CMOs;[74]
- a CRC for Dryland Salinity;[75]
- a 'national salinity action committee' established through the Council of Australian Governments;[76]
- an independent, national research coordinating body or council;[77]
- a statutory authority tasked to implement a 50 year strategic plan for salinity management and research;[78] and
- 'an independent community-based body' who could identify research priorities to government.[79]

5.64 It was suggested that coordination could be improved by tasking established entities with this responsibility, for example: the Science and

71 The Committee deals with aspects of research coordination, specifically improved data management, separately in chapter seven of this report.

72 Australian Society of Soil Science Inc (ASSSI), *Submission no. 68*, p. 4. In January 2000 the United States Salinity Laboratory was renamed the George E. Brown, Jr. Salinity Laboratory. Information on the Laboratory is available online, viewed 9 January 2004, <www.ussl.ars.usda.gov>. The Committee notes that the Department of Science, Education and Training (DEST) is providing $6.7 million seed funding for an International Centre of Excellence in Water Resource Management. DEST, *Submission no. 69*, p. 3.

73 Dr Robert Creelman, *Submission no. 16*, p. 3. Also see Associate Professor Richard Bell (Murdoch University), *Evidence of Transcript*, 13 November 2003, p. 32.

74 MCMB, *op. cit*., p. 2.

75 Dr Jerzy Jankowski, *Evidence of Transcript*, 29 October 2003, p. 32.

76 Mr David Hocking (ASIBA), *Transcript of Evidence*, 24 November 2003, p. 2.

77 Deakin University, *Submission no. 17*, p. 2.

78 Dr John Hails, *Submission no. 12*, pp. 2-3.

79 Australian Salinity Action Network (ASAN), *Submission no. 39*, p. 9.

Information Working Group under the NRMMC;[80] or a central science organisation, with strong industry links, such as CSIRO or LWA.[81]

5.65 Approaches to coordinate aspects of salinity research were also proposed, and these included using as possible models: the Joint Venture Agroforestry Program, aimed developing agroforestry systems for sustainable landscapes;[82] and the National Geoscience Agreement for data management.[83]

5.66 The South Australian Government submitted that:

> While there are advantages and disadvantages with each of these possible arrangements, the essential issue at this time is to ensure that a national approach to dryland salinity research and development and communication continues.[84]

5.67 The Committee also notes the recommendation contained in the *Scientific Advice on Natural Resource Management* report (the 'CSIRO/BOM report') for the NRMMC, that:

> The NRM lead agencies review the existing institutional arrangements for coordinating, integrating and disseminating NRM related science and consider the benefits of strengthening the NAP/NHT through the appointment of a science leader and coordinating body …[85]

5.68 Among its other functions, the CSIRO/BOM report suggested that an NRM science coordinating body, possibly under a chief scientist, could facilitate cross-jurisdiction science coordination, and implement the existing recommendations of the NRMMC Science and Information, and Monitoring and Evaluation Working Groups. It was proposed that the coordinating body could be staffed by full or part time secondments from each state. However, it was noted that the body would not need to be centrally located:

---

80 Government of South Australia, *op. cit*., p. 4.

81 Australian Academy of Technological Sciences and Engineering, *Submission no. 34,* p. 1; Cotton Research and Development Corporation, *Submission no. 31,* p. 1.

82 Dr John McGrath (Forest Products Commission of Western Australia), *Transcript of Evidence,* 12 November 2003, p. 8.

83 CRC LEME, *Submission no. 64,* p. 5. This agreement is discussed in chapter seven of this report.

84 Government of South Australia, *loc. cit.*

85 *Scientific Advice on Natural Resource Management: A Report to the Natural Resource Management Ministerial Council by the Commonwealth Scientific and Industrial Research Organisation and the Commonwealth Bureau of Meteorology*, report presented to the NRMMC, Adelaide, February 2004, p. 55.

> Indeed there would be an advantage in having the science staff located with the state-based NAP/NHT personnel. However, having individuals who could further assist with the brokerage of information between R&D providers and the [CMOs] as well as provide advice on how more effective methods of predictive modelling and monitoring and evaluation can be achieved would considerably strengthen NAP/NHT outcomes.[86]

Support for the continuation and expansion of the National Dryland Salinity Program

5.69 Among the institutional proposals for national salinity R&D coordination, the continuation and expansion of the NDSP received by far the greatest support, for example:[87]

- Webbnet Land Resource Services noted that:

  > If the NDSP does not continue in its current form, there is likely to be a serious impact on information transfer across main stakeholder clients … It has provided a vital coordinating and networking process for the relatively few professionals involved in salinity management. The program has helped develop the capacity nationally in aspects such as salinity risk assessment, evaluation of management options and emphasised the need for social and economic factors to be incorporated into these activities … Very serious consideration should be given to retaining the National Dryland Salinity Program … [88]

- Engineers Australia recommended that the Australian Government:

  > invigorate the existing leadership role in salinity funding, knowledge management and coordination by the NDSP to ensure the development of targeted programs of R&D in salinity.[89]

- The Government of South Australia recommended that the Australian Government:

86 *ibid.*

87 See for example: Government of South Australia, *loc. cit.*; CRC PBMDS, *Submission no. 8,* p. 1; Webbnet Land Resource Services Pty Ltd, *Submission no. 40,* p. 5; Professor David Pannell, *Submission no. 13,* p. 5; Engineers Australia, *Submission no. 73,* p. 2; WA SRDTC, *op. cit.*, p. 5; Australian Conservation Foundation, *Submission no. 62,* p. 5; Murdoch University, *Submission no. 24,* p. 4; CSIRO, *op. cit.*, p. 1. Support for the NDSP was also expressed by: MDBC, *Submission no. 51,* p. 3; ASSSI, *op. cit.***,** p. 5; Western Australian Farmers' Federation, *Submission no. 36,* pp. 1-2.

88 Webbnet Land Resource Services Pty Ltd, *op. cit.*, pp. 3, 5.

89 Engineers Australia, *op. cit.*, p. 2.

> Ensure that the leadership and coordination in salinity research and development previously provided through the National Dryland Salinity Program continues. There is a clear and ongoing need for a nationally coordinated and collaborative approach to dryland salinity research, development and communication:
>
> - to identify the research and development issues of national significance and to ensure they are adequately addressed
> - to tackle those issues that are beyond the resources or jurisdictions of individual states.[90]

5.70 Among those submitters calling for the continuation of the NDSP, the WA SRDTC urged that an invigorated NDSP be expanded to encompass irrigation as well as dryland salinity, and that it have a key role in coordinating and brokering R&D activity in these fields.[91] Similarly, Engineers Australia recommended that the NDSP be revitalised as the 'National Salinity Program for Research and Development' and that it be 'given much greater responsibility and resources to act as the agent for coordination of research for dryland and irrigation salinity.'[92] The WA SRDC also urged that to perform the national salinity R&D coordination role, the NDSP be given 'much greater funding than in the past, including funding from core Commonwealth programs.'[93]

5.71 However, CSIRO suggested that, as a result of the structural changes resulting from the NAP, some reworking of the NDSP model may be required:

> The additional level of complexity presented by the devolution of NRM to the regions suggests a need for a more region specific and targeted research coordination effort. This implies a partial reworking of the current NDSP model to address the NAPSWQ needs and other NHT initiatives.[94]

5.72 Similarly, LWA observed:

> 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

90 Government of South Australia, *op. cit*., p. 7.

91 WA SRDTC, *op. cit*., p. 7.

92 Engineers Australia, *op. cit*., p. 2.

93 WA SRDTC, *loc. cit.*

94 CSIRO, *op. cit*., p. 1.

> 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.[95]

5.73 The NDSP itself conceded that while the NDSP is well known to traditional research providers and NRM agencies, it is less well known amongst the emerging regional bodies:

> [W]e have a track record … when it comes to key agencies across Australia, R&D corporations and people like Westpac Bank and the Murray-Darling Basin Commission, we do not have that with the new players, particularly catchment management bodies or regional bodies in natural resource management. I think that is a weakness now, and that is probably where a fair bit of the demand is coming from.[96]

5.74 In terms of supporting the CMOs, LWA proposed that the NDSP could perform an advisory service and act as a:

> first-stop shop … finding out where the information is—whom should I be talking to; whether any work has been done on this and, if so, where; where can I find more about it; who are the relevant bodies to be talking to about it.[97]

5.75 In the event of the NDSP's closure, successor agencies were nominated including the creation of a program modelled on the Australian Collaborative Land Evaluation Program for the development and transfer of standards in salinity assessment and management.[98] The Australian Conservation Foundation (ACF) suggested the continuation and expansion of the NDSP, but possibly modified as a new broad-based 'Landscape Changes Program', which could give the CRC PBMDS and LWA a leadership role.[99]

5.76 Despite the level for support for the NDSP, including from at least two state governments, LWA noted that some states have resisted nationally coordinated research efforts:

> As overall funding levels for salinity R&D have increased, the commitment of State agencies to the NDSP itself has declined,

95 LWA, *op. cit.*, p. 3.

96 Mr Kevin Goss (NDSP), *Transcript of Evidence*, 3 November 2003, pp. 5-6.

97 Mr Andrew Campbell (LWA), *Transcript of Evidence*, 3 November 2003, p. 8.

98 Webbnet Land Resource Services Pty Ltd, *op. cit.*, p. 5.

99 ACF, *op. cit.*, p. 5.

> with larger states tending to 'do their own thing' rather than invest in salinity R&D through a coordinated national approach.[100]

5.77 Furthermore, in recognition of the increased investment in salinity activities by a range of agencies, the LWA Board decided in December 2002 that the Corporation would no longer be the major investor in salinity research after the current Enhanced Communication Year of the NDSP ends in June 2004. The Board believes it is appropriate for the Corporation to direct its research investments into other areas not yet recognised by mainstream research and policy.[101] However, LWA noted that:

> if resourced to do so, [LWA] 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 [LWA] from Senator Troeth (Minister responsible for R&D Corporations) that [LWA] 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.[102]

5.78 LWA also emphasised that coordination of salinity science must be placed within broader contexts, and particularly that 'salinity R&D needs to be coordinated within the context of the full suite of natural resource management issues, not as an isolated phenomenon.'[103] In this respect, it was noted:

> This is where single issue-based programs such as the NDSP have their limitations. While focussing 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.[104]

5.79 Consequently, LWA argued that:

> Institutional structures for coordinating salinity science must be well connected to other scientific programs, information delivery systems and policy and management frameworks.
>
> [LWA], as a coordinator of national research programs across a broad spectrum of natural resource management issues, and with

100 LWA, *op. cit.*, p. 3.
101 *ibid.*, p. 2.
102 *ibid.*
103 *ibid.*, p. 4.
104 *ibid.*

> 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.[105]

5.80 In other proposals relating to salinity research coordination, the WA SRDTC recommended that the Australian Government: reduce the number of salinity programs and agencies; reduce internal competition for resources; and ensure that programs focus on needs and operate in all states where salinity is present. It was also recommended that BRS salinity-related staff be moved into Geoscience Australia or CSIRO.[106]

5.81 Submitters also recommended that the Australian Government 'overtly remove any coordination of research and development activities from administrative programs (for example, the NAP and NHT) and coordinate them within management systems like that provided by the NDSP.'[107]

5.82 Likewise, Associate Professor David Pannell cautioned that there are some significant dangers if research coordination is not handled well:

> Relations between the Commonwealth and some states in relation to the science are already somewhat strained due to the Commonwealth's poor handling of science-related issues to date. Some of the state agencies are already investing in salinity science in a more balanced and realistic way and have been frustrated by Commonwealth resistance to proposals for better funding of science within the NAP. Among the states, confidence in the quality of thinking about salinity science in the core NRM Commonwealth Departments is at a low level. If a Commonwealth Department attempts to take a coordinating role in this environment, it may cause more problems than it solves. I suggest that if any national coordinating role is judged to be needed, then it should be managed somewhat at arms length from the Department of Agriculture, Fisheries and Forestry and the Department of Environment and Heritage. A possible vehicle for this already exists in the form of the National Dryland Salinity Program (NDSP), which is well established and well respected. It appears that the commitment of some states to the NDSP has reduced and that its continuation beyond the current financial year is in some doubt. A commitment of resources by the

105 *ibid.*

106 WA SRDTC, *op. cit.*, p. 6.

107 *ibid.*, p. 7. See also Engineers Australia, *op. cit.*, p. 2.

Commonwealth to ensure its continuation would appear to be timely and appropriate.[108]

Functions that could be performed by a coordinating agency or program

5.83 In addition to those needs identified above, submitters noted specific functions that a national salinity program or agency could perform. Engineers Australia suggested that an expanded salinity program should undertake the following actions:

- ensure the development of targeted programs of R&D to address salinity;
- coordinate data and information management through a single entity, preferably the National Land and Water Resources Audit;
- ensure investment in national programs and their coordination is matched by the capacity of industry, state and regions to implement actions. This will require a much greater involvement of users and potential beneficiaries in the early stages of program development. The adoption of salinity management options is far more effective when communities and landholders are involved in the research and development; and
- coordinate research programs with state and territory salinity strategies to help avoid overlap of research between different levels of government.[109]

5.84 The Government of South Australia also argued that there is need for a nationally coordinated approach to salinity R&D and communication in order to:

- identify the R&D issues of national significance and to ensure they are adequately addressed. There is still a need for a national program to tackle those issues that are beyond the resources or responsibilities of individual states and regions;
- ensure maximum participation and involvement of all stakeholders, including industry, government and non-government research organisations, and community;
- ensure that the efforts of all those involved are coordinated and that partnerships and collaboration between researchers are maximised;

108 Associate Professor David Pannell, *op. cit.*, p. 5.

109 Engineers Australia, *op. cit.*, p. 2.

- ensure that solutions are integrated within a landscape / NRM approach;
- support continued R&D in those areas that require a concerted and nationally coordinated approach, recognising that there are many problems that remain to be solved or are inadequately understood;
- ensure that the momentum developed through the NDSP in both R&D and communication is maintained; and
- ensure research and development outcomes and approaches are widely shared and communicated to all stakeholders through a national communication program.[110]

5.85 Other functions that could be performed by a national coordinating agency or program include providing expert advice to CMOs on the latest research findings and technologies.[111] The Chief Scientist also supported proposals to 'have a clearing house and a forum for helping to focus on what the needs are, as a minimum.'[112]

Conclusions

5.86 The Committee concludes that a strong case has been made in the evidence for a national coordination function for salinity R&D. The reasons for this include:

- the structural changes ushered in with the NAP, notably the devolution of NRM responsibilities to regions and the fragmentation of efforts at the national level;
- the perhaps unavoidable complexity of salinity research efforts across a large number of agencies and programs, which need to be effectively coordinated—now more than ever;
- to link research providers and their products with CMOs, land managers and others undertaking on-ground works;
- to identify the R&D issues of national significance, ensure they are adequately addressed and avoid duplication;

110 Government of South Australia, *op. cit*., p. 4.

111 MCMB, *op. cit*., p. 2. See also WA SRDTC, *op. cit*., p. 8.

112 Dr Robin Batterham (Chief Scientist), *Transcript of Evidence*, 24 November 2003, p. 22.

- to maintain the momentum developed through the NDSP in R&D and communication; and
- to better coordinate research programs with state and territory salinity strategies, so as to avoid overlap between governments at different levels.

5.87 The Committee also notes evidence suggesting that without a national salinity research coordinator, there is potential to revert to many of the problems which existed prior to the establishment of the NDSP:

- approaches were different between states;
- science development was dependent on the strength of research providers in each state;
- because of the piecemeal nature of the research, it was difficult to provide a national picture of the extent of the problem and there was a lack of coherence in learning from the research programs;
- there was a significant divide between researchers at a national level and regional planning groups; and
- much of the activity at a local / regional level was taking place with only minor technical input.[113]

5.88 While the Committee agrees that there is a need for a national R&D coordination function, it is reluctant to recommend the creation of yet another agency in what is already a complex field of agencies and programs.

5.89 The Committee notes the range of evidence in support of the NDSP, which has effectively brokered R&D priorities at the national level since its establishment in 1993. The NDSP has served a unique function which would be missed if discontinued. The Committee is persuaded that the role of the NDSP ought to be continued and its functions expanded to address other relevant matters, including irrigation and urban salinity. The Program could be renamed the *National Salinity Program*, or similar.

5.90 With the withdrawal of LWA funding, the closure of the NDSP is imminent. The Committee concludes that the Australian and state governments should, as a matter of urgency, provide funding for the Program's continuation and expansion.

5.91 The Committee is persuaded that salinity ought to be addressed in the wider context of the range of NRM issues. Institutional structures for

113 CSIRO, *op. cit.*, p. 3.

salinity science should be integrated with other NRM science programs. In this way, the single issue focus may not overwhelm the importance of integrated responses to the range of NRM issues which CMOs and land managers must address. Therefore, continuing to situate a *National Salinity Program* within LWA, which has this broader mandate, seems appropriate. The Committee is pleased to note the willingness of LWA to maintain the Program, conditional on alternative sources of funding being provided.

5.92 The Committee notes the implications of the devolution of NRM responsibilities to CMOs and particularly the need for support and guidance at the regional level. The Committee recommends that the *National Salinity Program* be reconfigured to meet the requirements of the new NRM environment and, specifically, that its coordination and communication strategies evolve to meet the needs of the NAP. This may entail more region specific and targeted research coordination efforts.

5.93 A range of functions that could be performed, and needs that could be met, through a *National Salinity Program* were proposed in the evidence. For example, the Program could act as a conduit for research conducted by its partner agencies through to CMOs, thereby reducing the transaction and communication costs imposed on science agencies, aiding greater consistency of advice and reducing the potential for confusion among CMOs.

5.94 The Committee notes that the Operations Committee of the NDSP has acted as the 'engine room for national exchange of information' and 'one of technical quality assurance.'[114] The Committee also notes that some CMOs are calling for a single, nationwide advisory source to assist them in judging the validity of various science messages, and to provide guidance on salinity technologies. While the Committee recognises that CMOs and land managers obtain advice from a range of sources, which are further discussed in chapter eight, the Committee concludes that a reformed Operations Committee of salinity experts may be able to assist CMOs (and state technical committees) in this regard.

114 Mr Kevin Goss (NDSP), *Transcript of Evidence*, 3 November 2003, p. 5.

Recommendation 3

5.95 **The Committee recommends that the Australian Government ensure the continuation of the *National Dryland Salinity Program* (NDSP) as a matter of urgency, and that:**

(a) the role of the NDSP be expanded to address irrigation and urban salinity, with the Program renamed the *National Salinity Program* (NSP) or similar;

(b) the NSP be managed within Land and Water Australia (LWA);

(c) the NSP adopt research, coordination and communication strategies that assist the regional delivery of natural resource management programs and the requirements of the *National Action Plan for Salinity and Water Quality* specifically;

(d) the functions of the NSP have regard for those identified in this report;

(e) the NSP/LWA be adequately resourced to perform its functions by the Australian and state governments;

(f) relevant Research and Development Corporations, Cooperative Research Centres, national science agencies, universities, state agencies and the private sector be strongly encouraged to partner the NSP; and

(g) there be a continuing role for an Operations Committee, or equivalent, in providing independent scientific advice with that advice coming from a broad cross-section of scientific personnel from both the government and non-government sectors.

This recommendation should be read in conjunction with recommendations 1 and 15.