



The Committee Secretary
Standing Committee on Science and Innovation
House of Representatives
Parliament House
CANBERRA ACT 2600
AUSTRALIA

Dear Secretary

**Hawkesbury-Nepean Catchment Management Board Submission
Inquiry into the Coordination of the Science to Combat the Nation's Salinity Problem**

The Hawkesbury-Nepean Catchment Management Board has prepared this submission in response to the Inquiry Terms of Reference.

The Hawkesbury-Nepean Catchment Management Board is responsible for coordinating the natural resource management in the Hawkesbury-Nepean catchment, which provides the majority of water for Australia's largest regional economy, that of the Sydney basin.

Our catchment is renowned for its natural resources, productive rural economy and urban diversity, our area is also experiencing increasing salinisation. Although dryland salinity is found in rural areas throughout the catchment, our most significant challenge lies with the urban areas of Western Sydney, where salinity impacts on homes and other urban infrastructure.

The Hawkesbury-Nepean Catchment Management Board supports the adoption of a more balanced scientific approach to managing salinity especially in Western Sydney where this outcome needs to be adequately resourced. Under current guidelines for the National Action Plan funding, this catchment cannot benefit. The Hawkesbury-Nepean Catchment Management Board reinforces the need for an integrated and adaptive management approach to ongoing links between science and salinity action.

The Hawkesbury-Nepean Catchment Management Board requests that the Inquiry notes, that although the adoption of key science is important to managing salinity, that this scientific base is of little value unless there is a tri-partisan agreement in the terms of investment, planning and implementation approaches through local, State and Federal bodies.

The Hawkesbury-Nepean Catchment Management Board has provided comment, based on the structure of the Inquiry's Terms of Reference. If the Standing Committee require any further information on any of the issues raised in this submission I have arranged for Board's Support Team Leader, Mr Steve Nichols to assist you. Mr Nichols may be contacted by telephone on (02) 4828 6703.

Yours sincerely

Robert Bell
Chair
Hawkesbury-Nepean Catchment Management Board
16th October 2003

House Representative Standing Committee on Science and Innovation Inquiry into the Coordination of the Science to Combat the Nation's Salinity Problem

Submission from the
Hawkesbury-Nepean Catchment Management Board

Terms of Reference a) *Use of salinity science base and research data (including the development of new scientific, technical and engineering knowledge) in the management, coordination and implementation of salinity programs;*

This component of our submission will provide comment on:

1. The Scope of Science
2. Integrating Social Science
3. Implementing Available Knowledge
4. Integrating Local Knowledge

1. The Scope of Science

The biophysical sciences provide an important basis for understanding and managing the dynamics of dryland and irrigation salinity. The range of scientific disciplines that are applied to the issue needs to be much broader than those inferred by the discussion paper and needs to include the socio-economic disciplines. This broader perspective is required to provide an understanding of the socio-economic dynamics of salinity and support the identification of any causal relationship and development of sustainable landscape management systems.

Consideration of the socio-economic data will support analysis of any existing market based and policy aspects of the problems and support the development of future sustainable management outcomes that target underlying causes that may need to address issues beyond the local bio-physical and cultural landscape. For example the issue in the Hawkesbury Nepean is significant, although generally under recognised in the national context- particularly in regards to urban salinity. With the high value and density of infrastructure in the region, the large volume of lots to be developed over the next 10 years, and the high value agriculture in the region, there is the potential for increasing urban and rural salinity which will result in very significant costs, not only to the communities in the region, but also to the State and Federal government.

The responsibility for integrating and promoting science and technology to promote more sustainable management systems needs to be the responsibility of a single natural resource management (NRM) body (either state or local government), such as a Catchment Management Board or Authority (CMB/A). This body will need to have an adequate budget and human resources, which should ideally include 3 year rolling indicative budgets, to allow the development of medium and long term management strategies.

The appropriate NRM body will need to be able to access all contemporary scientific data and be accountable for developing integrated NRM strategies to target priority

issues that have been identified within existing Catchment Blueprints. These strategies should facilitate operational partnerships at a local level that target the socio- economic and bio-physical causes of salinity that are a component of overarching national and state action plans. e.g. The understanding of specific processes is evident in the existing data gaps. The data gaps prevent adequate targeting of the problem in planning processes i.e the blueprints. There is a need to recognise the importance of research into salinity and its relationship with urban infrastructure in the region, as these are likely to be the biggest cost areas in the future.

2. Integrating Social Issues into Onground Outcomes

Existing scientific knowledge needs to be implemented through regional and local strategies and action plans by the responsible body using experienced extension officers. The advisory staff need to possess multi-disciplinary skills and be able to engage local communities in the development and implementation of local NRM plans. Although the roles of these staff members needs to be separated from extension agencies promoting economic outcomes (eg agronomists, livestock advisers), the specialist NRM facilitator needs the ability to engage these staff in the development of sustainable management systems that reflect community socio-economic expectations.

The NRM facilitators will need a broad range of scientific and technical skills, to be empathetic with community expectations, and be able employ group extension techniques to balance the application of science and local knowledge. These staff should be able to facilitate the development of local salt abatement strategies through subcatchment/sub regional planning, coordinate the development of property planning and engage specific external science and technical resources on a needs basis. An example may be better access to scientific information in a format that can be used by Local Government to make landuse decisions that influences future development and the impact of salinity in the region. Focus is required on developing models and data sets that aid land use decision making. To do this we need to identify what information is needed to make good land use decisions, and then identify how we can provide that information in a format that the decision makers can readily access and use.

3. Implementing Available Knowledge

The responsible body in developing and implementing regional and local strategies needs the technological ability to identify existing salinity (and other natural resource management issues), to identify available local landscape and community data, where appropriate and to be adequately resourced to commission new science when needed. If this role is implemented by a Catchment Management Board/ Authority this role could be supported by an appropriate Scientific Working group, chaired by a CMB/A member with members from relevant State and Commonwealth NRM scientists, regional universities and other relevant bodies e.g rural lands protection boards.

This Scientific advisory group will need to be able to provide advice to the CMB/A on relevant science, to provide advice on monitoring existing programs in an adaptive management context in accordance with consistent State guidelines and engage relevant "science" providers to resolve identified knowledge gaps. The working group should also be able to coordinate undergraduate/ postgraduate student involvement in any low-level research that is need to support or monitor community projects.

Some more challenging projects may need specific expert advice. This working group should be structured to provide an Expert Panel function and would need to be financially resourced consistently on a national basis to ensure that the cost issues related to implementing science do not over run onground project costs. For example better information about the relationship between urban landuses and salinity processes is needed so impacts are able to be predicted on different urban developments. Of particular importance is research into the impacts of stormwater and waste-water options on salinity in the region.

Each working group member would need to represent a specific discipline and be supported by an appropriate scientific stakeholder network. The group members will need to have knowledge of contemporary research in their field of expertise, and possess the ability to assist the CMB/A to develop future research strategies. The members will require knowledge of existing government and corporate research funding and current university research expertise.

4. Integrating Local Knowledge

The development of good science and possession of appropriate scientific knowledge or other relevant information related to landscape management is not the sole province of University academics and other professional research workers. Considerable relevant knowledge and skills are held at a community level by the indigenous community, residents with historical and land management knowledge, and other persons with various scientific and other technical skills. For example some community members have retired scientific careers. If a regional system of groundwater bores existed, these community members could be involved in education or in the monitoring process.

This knowledge and experience needs to be valued and integrated with other external scientific knowledge when developing regional and local integrated NRM strategies that target salinity. This role is best undertaken by empathetic NRM extension staff with appropriate facilitation and strategic planning skills who are supported by appropriate institutional resources. Identifying the opportunity to apply science to improve salinity management in urban areas, through the DA and rezoning process can be gained in the strategic planning process.

Term of Reference b) Linkages between those conducting research and those implementing salinity solutions, including the coordination and dissemination of research and data across jurisdictions and agencies, and to all relevant decision makers (including catchment management bodies and land holders);

This component of our submission will provide advice on:

1. Catchment Management Boards/ Authorities
2. Subcatchment/ Subregional Planning
3. Property Planning
4. Property Agreements

1. Catchment Management Boards/ Authorities

Responsibility for integrating science and NRM needs to be the responsibility of the CMB/As. This role needs to be coordinated by appropriate State and Commonwealth bodies that also have the role in providing consistent advice to Government in support of new policy development.

Each CMB/A needs to support the development of relevant bio-physical and socio-economic indicators at a state, regional and local level against which to monitor effectiveness to salinity management programs. Regional and local monitoring needs to be supported by relevant science and institutional technical capacity to inform an adaptive management approach to salinity management, and provide information to local communities and individual resource management on the effectiveness of their programs. State Governments need to facilitate the development of a consistent adaptive management framework and provide technological and data management support to inform consistent state-wide approaches. The development of an integrated approach to adaptive management should be brokered by the peak natural resource management body in each state, such as the State Catchment Management Coordinating Committee, and involve key resource management and community stakeholders.

In an integrated NRM context the objectives for managing salinity need to be supported by measurable targets that can be used within an adaptive management context to determine new science needs, refine policy and advise Government on program performance.

Each CMB/A need to develop an integrated communication strategy, as part of a consistent national and state approach, to provide community recognition of available scientific knowledge, current data and literature, monitoring reports and details of research and university programs. Such a strategy needs to be supported by CMB/A Internet portals (web sites that provide links to other existing sites and embedded data) that provide local access to real time scientific information, partnerships supporting local and regional strategies and details of current resource status. This would need to be coordinated on a national and state basis to prevent duplications.

Each CMB/A needs to be supported by a consistent framework for implementing local strategies and implementing a variety of NRM outcomes. Such an approach could consist of 3 key components, which are:

- Sub Catchment / Subregional Plan
- Property Planning
- Property Agreements

Links to local and regional planning and local government programs is important. A real life example for the Hawkesbury-Nepean can be seen in the Precinct Plan for St Mary's that is currently open for comment through Blacktown Council. This plan fails to adequately acknowledge salinity as an issue of environmental impact, does not consider it is a water quality issue, and fails to integrate its management with other NRM strategies for the site.

2. Subcatchment/ Subregional Planning

World views of salinity (and other NRM issues) varies at an agency and community level and landholder level. Recognition of key issues is often taken for granted between stakeholders.

Subcatchment/ subregional planning that seeks to facilitate local action strategies based on common recognition of issues and shared implementation of outcomes can provide an important role for integrating external science and local knowledge. This process is facilitated by local extension staff and based on core agency data that seeks to promote a common and enhanced understanding of the issue and develop a

strategically based science to resolve the problem. Such an approach identifies roles for external science providers and options to empower local participation in expanding and promoting local knowledge and developing responses that may be supported by property planning and property agreements.

The development of subcatchment/ subregional plans needs to involve key state agencies, local landholders and local government and be informed by all contemporary science, natural resource data, local landholder and indigenous knowledge. All agency data needs to be made available, and where appropriate, recaptured by spatial databases following the inclusion of local knowledge.

All subcatchment/ subregional plans need to be endorsed by the CMB/A and comply with or inform the adaptive management of regional plans and monitoring strategies.

3. Property Planning

Subcatchment/ Subregion plans need to be implemented at a farm level and this can be supported by the development of property plans. Local extension staff can facilitate the development of these plans. A balance is required between productive farm activities and sustainable natural resource management. The plans should seek to promote sustainable economic outcomes that are based on holistic management of the soils, native and exotic vegetation and water resources. These plans need to reflect the application of science at farm level and promote outcomes that manage/ rehabilitate any local salinity and promote a balanced approach to managing local/ regional water tables.

Accredited property plans that relate to approved Catchment Blueprints and sub catchment/ sub regional plans should provide a licence for local individuals to manage native vegetation, water and other contestable natural resources and provide a framework for external investment (including taxation issues) in the management of key natural resource outcomes.

Such an approach would require new Commonwealth - State partnership agreements to reinstate a program similar to the former Farming For the Future program.

4. Property Agreements

Implementation of science through accredited property plans needs to be supported by investment in key sustainable outcomes that reduce/ manage salinity and other community environmental services. Such an approach can be supported by a property agreement between the appropriate agency and landholder that can integrate a range of environmental service investment and NRM objectives into a single package.

In the Hawkesbury-Nepean catchment the Department of Infrastructure Planning and Natural Resources currently promotes improved catchment management outcomes through a Catchment Protection Scheme that is jointly funded by DIPNR and the Sydney Catchment Authority. The current Scheme is established under Section 10 of the Soil Conservation Act and targets erosion control, salinity, improved native vegetation management, streambank erosion and more sustainable landuse based on land capability. The DIPNR/ SCA Catchment Protection Scheme has operated successfully in the Hawkesbury-Nepean and Shoalhaven catchments since 1970.

Through a single property agreement and an integrated environmental services investment package the ability exists to promote the adoption of science to manage

salinity as a component of a catchment based integrated NRM package. Such an approach can be linked to various performance indicators and promote long term attitude change by the need to comply with conditions within the property agreement.

Term of Reference c) *Adequacy of technical and scientific support in applying salinity management options.*

The precautionary principle needs to be applied when existing scientific knowledge is used in the management of salinity. Existing knowledge should be used to manage salinity within an adaptive management framework supported by a consistent performance standard and monitoring/ reporting framework so that existing knowledge gaps are not used to defer further action. This needs to be progressed within the constraints of existing institutional capacity and community/ local government networks.

The performance of regional/ local salinity management programs needs to be benchmarked against other CMB programs so that the existing science can be used to evaluate current performance with the results used to review, and if necessary amend, current program implementation/ investment and policy setting. Program performance analysis should also be benchmarked against current scientific knowledge, and existing knowledge gaps identified as possible areas for future scientific collaboration.

Analysis of knowledge gaps may require the CMB/A to commission future research. Research of state and regional significance would need to be coordinated and commissioned by the appropriate staff body to ensure the broadest relevance possible. Providers such as Universities, CSRIO, Consultants, and particularly the Development Industry are stakeholders that would provide valuable input.

Each CMB/A needs to actively promote salinity/ NRM science by the prioritisation of extension programs and matching these resources to the areas of greatest need. Such an approach could promote routine regional salinity forums where research, extension staff together with the community could workshop contemporary issues and develop new research and extension collaborations.