WSROC

Inquiry into the Coordination of the Science to Combat the Nation's Salinity Problem

Submission to the House of Representatives Standing Committee on Science and Innovation

Western Sydney Regional Organisation of Councils Ltd

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This submission has been prepared in response to the House of Representatives Standing Committee on Science and Innovation *Inquiry into the Coordination of the Science to Combat the Nation's Salinity Problem.* The WSROC Board at its meeting held on the 16th October 2003 resolved that:

> *In relation to the Inquiry into the Coordination of the Science to Combat the Nation's Salinity Problem that WSROC:*
>
> *1) Prepare a detailed submission to the House of Representatives Standing Committee on Science and Innovation Inquiry into the Coordination of the Science to Combat the Nation's Salinity Problem;*
>
> *2) the Environment Spokesperson and the Executive Director be delegated authority to approve this submission; and*
>
> *3) the submission be tabled at the November 2003 Board meeting for information.*

Summary

It is generally recognised that salinity is an issue of prime importance for Australia to address. Research and management must be intimately linked by an efficient and timely feedback process that will allow the ongoing development of effective options for managing salinity. To facilitate this process WSROC suggests that:

- Research should address the development of tools, strategies and systems that will assist landholders, natural resource managers, planners, industry and Local Government to make appropriate decisions. Any research should approach questions that contribute to practical, effective measures to combat the problem;
- a feedback process needs to be established between practical end user needs and researchers to drive research in a direction that will assist with refining and improving measures to combat salinity;
- salinity research needs to be considered in terms of its potential impact on the broader community and the economy;
- the unique issue of urban salinity and its impact on major infrastructure should be given greater consideration by the Commonwealth Government in any National strategy or framework; and
- research should address the potential impacts of salinity on agriculture in the Sydney basin, particularly as this provides a significant market for fresh food to a major Australian city.

Application of salinity research to management options

Emphasis on research appears to be on biophysical and hydrological processes relating to salinity. Researching biophysical and hydrological processes is undeniably necessary, but with a national issue of such importance, a current weakness that needs to be addressed is the timely translation of this research into information, tools, applications and systems that land managers can readily use.

Salinity research (urban or rural) must address the need for appropriate tools, applications and systems by those we have entrusted to make decisions that affect the environmental, economic and social well-being of our communities. To date, research appears to be largely focussed on biophysical and hydrological processes relating to salinity. Research into biophysical and hydrological processes is undeniably important to our understanding of the nature of the problem.

However, there needs to be a concerted effort to capitalise on this research in a practical way by developing the appropriate tools to best manage salinity. Research needs to examine and take into account social and economic responsibilities and, more importantly, capabilities of landholders, natural resource managers, planners, industry and Local Government.

A critical aspect to effectively managing salinity is developing and implementing a process that will facilitate timely translation of research into the development of tools and systems that are readily accessible, practical and easy to use by the general community, planners, council staff, land managers, assets managers, legal entities and policy makers.

Suggested areas of useful research would include the ongoing development of useful tools for decision makers, for example:

- the development of appropriate and consistent measures of salinity;
- the development of a suite of salinity indicators to provide early warning; and
- the development of systems for monitoring salinity, in order to ascertain whether management decisions are having a positive, negative, or no effect.

It must be emphasised in relation to the preceding points that such indicators, tools and systems must be practical, accessible, easy to use, and effective for combating salinity. Science and its application by end users to combat salinity cannot work in isolation from each other when tackling this significant problem. The information and knowledge derived from research must be distilled into formats that are relevant to end users to be effective.

A regional approach?

A regional scale approach within a common national framework may work well for salinity problems if there is a body that can draw together a network of relevant stakeholders and their expertise. Taking a regional approach within a national framework will allow broadly consistent approaches while allowing regional flexibility in the application of appropriate solutions. Regional organisations can act as useful facilitators and networks.

An example of this is the development of the Western Sydney Salinity Code of Practice, an attempt to link National, State and local initiatives within a regional management framework to provide a coordinated response to urban salinity in Western Sydney. The project was funded by the Commonwealth, administered through WSROC, and guided by a Salinity Working Party that included representatives from NSW State Government environmental and planning agencies, housing and industry peak bodies, and Local Government staff.

Technical input was provided by State Government planning and environmental agencies, as well as from housing and industry peak bodies, Local Government, and legal entities.

Various ways in which this information was disseminated included:

- Forums tailored to specific stakeholder groups;
- Cross-disciplinary training for council staff (planners, parks and gardens maintenance, asset managers, legal staff, environmental staff);
- Promotion of the Code of Practice on WSROC's website;[1]
- Media releases;
- Segment on urban salinity in the ABC program "*Silent Flood*";
- To the general community at Council organised community events; and
- Meetings with other stakeholders that expressed specific interest.

[1] www.wsroc.com.au

The continuation of the Salinity Working Party provides a link between State Government technical and research programs, industry peak bodies, and Local Government. This is an essential feedback loop between end users and entities coordinating research and technical processes. One significant group not included here is the commercial private sector.

Closing the gap between science, policy and management

Two-way communication and feedback that is timely and constructive is critical in linking research and those who need to implement solutions. Communication from researchers and technologists must be able to distil complex technical and theoretical concepts into a user-friendly format for land managers, policy makers and decision makers. Constructive feedback from users to researchers and technologists is essential to allow refining of assumptions, systems and tools to improve their application and effectiveness in real world situations.

Essentially, there needs to be recognition that science is problem oriented and Government is service oriented. Salinity research isolated from broader social and economic considerations are likely to be ineffective. Taking this into account, a useful working definition of salinity may be that proposed by Colin Bastick[2]:

"*Salinity is the increased accumulation of excessive salts in land and water to sufficient levels to impact on human and natural assets (eg plants, animals, aquatic ecosystems, water supplies, agriculture, or infrastructure). Primary salinity is where increases in salinity have occurred solely through natural processes and secondary or induced salinity is where increases have occurred due to land use changes made by human activity. Because salinity can be produced by a variety of distinctly different land management and ground water flow systems no one approach to managing salinity will work in all cases.*"

This definition begins to encapsulate the complexities that underlie the processes and management options relating to salinity.

The Western Sydney Salinity Code of Practice is an example of a product that was derived from a perceived need among Councils in Western Sydney concerned about the effect that urban salinity may have on land use planning and maintenance of their assets. While not the perfect or only answer, it is an example of end-user needs drawing in the relevant research and technical expertise to provide guidelines that Councils and other organisations can refer to in relation to salinity. That the Code of Practice has proven to be highly sought after reflects the need of numerous organisations for tools that can help them to address issues relating to urban salinity.

Other issues

Urban salinity is a dynamic problem that influences, and is influenced by, the changing urban environment, irrespective of political and economic boundaries. Individual decision makers need information that is relevant to their role that will enable them to make appropriate decisions in a salinity-affected landscape.

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Integrated water management is an important issue that is the broader context within which urban salinity research needs to be considered. This includes accounting for how salinity affects, and is affected by, stormwater management, water sensitive urban design, and community behavioural norms. Salinity impacts and their management in urban areas such as Western Sydney are critical due to the value of assets in highly urbanised areas that are maintained by Councils, State Government utilities, the Commonwealth and the private sector.

It is also not often appreciated that there are significant areas of agriculture remaining in Western Sydney that are subject to increasing pressure along the peri-urban fringe. The potential impacts of salinity on agriculture in the Sydney basin are not clearly understood. Yet, this is an industry that provides a significant market for fresh food to Sydney. Long-term impacts due to loss of agriculture would include the cost of importing fresh foods to Sydney, an increase in traffic to import food, and loss of employment in regional agricultural services.

Salinity affects land use planning in urban areas; and land use planning in urban areas affects salinity processes in turn. It is an ongoing, dynamic process that requires active, ongoing research and management. Static or narrowly focused approaches will be ineffective.

Recommendations

1. Research should address the development of tools, strategies and systems that will assist landholders, natural resource managers, planners, industry and Local Government to make appropriate decisions. Any research should approach questions that contribute to practical, effective measures to combat salinity.

2. Establish a feedback process between practical end user needs and researchers to drive research in a direction that will assist with refining and improving measures to combat salinity.

3. Salinity research needs to be considered in terms of its potential impact on the broader community and the economy.

4. The unique issue of urban salinity and its impact on major infrastructure should be given greater consideration by the Commonwealth Government in any National strategy or framework.

5. Research is needed to address the potential impacts of salinity on agriculture in the Sydney basin, particularly as this provides a significant market for fresh food to a major Australian city.