

Inquiry into coordination of the science to combat the nation's salinity problem

Submission

Salinity in its various forms has received high profile attention for some decades at the level of scientific research, national and rural media, resource management agencies and forums including landcare. However, by all projections the problem will continue to get worst and the uptake by landholders of practices to redress salinisation processes has been minimal in the context of the magnitude of the issue. The reasons for this are many, including the separation of response both in time and space from the cause, uncertainty over what is required to redress the problem, the enormity of the problem, economic pressures upon landholders, heterogeneity in values, aspirations and commitment of landholders to suggest a few.

Even if all these reasons could be addressed to the satisfaction of landholders and managers, one fundamental impediment would still remain. Traditionally our science has been undertaken by scientists in single theme oriented groups or agencies where the agency's or group's name usually casts a bounding perimeter around the activities of its member scientists- a perimeter that forms a silo to the exchange of ideas between disciplines and recognition of the implications beyond the theme. As a consequence, recommendations flowing from science usually address a single theme with the risk that today's solution becomes tomorrow's problem- the cane toad or carp syndrome.

In addition, the manner by which science rewards its scientists relies heavily upon peer review, a process that engenders a need to specialise to meet the demanding standards of one's peers who sit in judgement and stand to influence the evidence that determines a scientist's progression through the ranks. It is argued that this need for scientists to specialise is at odds with the needs of the landholder or manager who has to manage for a multitude of themes simultaneously.

Today's land managers have to be astute business operators with an ability to integrate across a wide range of disciplines of which salinity issues even in the worst situation are unlikely to top the list in the land manager's mind. Even if science had all the answers to salinity issues and there was broad public agreement, adoption and uptake will be still limited because land managers are not and cannot afford to be concerned only with a single theme.

There is a major lack of support in providing an environment where today's land managers and the community as a whole can integrate all the issues and values important to them and establish the collective mix of actions that is best both privately and publicly. In metaphorical terms, science has

concentrated on the main effects at the expense of the all-important interactions between the main effects. Particularly in the field of natural resource management there is a pressing need for science to take a more holistic approach, to concentrate on the gaps between the prominent main themes- science of the chasms.

The following figure seeks to provide a representation of the dilemma that many landholders and managers are confronted with and which, with the best will in the world, will remain a log jam to addressing salinity issues.

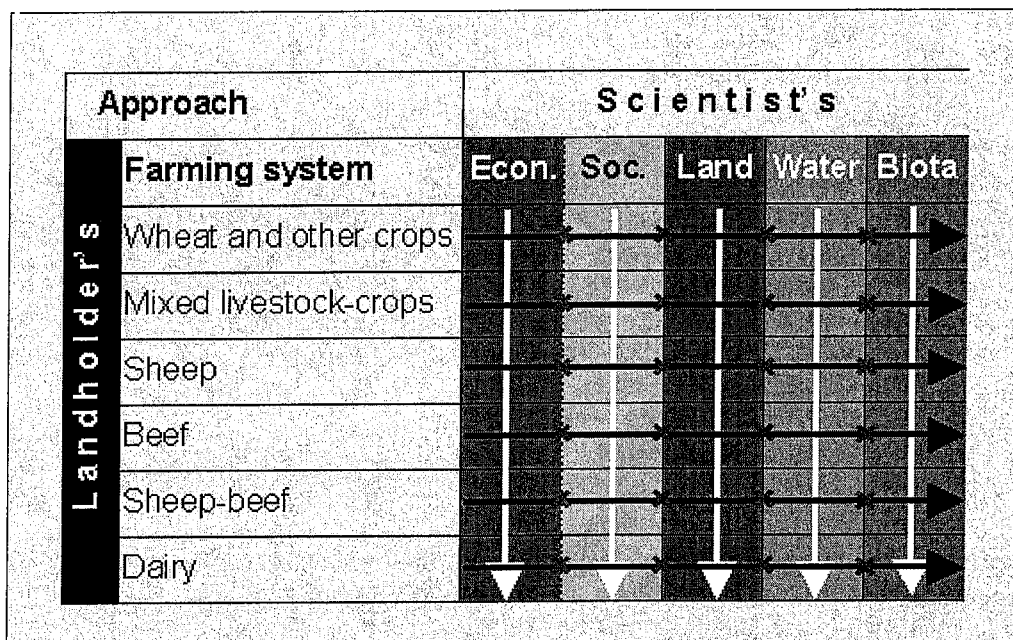


Figure 1: Diagrammatic representation of the contrasting approaches taken to resource management issues by scientists and landholders. The white arrows signify the scientist's single discipline focus. The black arrows signify the landholders' focus attempting to integrate across all themes and because the scientific input is single theme focus the interactions between the themes is poorly understood. In the absence of knowledge and tools to address the important interactions landholders and managers remain frustrated in adopting a management approach that integrates and gives appropriate recognition to the multiple themes. The red crosses signify the frustration experienced by landholders as they seek exchange between the theme silos.

Consequently we have a system where the pressure is upon the scientist to specialise- to become an expert in a field of choice (reductionist approach). The pressures to follow this route are subtle and can be even at odds with the stated policy or vision of their employer. Consequently over time, science increasingly takes a reductionist approach albeit unwittingly and in so doing serves to isolate its findings from the people who arguably are the ultimate target audience for adoption.

Recognising that although it is dangerous to mount a case around a single example, a practical example is nevertheless relevant. In developing Land

and Water Management Plan, the progressive Holbrook landcare group worked with their community and identified twelve catchment issues that were ranked to reflect each issue's relative significance in the minds of the community. The top three ranked issues were:

1. Declining economic viability of both the rural and urban sectors in the catchment.
2. Lack of knowledge, understanding and skills on natural resource management.
3. Increasing tree decline and dieback.

More traditional and agenda capturing natural resource management issues of increasing soil acidity and dryland salinity were ranked somewhat lower than the scientific and media message would suggest at fourth and seventh respectively. Ironically salinity could be the root cause of all three top issues, but in the absence of recognising the importance of interactions between the issues, the issues continue to be addressed in isolation. The fundamental risk is that secondary theme symptoms rather than primary theme causes are addressed- resulting in the cane toad syndrome.

Funding cycles for research and on-ground activities are driven by budgetary and election cycles and not by the realities of the primary issues. Again drawing upon a successful case, this time in the Yass Valley the site of a major project in the late 1980s that addressed dryland salinity. Recharge areas were identified, tree planting undertaken, piezometers installed within the three-year life of the project. Any collection of information ceased early in the project and any analysis was superficial. However, one landholder persisted with the result that there is now clear and substantive evidence of success in managing saline water tables, management of which has provided evidence of both production and environmental benefits. Ironically within the life of the project funding (3 years) no clear evidence was available of the benefits subsequently realised, rather it took a decade of detailed measurement before the evidence became convincing. Such time frames are not unusual for natural resource issues but a common term for project funding and prioritising issues convey an impression that results can be achieved within such a time frame thereby trivialising the issue and increasing the risk of today's solution becoming tomorrow's problem.

Experience in this project also raises other shortcomings in the delivery of science and engagement with landholders. Landholders feel let down and used when data is collected from their properties (whether they do it themselves or not) and no results or feedback is provided to landholders. For the above project this failure led to an abandonment of landholder participation. To this day substantial data collections from a major salinity study remain unanalysed and if not lost- then jeopardised as most staff and some landholders have moved on. If landholders are to remain committed it is imperative that realistic time frames are recognised from the start, expectations are managed and obligations fulfilled.

Coordination remains a vital and often the Achilles' heel in the delivery of scientific recommendations to landholders- whether it is across agencies, across landholders, across disciplines, across time, across programmes etc. The bottom line is that in many areas it is not the science directly that is lacking but rather the capacity, and sometimes the will, to ensure maximum transfer and benefit is obtained in managing salinity issues from the disparate components.

Background

I have prepared this submission from a unique and privileged position. I have been involved in managing the family property *Talaheni*, in the Yass Valley for more than 20 years. *Talaheni* is situated in one of the most saline areas of the Valley, and the Valley is well recognised on the State's 'most salinity affected registrar'. In that time we have successfully managed saline groundwater and documented production and environmental benefits both locally and more widely. This success is increasingly being recognised by significant parties with the receipt of a Land and Water Australia Community Fellowship last year and being awarded the Telstra CountryWide Landcare Research Award for New South Wales in August this year. In addition, I have had numerous invitations to talk to farmer and other groups and have hosted many field days on *Talaheni* over the years.

On the other side I have been actively involved in scientific research for more than 35 years dealing predominantly with natural resource management issues, including dryland salinity, frequently in partnership with landholders across many regions of Australia.

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