

Salinity Inquiry
Submission No. 27.....

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House of Representative Standing Committee
On Science and Innovation
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SUBMISSION TO
THE INQUIRY INTO CO-ORDINATION
OF THE
SCIENCE TO COMBAT
THE
NATION'S SALINITY PROBLEM

Warren Elsbury
Company Secretary
Murray Irrigation Limited

MIL & Salinity Research

Murray Irrigation Limited is Australia's largest private irrigation company supplying irrigation water to 1,600 family farm business covering 2,400 irrigation holdings in Southern NSW. A diverse range of products are grown including rice, milk, canola, wheat, tomatoes, potatoes, onions, meat and wool. The annual farm gate production from the region is around \$300 million. Irrigated agriculture is the foundation of the social and economic wellbeing of our towns and regional businesses.

Murray Irrigation Limited is committed to its stewardship of this important and special part of the Murray Darling Basin. We have taken on a role beyond water delivery, with a vision to underpin the sustainability of irrigation in the Mid Murray Valley. Foremost has been our leadership of the Murray Land and Water Management Plans (LWMP), a massive fifteen year program to improve environmental management capacity for the irrigator. The four plans – Berriquin, Cadell, Denimein and Wakool are a major investment by our shareholders and government in on ground works to tackle the issues of irrigation salinity and biodiversity.

The Murray LWMPs are an integrated strategy of on farm and district scale works, education, monitoring, research and development. They are implemented through a thirty year \$498 million community/government funding program. The principle driver for the development of the Murray LWMPs was the significant threat of broad scale landscape degradation from rising water tables and resultant salinity. Prior to plan development, the Department of Water Resources undertook modelling which predicted that by 2020, 50% of the region or 470,000 hectares would have water tables with two metres of the surface. This would threaten biodiversity, increase Murray River salinity and reduce farm productivity. The LWMPs have managed to turn around this threat and in this, its eight year of implementation, the area with a water table within two metres from the surface is 5,132 hectares down from over 110,000 hectares in 1997.

A great deal of science went in to the development of LWMPs with extensive input from NSW Agriculture, the Department of Land and Water Conservation, CSIRO and various consultants. In order to continue this innovation and scientific rigour behind the plans, and extensive research and development program was built into the Land and Water Management Plan package.

Current Land and Water Management Plan R & D projects include:

- Quantifying irrigation and rainfall run-off of irrigation farms.
- Further policy development of management options for sustainable irrigated agriculture.
- A protocol for sustainable, commercially viable aquaculture using inland saline groundwater.
- Identification, measurement and remediation of open channel seepage.
- Review and evaluation of technical and economic feasibility of previously proposed on farm and regional management options in the Green Gully area.

- Optimisation of the Wakool Tullakool Sub-surface Drainage Scheme
- Inland Saline Aquiculture trial

Completed projects of the Land and Water Management and R & D program include:

- Determining the efficiency of supply irrigation water.
- Identify and quantify the contributions of physical processes and management practices on groundwater recharge under irrigated perennial pastures.
- Paddock scale water balance determinations for irrigated crops grown under good management practices.
- Refinement of soil assessment to determine rice soil suitability.

In carrying out these projects Murray Irrigation and the LWMPs have developed close linkages with research organisations within and around our area of operations including CSIRO, Victorian DNRE, NSW Fisheries, NSW Agriculture and independent researchers.

INQUIRY ISSUES

Comments On The Existing Situation

How to ensure the best scientific knowledge and expertise is, and continues to be, used to address the problems presented by the nations salinity challenge?

1. How is the relevant scientific knowledge being utilised in the development, management and implementation of salinity programs;

- There seems to be an inconsistency in scientific knowledge being used in development, management and implementation of salinity programs. In our region, the latest strategic plan is the Murray Catchment Blueprint which is an extremely important document prioritising funding for salinity management for the next ten years. This document has used very little science to prioritise a budget of more that \$20million a year on salinity related remediation works. Given the scale of the budget and the ability to have adverse impacts on existing programs in various sub catchments, this important document should have used a great deal of science to plan catchment management over the next ten years. The Murray LWMP's on the other hand are underpinned by substantial research prior to implementation and ongoing research is helping to refine salinity actions.

Recommendation

Standards for substantiating science must be developed prior to government funds being handed over to NSW catchment funding organisations.

- Murray Irrigation believes there is a lack of new ground breaking science emerging to tackle salinity problems. There is some technology to help map salinity but not to deal with the problem either through prevention or cure. Technical information that is published on dealing with salinity seems to be adapted old technology rather than true innovation. An example of this is the recent emergence of the 'science for decision makers' produced by the Australian Government Bureau of Rural Sciences. A specific issue, looking at the Billabung Creek talks about new mapping techniques but no new science about prevention or cure of the salinity itself. The most recent control method to our knowledge is the serial biological concentration research that CSIRO conducted some years ago.

Recommendation

Salinity research needs to devote the majority of research effort into innovation that improves techniques to prevent or control salinity.

2. The nature and effectiveness of the linkages between scientists and technologists conducting research into salinity, and those implementing salinity interventions on ground;

- Murray Irrigation and the LWMPs have strong linkages with CSIRO Griffith and a great deal of research has been carried out in relation to salinity by CSIRO in our region. This information is available to MIL and Land and Water Management Plan staff along with landholders associated with the LWMPs and the specific Land and Water Management Plan Research and Development Committee. This research has led to improved irrigation management through implementation of MIL's total farm water balance policy, adoption of sodicity criteria for rice growing and adaptation of the SWAGMAN Farm model to assist achievement of a farm water balance for the region.
- In considering the big picture of salinity research across Australia, linkages with implementation staff at Murray Irrigation and the LWMPs, performance is poor. Outside our region we have no linkages to researchers.

Recommendation

Creation of a national database for salinity research needs to be set as a high priority, whereby implementers are able to search for relevant information or research on a topic. This database would need extensive administration to maintain its accuracy and relevance. There would also need to be some administration support for those trying to use the system. This could be in the form of a web based database.

3. *How current research into salinity and information on options to address the problem are being distributed across jurisdictions, agencies, and to all relevant decision makers;*

- Murray Irrigation and the Land and Water Management Plan distribute salinity research information on the Murray Irrigation website, www.murrayirrigation.com.au, and through our Land and Water Management Plan Working Group Consultation Network. However, outside our region it is more difficult for us to ascertain information on salinity research in other areas. To our knowledge there is no central service or agency that delivers such information other than the MDBC who have a number of resources available on their website. This is a problem not only with salinity research, but all agricultural research where even at a district scale there is a lack of awareness of the different types of research occurring. There is little doubt that salinity research dollars are being wasted as duplication or under utilisation of research is occurring due to lack of a co-ordinated approach.
- Much research does not reach end users as it seems that those conducting the work are less concerned with its implementation than the research itself.

Recommendation

A condition of government funding must be that extensive end user consultation and collaboration is carried out as part of the project. It is imperative that researchers' success is measured by the level of

implementation of their innovation not by the number of papers they produce.

4. *The adequacy of science and technical support for those on the ground implementing salinity management options.*

- As Murray Irrigation and the Land and Water Management Programs have their own research and development program, and linkages with key research organisations in the region we have developed our own network of scientific and technical support for our on ground implementation staff. There is, however, a huge gap at a broader geographical scale when it comes to scientific and technical support for implementation staff. Our linkage with CSIRO has developed to an extent where we have one or two CSIRO staff working in our office. This has helped enormously in providing scientific and technical support for on ground implementation staff.

Recommendation

Scientific and technical support for implementation staff could be vastly improved by billeting of researchers into extension organisations to build relationships. This technique has worked exceptionally well for Murray Irrigation Limited.

5 *Other Recommendations*

- Murray Irrigation believes there is a need for more strategic direction in salinity research that could be guided by a group of on ground implementers of salinity programs. This group would publish its thoughts on the future direction of research and present to research organisations across Australia.
- Murray Irrigation strongly believes that researchers need to maintain their integrity by remaining apolitical. Scientists should not be advocates as is the case with the environmental movement. By entering the political area, researchers lose credibility as they need to take a political side rather than dealing exclusively with facts. For example the involvement of the CSIRO in the Wentworth Group has undermined community confidence in the independence and professionalism of the organisation.
- There is a lack of knowledge regarding the linkages between salinity and other environmental issues such as river ecology.