

Know-how to tackle salinity for:

- CATCHMENTS
- POLICY
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Evaluating the efficacy of engineering options

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BACKGROUND—WHAT WE WANTED TO KNOW

This project aimed to provide the knowledge and tools to help salinity managers determine what engineering salinity management options will have a high potential for success and be cost-effective within their area—either alone, or in conjunction with other tools. It also looked at environmental impacts and social issues in the decision-making process.

OUTCOMES—WHAT WE NOW KNOW

Engineering solutions directly intervene in groundwater processes and can provide significant advantages as an integrated part of dryland salinity management. The project has confirmed that the following engineering options can be effective in dryland salinity management:

Option	Sub-options
Groundwater pumping	Single Bore Multiple single bores Bore or Spear point Relief Bore
Shallow surface drains (recharge control)	Spoon drains "W" drains
Deep surface drains (water table management)	Open drains
Sub-surface drainage systems	Mole drains Tile drains Biopolymer (deep) drains Interceptor drains
Construction approaches	Corrosion resistant construction materials and approaches Adherence to construction standards

The effectiveness of any particular option varies with local conditions such as groundwater flow system, discharge sites and local environmental conditions and the option's economics. A web-based decision-support tool for salinity managers was developed to help assess these conditions.

One of the key issues which continually arises in the evaluation of engineering options is the disposal of groundwater, which is often saline, and evaluation of the impact on the surrounding environment. This project found that successful or unsuccessful implementation of an engineering scheme is affected by the community attitude to disposal of the water generated.

A survey of salinity managers showed that where the community is informed and has an understanding of the issues associated with dryland salinity, there is enthusiasm to participate in

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action against the problem. It would also appear that current circumstances are conducive to introducing effective solutions to mitigate dryland salinity. Barriers to implementing engineering options include technical and economic unfeasibility, opposition to saline discharge and a lack of funding.

Overall, in evaluating the various engineering options there has been limited information available to establish definitive case studies—only 17 case studies were considered to have adequate relevant information on the application of engineering options in a dryland context. The project highlighted the lack of effective documentation of activities that are being conducted and limited implementation of engineered solutions to salinity management and the limited current knowledge available to assist communities in assessing salt loads, impact on downstream water quality and the costs of disposal.

WANT TO KNOW MORE?

The project produced a range of information and support tools, such as:

- A web-based decision-support tool including basic modelling tools, literature reviews, case studies, fact sheets and a site evaluation and options selection process.
- A CD-ROM of the proceedings from the SA Dryland Salinity Committee forum *'To Drain or Not To Drain'* on drainage management options for salinity.
- Several articles in the NDSP's *Focus on Salt* (editions 18, 22, 24 and 27).
- A poster and various media releases.

Go to:

- National Dryland Salinity Program: www.ndsp.gov.au

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