

Dryland Salinity

in the Queensland portion of the Murray-Darling Basin



What is it costing you?

Background

Dryland salinity has long been recognised as a significant and worsening problem across many areas of Australia. However, catchment groups still lack the tools to confidently answer the question “*What are the full impacts of dryland salinity in our catchment and how do we value them?*”. Without this information, it is difficult for catchment groups and governments to assess how much effort and money they should allocate to its management.

What are the potential impacts of dryland salinity & who bears them?

The potential impacts of dryland salinity in both the urban *and* rural areas of the Queensland portion of the Murray-Darling Basin fall into two main classes:

- Impacts from saline water supplies; and
- Impacts from saline watertables that have risen close to the soil surface.

The impacts of saline water supplies may include damage to household water appliances such as hot water services, damage to commercial water appliances such as water cooling units, and increased production costs for irrigators.

The impacts of high saline watertables may include lower agricultural yields, structural damage to buildings, deterioration of parks and gardens, and damage to other infrastructure such as roads, telephone, water, electricity and sewerage systems.

There are a number of stakeholders within the Region who are affected by dryland salinity. These include:

- urban householders;
- agricultural producers;
- Local Governments;
- commercial and industrial businesses;
- State Government Agencies; and
- Water, Gas, & Electricity utilities.

The broader community may also be affected by dryland salinity in the Region. This may be due to flow-on regional economic and social impacts, to costs imposed on downstream irrigation, household and industrial water users or damage to cultural heritage or the environment.

What is being done to assess the impacts?

To help identify the *actual* impacts and costs of dryland salinity across the entire Murray-Darling Basin, the Murray-Darling Basin Commission and the National Dryland Salinity Program have funded a 3-year research project entitled “*Determining the full costs of dryland salinity across the Murray-Darling Basin.*”

The primary aims of this project are to;

- produce a Guidelines document that catchment groups can use to help answer the questions “what are the full impacts of dryland salinity in our catchment and how do we value them?”;
- implement the Guidelines to obtain information on the current nature, distribution and cost of dryland salinity to all stakeholders across the Murray-Darling Basin.
- trial the Guidelines outside the Basin to ensure the approach is applicable across Australia; and
- store the final results on a centralised Basin-wide GIS.

Wilson Land Management Services and Ivey ATP are the joint managers of this project.

What are the impacts & costs of dryland salinity in the Region?

Research conducted as part of this larger project indicates that within the Qld Murray-Darling Basin, dryland salinity is imposing large costs on local governments, households, businesses, agricultural producers, state government agencies & utilities, the environment & cultural heritage. Many of the adverse impacts are attributable to saline town water supplies and urban salinity problems currently affecting stakeholders in the Region’s urban town centres.

Local Governments: were found to incur costs of *at least* \$150,783 per annum due to the presence of dryland salinity. The cost of shortened lifespans of rural roads represent the largest annual cost, at around 68 per cent of the total.

Costs to Local Governments

– Increased repair & maintenance expenditure:	
Rural minor & non-sealed roads	\$7,600 /yr
Urban roads	\$2,798 /yr
Other infrastructure	\$17,659 /yr
– Increased water treatment costs	\$0 /yr
– Increased construction costs	\$4,000 /yr
– Cost of preventative works	\$0 /yr
– Cost of shortened lifespans:	
To rural roads	\$102,333 /yr
To urban roads	\$4,086 /yr
Other infrastructure	\$12,307 /yr
– Cost of reduced rate levies & rebate schemes	\$0 /yr
– Cost of education, research, & extension programs	\$0 /yr

TOTAL: \$150,783 / yr

Households and businesses: were found to incur average costs of approximately \$20.55 million per annum as a result of dryland salinity. Saline water supply damage to commercial & industrial water users and households clearly dominate total annual costs, with high saline watertable damage to households and buildings representing less than 2 per cent of total costs.

Costs to households and businesses:

– Saline town water supply damage:	
To households	\$9,810,619 /yr
To commerce & industry	\$10,659,070 /yr
– High saline watertable damage:	
To rural households	\$10,875 /yr
To urban households	\$40,350 /yr
To commercial & industrial buildings	\$24,150 /yr

TOTAL: \$20,545,064 / yr

State Government Agencies and Water, Gas, & Electricity suppliers: were found to incur average annual impact costs of *at least* \$216,737 per annum due to dryland salinity. They have also incurred a further \$2,094 per annum implementing salinity-related preventative works and conducting community education, research and extension programs.

Costs to State Governments & infrastructure-based utilities

– Increased repair & maintenance expenditure:	
To highways & main sealed roads	\$21,400 /yr
To railway infrastructure	\$71,041 /yr
To other infrastructure	\$0 /yr
– Cost of shortened lifespans:	
To highways & main sealed roads	\$123,500 /yr
To other infrastructure	\$0 /yr
– Increased construction costs	\$796 /yr
– Cost of preventative works	\$981 /yr
– Cost of education, research, & extension programs	\$1,113 /yr

TOTAL: \$218,831 / yr

Agricultural producers: were also found to incur costs of \$2.77 million per annum as a result of dryland salinity in the Region. Somewhat suprisingly, only \$30,045 per annum (or 1.1 %) of this total cost is attributed to foregone agricultural income. The bulk of this cost is due to increased repair & maintenance costs, higher construction costs, preventative works, shortened lifespans of infrastructure, and increased operating costs.

Costs to agricultural producers

– Increased repair & maintenance expenditure	\$1,379,835 /yr
– Foregone income	\$30,045 /yr
– Increased construction costs	\$566,819 /yr
– Cost of preventative works	\$417,067 /yr
– Cost of shortened lifespans	\$28,812 /yr
– Increased operating costs	\$345,723 /yr

TOTAL: \$2,768,303 / yr

Clearly, the total current cost of dryland salinity to agricultural and non-agricultural stakeholders in the Queensland Murray-Darling Basin is significant at around \$23.68 million per year. Of this total amount, however, an estimated 86.4 per cent has been incurred as a direct consequence of saline town water supplies to households, commerce and industry in the Region.

While the environmental and cultural heritage impacts have also been assessed, they have not been valued in dollar terms. Hence the true social cost of dryland salinity in the Region is even higher than the amounts indicated above.

If you would like further information on this study, please contact:

Dr Suzanne Wilson
Wilson Land Management Services Pty Ltd
or
Richard Ivey
Ivey ATP

Ph: (02) 6257 1447
Email: s.wilson@netspeed.com.au

Ph: (02) 6845 1611
Email: richard@iveyatp.com

The Guidelines document entitled “Dryland Salinity: What are the impacts and how do you value them”, together with the complete reports that describe the full impacts and costs of dryland salinity in all Regions in the Murray-Darling Basin, are available from the NDSP Website (www.ndsp.gov.au)