Dryland Salinity

in the Mount Pleasant sub-catchment of the River Torrens

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 Mount Pleasant sub-catchment of the River Torrens 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 catchment who may be 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 catchment. 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 the downstream 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.

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

What are the impacts & costs of dryland salinity in the Mount Pleasant catchment?

Research conducted as part of this larger project indicates that within the Mount Pleasant sub-catchment, dryland salinity is imposing moderate costs on local governments, households, businesses, agricultural producers, state government agencies & utilities, the environment & cultural heritage.

Local Governments: The Barossa Council was found to incur costs of *at least* $5,040 per annum due to the presence of dryland salinity in the rural and urban areas. The cost of increased repairs and maintenance to infrastructure other than roads clearly represents the largest average annual cost, at around 51 per cent of total costs. However, the cost of shortened lifespans to rural and urban roads also represent a significant cost, at around 20 per cent of total costs.

Costs to Local Governments	
– Increased repair & maintenance expenditure:	
Rural minor & non-sealed roads	$300 /yr
Urban roads	$320 /yr
Other infrastructure	$2,550 /yr
– Increased water treatment costs	$0 /yr
– Increased construction costs	$0/yr
– Cost of preventative works	$0 /yr
– Cost of shortened lifespans:	
To rural roads	$360 /yr
To urban roads	$630 /yr
To other infrastructure	$380 /yr
– Cost of reduced rate levies & rebate schemes	$0 /yr
– Cost of education, research, & extension programs	$500 /yr
TOTAL:	**$5,040 / yr**

Households and businesses: were found to incur average costs of at least $40,330 per annum as a result of dryland salinity. Saline water supply damage to urban businesses represents the largest average annual cost, at around 60 per cent of total costs. However, high saline watertable damage to urban households and saline water damage to businesses are also significant, at about 17 per cent and 9 per cent of total costs, respectively.

Costs to households and businesses:	
– Saline town water supply damage:	
To households	$24,110 /yr
To businesses	$5,150 /yr
– High saline watertable damage:	
To rural households	$3,580 /yr
To urban households	$7,050 /yr
To commercial / retail buildings	$450 /yr
To industrial buildings	$0 /yr
TOTAL:	**$40,330 / yr**

State Government Agencies and Water, Gas, & Electricity suppliers: were found to incur costs of at least $25,650 per annum as a result of dryland salinity. Of this total amount, however, almost $12,250 per annum (or a substantial 48 per cent) has been spent implementing dryland salinity-related preventative works and funding education, research and extension programs.

Costs to State Governments & infrastructure-based utilities	
– Increased repair & maintenance expenditure:	
To highways & main sealed roads	$760 /yr
To railway infrastructure	$0 /yr
To other infrastructure	$6,260 /yr
– Increased construction costs	$0 /yr
– Cost of shortened lifespans:	
To highways & main sealed roads	$930 /yr
To other infrastructure	$5,450 /yr
– Cost of preventative works	$1,500 /yr
– Cost of education, research, & extension programs	$10,750 /yr
TOTAL:	**$25,650 / yr**

Agricultural producers: were also found to incur costs of around $76,120 per annum as a result of dryland salinity in the catchment. Somewhat suprisingly, only $16,845 (or 22 %) 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	
– Foregone income	$16,845 /yr
– Increased repair & maintenance expenditure	$12,730 /yr
– Increased construction costs	$8,310 /yr
– Cost of preventative works	$36,295 /yr
– Cost of shortened lifespans	$1,335 /yr
– Increased operating costs	$605 /yr
TOTAL:	**$76,120 / yr**

Clearly, the total current cost of dryland salinity to agricultural and non-agricultural stakeholders in the Mount Pleasant sub-catchment is significant at around $147,140 per year. Of this total amount, however, only $98,095 per annum has been incurred as a direct consequence of salinity-related damage. The remaining $49,045 per annum has been spent implementing dryland salinity-related preventative works and education, research and extension programs:

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

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

Dr Suzanne Wilson — Ph: (02) 6257 1447
Wilson Land Management Services — Email: s.wilson@netspeed.com.au
or
Ian Laurie — Ph: (02) 6845 1611
Ivey ATP — Email: ian@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 the Mount Pleasant sub-catchment in SA, the Lower Fitzroy catchment in Qld, the Central West, Lachlan and Murrumbidgee Regions in NSW and in the Goulburn-Broken and North Central Regions in Victoria, are available from the NDSP Website (www.ndsp.gov.au)