

severe drought



“Our current experience of very dry conditions for many years now, and over so much of eastern Australia, may be another drought – or it may be something more ominous ...”

As the drought continued, prayer was abandoned and more devilish steps adopted. Finally soldiers with rifles marched to the tops of the hills and began shooting at passing clouds.

Laurie Lee, *Cider with Rosie*, Longman's Publishing Group, London and New York, 1959

Periodic droughts are an enduring feature of life in Australia. Over the 100 years between 1895 and 1995 we have experienced nine periods of serious drought. These periods have lasted from two to eight years. In each case drought was experienced in at least two states and on one occasion (1918–20) all states experienced drought conditions. Overall, serious drought has been experienced somewhere in Australia in 39 of these 100 years.¹

Because of the regular cyclical occurrence of drought, Australian farming practices have evolved so that, in good years, farmers try to make provision for drought by storing surplus fodder, silage and grain feeds. Security of water supply is a critical buffer to the immediate impacts of drought. During the last century, all Australian governments carried out major infrastructure projects aimed at 'drought-proofing' both rural areas and capital cities through the construction, and strategic siting, of large water storages across the mainland.

At the present time a significant proportion of Australia is experiencing a prolonged dry period and the Federal Government has officially declared this period a drought.

December rainfall totals for 2006 were generally well below average across the drought-affected

parts of eastern and southern Australia, with rainfall deficits remaining widespread over Tasmania, Victoria, South Australia, NSW and southern Queensland. It was the driest year on record (since 1900) across parts of the south, most notably in northern and eastern Tasmania, northeast Victoria and adjacent parts of southern NSW and the ACT.² While some areas are now experiencing their fourth or fifth year of drought conditions, people on the land are aware that dry conditions have prevailed for up to nine years in some places.

As drought conditions extend across a region, farmers defer sowing crops. They substantially reduce livestock numbers by either selling animals for slaughter or sending them to agistment. Animals that do remain on drought-affected properties have to be hand fed, either with feed that has been stored in good years or with purchased feed. This is a very expensive way for farmers to operate.

THE SERIOUS IMPACTS OF DROUGHT

Prolonged drought can lead to social and local industry decline and it can damage aquatic ecosystems. The depth of these direct impacts is not always felt in the big cities. Indeed our large

city populations are almost totally disconnected from the drought experiences of rural people – those on farms, living in small towns and owning or working in businesses in provincial centres.

Drought effects do show up in the national accounts. The 1982–83 drought was the most severe one experienced in the 20th century. It cost nearly \$5 billion in reduced production and insurance claims with a 40% drop in cereal grain, cotton and sugar production, the destruction of millions of livestock and thousands of tonnes of topsoil blown away in dust storms.³ Overall, gross domestic product (GDP) was reduced by 0.75%, with a 9% reduction in rural exports.⁴

In provincial cities and rural townships, the effects of drought are immediate and endure for several years after a drought has broken with good seasonal rainfall.

A recent business and industry survey reported that, overall, 59% of respondents considered that the drought was having a negative impact upon their business. The overwhelming impact was a decline in revenues for 77% of businesses.⁵



severe drought

When a drought is officially declared, governments respond by activating drought-relief schemes for farmers and rural communities. These have now evolved to the point where responses are in accord with Australia's *National drought policy*.⁶ The objectives of this policy are to:

- encourage primary producers and other sections of rural Australia to adopt self-reliant approaches to managing risks stemming from climatic variability

- maintain and protect Australia's agricultural and environmental resource base during periods of extreme climate stress; and
- ensure early recovery of agricultural and rural industries consistent with long-term sustainable levels.

We need to ask whether the dry conditions being experienced in much of Australia simply represent a prolonged severe drought, or whether they point to a fundamental change in our weather patterns; a change that will have major impacts upon the availability of fresh water in this country.

GLOBAL WARMING

If global warming continues and ambient temperatures are reset somewhere between 0.54°C and 1.24°C, the annual surface-water runoff will be reset accordingly. Predictions for Victoria are alarming. By 2030 there will be a deficit in surface-water runoff in 28 of the 29 surface-water management areas across the state of Victoria.⁷ Unfortunately, this sort of analysis is not available for all of the major river systems of southern Australia.

The 2007 report of the Inter-governmental Panel on Climate Change⁸ (IPCC) forecasts

rises in average daily temperatures by the end of this century in the range of between 2.0°C and 4.5°C, with a 3.0°C rise a strong possibility. Furthermore, it states that the average rise in global temperatures by the end of the century is unlikely to be less than 1.5°C.⁸ This increase in average temperatures, and the consequent shift in local climate conditions, will become an overlay, accentuating any natural change in our weather pattern that may take place concurrently.

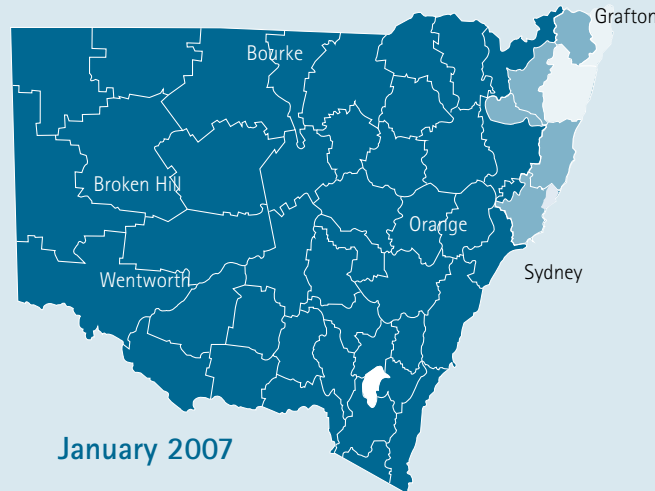


Figure 1. Areas in NSW declared for drought assistance

In the space of seven years, drought conditions have spread across Australia's most populous state. Even when there was some good seasonal rainfall (as in 2005), almost the whole state was drought-declared within the next year.

Source: NSW Department of Primary Industry, *Resource information – monthly maps*, <www.dpi.nsw.gov.au/aboutus/resources/maps>.

severe drought

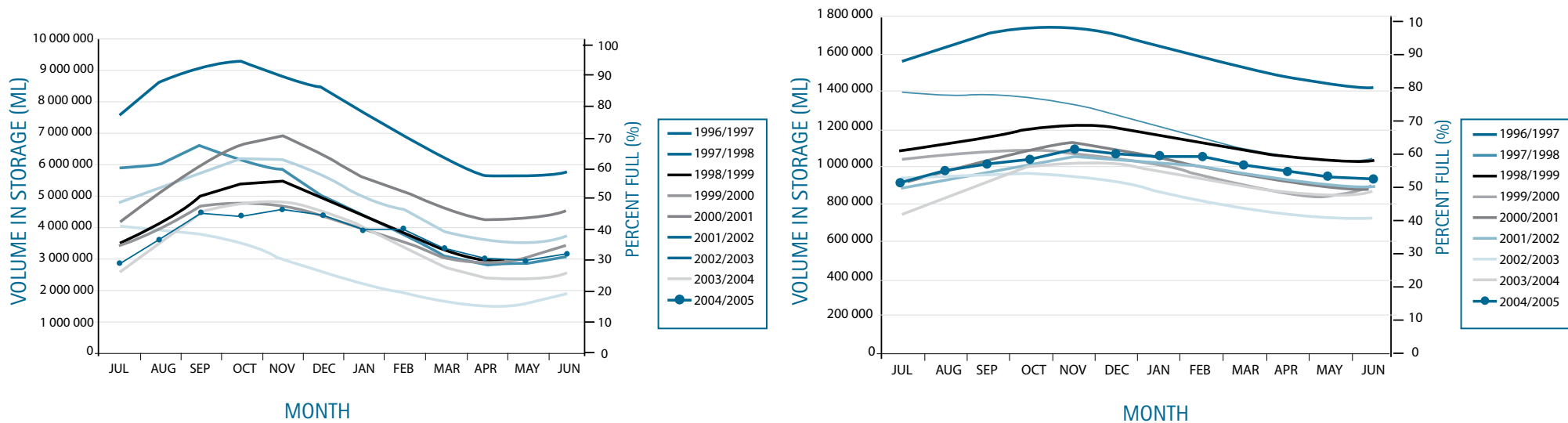


Figure 2. Water storage levels for rural water supplies and Melbourne's water supplies, 1996–97 to 2004–05

The longer the period of drought, the less water there is entering storages. For Victorian rural and metropolitan storages, as illustrated above, the volumes of surface water flowing into storages are declining year by year.

Source: *State Water Report: A statement of Victorian water resources*, DSE, Melbourne, 2005.
<http://www.dse.vic.gov.au/DSE/>.



THE BIG PICTURE severe drought

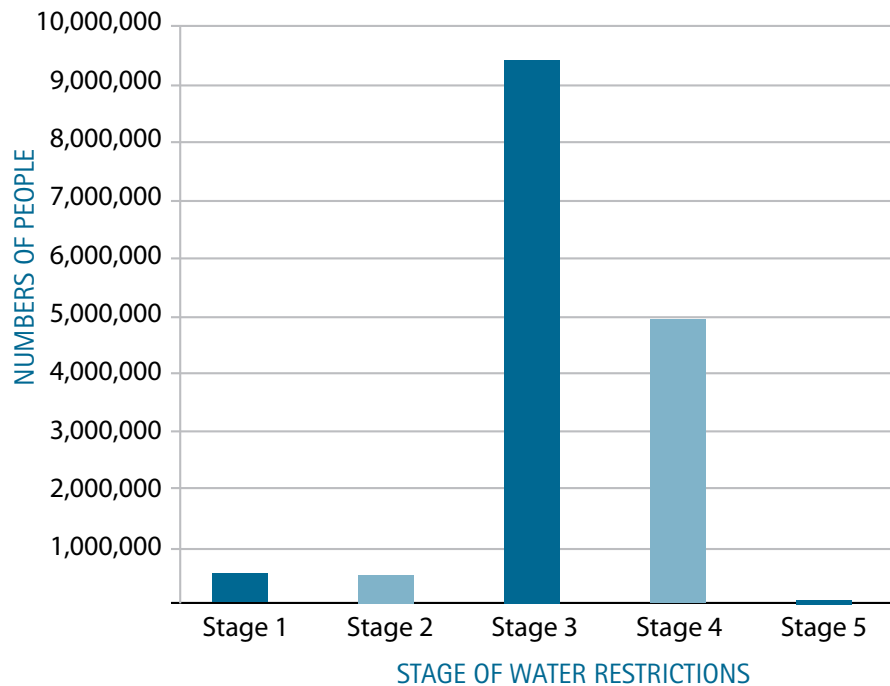


Figure 3. Water restriction levels for Australian cities and towns with a population greater than 50 000

At the end of December 2006, water restrictions applied in 28 out of 32 cities across Australia with a population greater than 50 000 people. A total of 15 602 000 people were on Stage 3 or Stage 4 restrictions. This represents 71% of the Australian population.

Source: Water Services Association of Australia, <<https://www.wsaa.asn.au/download/2006/Dec22Restrictions.doc>>.

▶ REFERENCES

1. Bureau of Meteorology, *Drought trends*, BOM, Melbourne, <www.bom.gov.au/climate/drought/livedrought.shtml>.
2. Bureau of Meteorology, *Drought statement*, 4 January, 2007, BOM, Melbourne, 2007.
3. S Power, G Loughlin & A Clark, *Drought in Australia: impacts, mitigation, monitoring, policy and prediction*, Convegno Siccita. Cagliari-Villasimius, 2000, p. 2.
4. Australian Bureau of Agricultural Research Economics, *Australian commodities forecasts issues*, no. 2, ABARE, Canberra, 1995.
5. Victorian Employers' Chamber of Commerce and Industry, *December quarter 2006, VECCI survey: Droughts and interest rates drive a drop in business confidence*, 29 January 2007, p. 2.
6. Department of Agriculture, Fisheries and Forestry, *Exceptional circumstances handbook*, DAFF, Canberra, 2006, <<http://www.daff.gov.au>>.
7. RN Jones & PJ Durack, *Estimating the impacts of climate change on Victoria's runoff using a hydrological sensitivity model*, CSIRO Report to the Victorian Greenhouse Unit, DSE, Melbourne, 2005.
8. IPCC established by the World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP), *4th assessment report - 2007: Mitigation of climate change, summary for policy makers*, p. 25.

Some other useful sources

- General information about Federal Government drought assistance is available at <<http://www.daff.gov.au/droughtassist>>.