

Water Resources

Rapid change is occurring as competition for water increases

This fact sheet is one of a series, developed from material presented in Victoria's first comprehensive State of the Environment Report. The Report is a major undertaking of the Commissioner for Environmental Sustainability and covers a broad range of environmental issues affecting the State. Its purpose is to improve community understanding of Victoria's environment, and through the use of recommendations, to enhance its condition for present and future generations. The report was released in December 2008 and is available at www.ces.vic.gov.au.

Key findings

- Victoria is heavily reliant on surface water (84% of water harvested), despite the increasing use of groundwater (13%) and recycled water (3%).
- Serious rainfall deficiencies over the past 11 years have reduced inflows to storages 30-60% below long-term averages.
- Irrigated agriculture accounts for about three quarters of water harvested in Victoria, and Melbourne for about 10%.
- Harvesting water from rivers and aquifers, altered flow regimes, loss of habitat connectivity and water pollution are key threats to the environment arising from the State's water management and are compounded by drought and climate change.
- Demand management strategies and major infrastructure programs have been implemented in response to current and projected risks to the security of urban water supply.

Improved water resource management is critical for sustainability

Streamflow in Australia is highly variable. In response, inland waters have been transformed to harvest, transport and control the movement of water. Per-capita storage capacity is the highest in the world.

In Victoria, the management of inland waters over most of the twentieth century was closely allied with a drive for development. Excessive and inefficient consumption was allowed and associated environmental impacts were largely ignored. Since the 1980s, governments have recognised that the environment has been damaged and that improving water resource management is critical to achieving sustainability. The current, historically significant drought and the serious risks posed by climate change have further focussed attention on the management and use of water.

Maintaining and improving the environmental condition of inland waters is essential to living well within our environment, and requires ongoing skilful and proactive management.

Improving water use efficiency, and the management of supply and demand in the context of the total water cycle, is necessary for economic prosperity and accommodating population growth.

Victoria depends on surface water sources

Surface water resources (rivers, streams, lakes and dams) are the most abundant fresh water resources in Victoria, followed by groundwater and recycled water. These resources and human settlements are interconnected in the water cycle.

Victoria's surface water resources are highly developed. There are about 70 major storages and very few opportunities to divert more water from rivers. There are also about 355,000 farm dams in Victoria. As surface water availability has declined, the use of groundwater has increased. Victoria's useable groundwater resource is relatively small at about 10% of the volume of surface water sources.

In urban environments there are also opportunities to use recycled wastewater, stormwater, rainwater and grey water. Wastewater recycling has increased six-fold in Victoria over the past decade, but only 0.2% of Melbourne's stormwater is harvested.

Victoria's water consumption increased over the last century, peaking in the 1990s, and has dropped since then due to the scarcity of water. The severity of the water shortages has been particularly marked in central and western Victoria, where storages were more than 90% empty at the end of 2006-07.

About three quarters of water harvested in Victoria is used for irrigation, and over half of that is used for dairying. Other significant uses include livestock, pasture and grains, grapes and fruit. Most irrigation occurs in the Goulburn-Murray Region.

A significant proportion of water harvested is lost or unaccounted for. In 2005-06 approximately one quarter of water harvested was not accounted for.

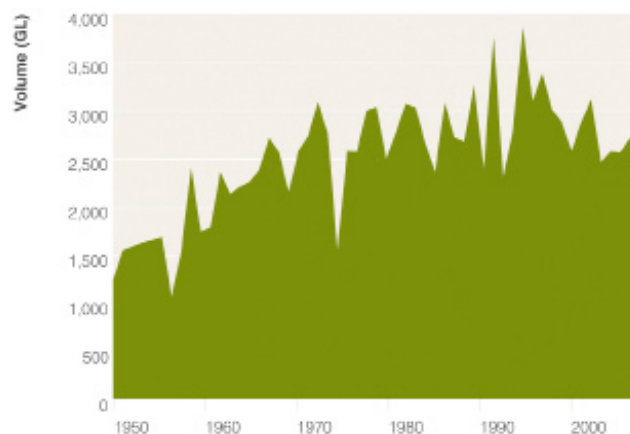


Figure 1. Historic volumes of water harvested for consumption in the Goulburn-Murray Irrigation District



Figure 2. Historic water consumption in Melbourne, showing impacts of water restrictions

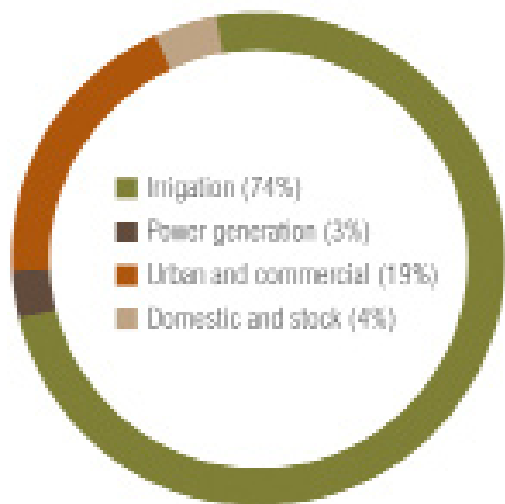


Fig 5. Main consumers of surface water across Victoria, 2006-07

Pressures on the environment

Too much water is now being taken out of many of Victoria's rivers, wetlands and aquifers, increasing the pressure of dry conditions on inland waters (see Fact Sheet 11, Flow Regimes). In a quarter of Victoria's river basins over 75% of the total flow was harvested for consumptive use over the past four years.

Dams and weirs are the most common physical barriers that interrupt the connectivity of river ecosystems. There are over 1,000 farm dams and weirs on named waterways in Victoria, and a further 707 stream-gauging sites. The lack of connectivity prevents fish migration, and decreases macro-invertebrate populations.

Water released from dams may be significantly cold enough, particularly during summer, to prevent large native fish species from breeding. Irrigation and agricultural drains often contain water with elevated salinity and nutrient levels. Wastewater discharges and spills, and stormwater discharges are the main sources of nutrients, toxicants and pathogens in urban waterways.

The Victorian Government's approach

Water resources management has historically focussed on ensuring reliable supplies and protecting the rights of water consumers. The focus has now broadened to include the protection of the environment. This can be seen in several important policies such as the National Water Initiative, Victoria's Our Water Our Future (2004) and the Victorian River Health Strategy (2002). Specific strategies and plans support these documents at a range of scales with the Regional Sustainable Water Strategies guiding long term integration and implementation of water resource management actions. Significant improvements have been made to the way water is managed for the environment.

Substantial reductions in consumption have been achieved by education campaigns and demand management policies. The Victorian Government has responded to Melbourne's water shortages and uncertainty about future supply with commitments to expand supply capacity by about 60% of 2006-07 consumption by 2011. This will be done by building a desalination plant, the Tarago Reservoir Reconnection, the Northern Victoria Irrigation Renewal Project, and the Sugarloaf Pipeline Project. There are also plans to produce 100GL a year of recycled water from the Eastern Treatment Plant.

What the Commissioner says

"The degraded state of many of our inland waters demonstrates that we have ignored their health, disadvantaging downstream users, while at the same time claiming our absolute dependence on them."

"Victoria is a drying state with restricted water availability. Culturally accepted, sustainable patterns of use should now be the objective."

"The approach to augmenting Melbourne's water supply provides insurance that it won't run out of water, but the new sources will be more expensive and more energy intensive. Commensurate effort should be put into developing decentralised water systems, and improving the efficiency of new and existing, residential and non-residential water use."

What you can do

Across Victoria enterprises and individuals have improved their use of water. If you haven't already, make the most of the valuable information, advice and financial assistance offered by government, water authorities, business and community organisations.

A few useful links for businesses, agriculture and homes include:

- <http://www.savewater.com.au/>
- <http://www.ourwater.vic.gov.au/>
- <http://www.watermarkaustralia.org.au>
- <http://www.waterrating.gov.au/index.html>

For more information

See the State of Environment Report Victoria 2008, Part 3.2; *Water Resources* at <http://www.ces.vic.gov.au>



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