

Fact sheet 8: Great Artesian Basin Bore Data Report



A statistical snapshot of the status of all bores within the GAB

Background

Throughout the last 110 years, water has been extracted from aquifers of the GAB through bores. Due to loss of pressure, approximately one third of the original artesian bores have ceased to flow, and more than 1,000 natural springs (and their ecosystems) have been lost. However, the GAB remains one of a few major artesian Basins in the world that have not been severely over exploited.

More than 100 years ago governments and landholders first expressed concern about the waste of water and loss of artesian pressure due to uncontrolled bores and inadequate infrastructure. The rehabilitation of bores and the maintenance of water delivery infrastructure has been a major management issue in the GAB since that time. A number of schemes, including the Great Artesian Basin Sustainability Initiative (GABSI) have been implemented to address the problem.

Although substantial gains have been made in eliminating waste and restoring artesian pressure, additional planning and investment is required to eliminate failed or poorly maintained infrastructure and other inefficiencies in water use across the GAB. Reporting on progress and making informed management and investment decisions has always been problematic for governments and water users due to a lack of accurate and timely Basin-wide information on the condition of water delivery infrastructure and the cost of rehabilitation and maintenance.

Late in 2014 the Great Artesian Basin Coordinating Committee (GABCC) requested government jurisdictions to compile data on the age of all bore assets and drilling within and through the GAB, as useful inputs in developing the new draft GAB Strategic Management Plan (SMP).

Report Summary

The report 'Summary of past drilling activity within the Great Artesian Basin' is a statistical compilation from data archives in New South Wales, Queensland, South Australia and the Northern Territory. This is the first comprehensive statistical summary of the status of all bores within the GAB. It is expected to be updated regularly, at least every 5 years to align with on-going review of the SMP.

The report presents updated and improved information on the magnitude of long-term maintenance requirements for bores, a realistic assessment of their replacement value, and risks to the groundwater resource of not continuing investment in infrastructure maintenance and renewal.

The report includes bores or wells for: water supply; monitoring and exploration of groundwater; exploration for coal; exploration and production of conventional gas, unconventional gas and petroleum; geothermal energy; and mineral exploration. Not included are shallow bores in sediments overlying the GAB, such as Tertiary and Quaternary alluvium associated with present day river systems.

The report is available at: **LOCATION**

Preliminary Conclusions from bore data – priority risks

A high risk of bore failure arises from those drilled prior to 1960, before pressure cementing of water supply bores was widely adopted. These may pose a risk of leakage between aquifers if casings fail. Their status and maintenance needs are yet to be determined. The significant level of investment to date to access GAB water needs to be continuously maintained and the statistical results of the report provide an indication of the priority of risk areas for future focus.

A short summary of statistics generated by the Bore Data Report

50,496	Total number of bores drilled into and through the GAB, including recharge and non-artesian areas; 75% of these are for water supply
12,498	Number of bores drilled before 1960 and at high risk of failure; 1,974 of these are in artesian or previously artesian areas, the majority being water supply bores
676	Number of bores rehabilitated under the GABSI program since 2001
14,000	Kilometres of bore drain replaced with piping under GABSI
199,000	Estimated annual water saving (millions of litres) resulting from GABSI capping and piping
658	Remaining bores with uncontrolled flow (at 2015); of these, about 516 (80%) were constructed prior to 1960 #
\$4,351M	Estimated replacement cost of all water supply bores
\$3,258M	Estimated replacement cost of deeper, higher pressure water supply bores (excludes bores less than 200m deep)

Changes in flow in artesian bores as a result of capping programs are difficult to compile without a comprehensive census. Many of these wells have small surface flows but may have flow loss below surface.

The GAB SMP 2018-2033

The GAB Bore Data Report compiles information on the condition of bores across the Basin and gives some indicative costs of rehabilitation and maintenance. Although the report acknowledges that data available are quite limited, the gathering and compilation of data has been useful in developing the draft SMP 2018-2033.

In the future, management decisions in the GAB will be based on accurate and reliable evidence. Provision needs to be made to generate the required information and make it available to those making decisions.

The draft SMP 2018-2033 emphasises the need for robust information to identify risks to the GAB and water supplies and to provide evidence for decision-making. Implementation of the final SMP will need to include action to fill the information gaps indicated in the Bore Data Report, and to continue collecting and providing timely whole-of-Basin information on water delivery infrastructure in the GAB.

Also available:

Government jurisdictions with responsibilities for the GAB, on advice from GABCC, commissioned a report on current and future water use and users in the GAB and the economic value of industries or sectors dependent on Basin water. This indicates the magnitude of risk if investment in GAB infrastructure maintenance does not continue. It includes an estimate of replacement value of infrastructure prior to the bore data report being compiled.

The GAB Economic Report (by Frontier Economics) can be found at:

<http://agriculture.gov.au/water/national/great-artesian-basin/economic-output-groundwater-dependent-sectors-great-artesian-basin>.

A fact sheet is available: <http://www.gabcc.gov.au/publications>.

The draft Strategic Management Plan 2018-2033 is available at: <http://www.gabcc.gov.au/basin-management/strategic-management-plan>.