

Expanding the water monitoring network for coal basins

The NSW Government has committed \$22.8 million to improve groundwater monitoring in coal basins throughout the state.

An expanded monitoring network will improve the understanding of groundwater behaviour and provide baseline data to better measure the effects industry has on water resources in coal basins.

The investment in monitoring is part of the government's Water Monitoring Strategy for Coal Basins in NSW, which was established in 2014 and runs through to 2020. It responds to recommendations made in the NSW Chief Scientist and Engineer's [Independent Review of Coal and Coal Seam Gas \(CSG\) Activities in NSW](#).

The review raised concerns about the ability accurately measure the effects of extractive industries on water resources because of a lack of baseline data.

This investment will address these concerns by expanding the groundwater monitoring infrastructure in the coal basins. The water monitoring data from new sites will add to that from the state's wider water monitoring network. The data will be made publicly available as part of a NSW whole-of-environment data repository to assist in water management and research.

Expansion of the water monitoring network

Over many decades, the government has built a network of more than 4,000 monitoring bores in over 3,000 locations across NSW to collect information in areas where there is large-scale water use, mainly for irrigation. The network needs to be expanded allow us to measure the impacts of new water users. Monitoring points placed in shallow and deep aquifers will measure groundwater quality, level and pressure.

Between now and 2020, 50–90 new monitoring bores in will be built in coal basins (see Figure 1).

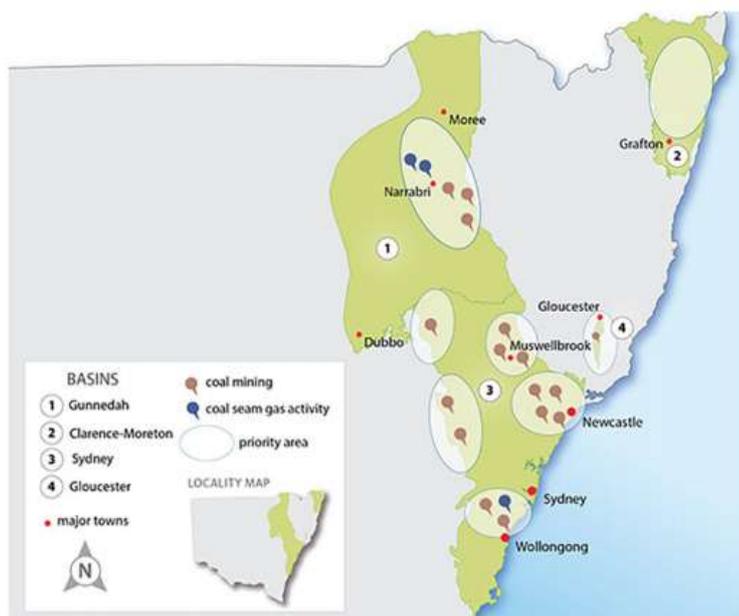


Figure 1. Priority areas for constructing new monitoring bores

Monitoring site selection and bore drilling

Bores will be constructed on public land in locations where existing studies and spatial data show that new monitoring would be of the most technical value. Priority will be given to sites that will:

- improve our knowledge of the physical nature of the groundwater system and how it changes over time
- fill an important network gap where current information is deficient
- allow potential impacts to be measured near sensitive environments, especially where there is current and known or potential growth in activities that affect water.

There will be a rigorous site selection process, including commissioning independent reviews where necessary.

Drilling of each monitoring bore will take between a few days and several weeks, depending on the geology of the location and the depth of the bore. There will be minimal impact on the surrounding area and drilling activity will generally be limited to within a 50 metre radius of each bore.

Monitoring equipment

Each monitoring bore will be equipped with logging instrumentation to measure water levels or pressure and salinity. WaterNSW will monitor the bores and publish the data to its real-time data web-site at waterNSW.com.au/waterinsights/real-time-data.

Permanent water sampling pumps will allow field staff to take regular water samples for laboratory testing and analysis of wide-range of substances.

Completed monitoring equipment will be around 2.5 metres tall and will be fenced off in an area measuring approximately 10 metres by 10 metres.

Figure 2 shows an example of a completed monitoring site. This site is located in the Pilliga Forest near Narrabri and has three bores next to each other monitoring aquifers at different depths, including the Great Artesian Basin.



Figure 2. Typical completed monitoring site.

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