

THE OUTBACK REGIONAL WATER GROUP

BARCALDINE REGIONAL COUNCIL



Barcaldine Regional Council

Area: 53,677 km²

Population: 3,411

Water Source: Great Artesian Basin

Communities: Alpha, Aramac, Barcaldine, Jericho and Muttaborra



Water Infrastructure:

Connections: 1,630
Length of Mains: 89 km
Bores: 6 GAB, 6 sub GAB



Sewerage Infrastructure:

Connections: 930
Length of Mains: 33 km
Pump Stations: 13

Barcaldine Regional Council (BRC) is a medium sized water service provider responsible for delivering water and sewerage services to the five small towns of Alpha, Aramac, Barcaldine, Jericho and Muttaborra.

Known as the Garden City of the West, Barcaldine is home to Queensland's first free flowing bore at Back Creek in 1886 which gushed more than 700,000 litres a day, making international headlines and triggering a state wide bore drilling boom.

The waters from the Great Artesian Basin (GAB), one of the largest underground reservoirs in the world, sustain many of the RAPAD members and were crucial in the development of outback towns.

These days water from the GAB is thought to contribute to the lives of more than 180,000 people and 7,600 enterprises in more than 120 towns and settlements across four Australian States and Territories.

In Queensland the GAB supplies water for more than 35 towns including Aramac, Barcaldine and Muttaborra as well as Birdsville, Bedourie, Boulia, Winton and Windorah in the wider RAPAD region.

The largest chunk of basin water is used by agriculture, but communication, transport, mining and tourism also depend on this great source.



MANAGING DEMAND

Australia is boom and bust country not only in its weather patterns with droughts or floods taking centre stage at any one time; the nature of the mining industry also provides extreme challenges to councils trying to secure enough water for its communities.

In the township of Alpha, population 350, the challenge is real with a number of coal mines proposed in the region.

Water security assessment and planning that supports population growth is essential to assist service providers in understanding their water needs, but the uncertainty surrounding project approvals makes it difficult for Council to accurately forecast water demand and implement suitable water supply solutions.

Although mining could bring a lot of prosperity to the region, there are many factors that dictate whether such a huge increase in population – predicted to be 2,500 workers during the construction phase and 1,900 at the mine – will be manageable, especially in a town where sewerage, water and power systems are already nearing capacity. Council is saving towards a

new sewerage treatment plant to upgrade from the current septic system which will be essential should the mining go ahead.

The Queensland Government's 30 year strategy places a greater emphasis on private sector investment for any new infrastructure to store, treat and distribute water, but for small Councils this is a significant challenge that will require good resourcing and political will to get it right.

Council has been proactively upgrading water supply systems in conjunction with the introduction of water meters across the region. Mains lines and connections are checked and upgraded where needed as the new meters are being installed. This has resulted in an almost brand new system in Barcaldine, Alpha and Jericho, with Aramac and Muttaborra soon to follow.

Council also invested over \$400,000 on a new bore to secure water supplies in Muttaborra. The free flowing bore needs no pumping and limited treatment, making it a sound investment for years to come.

DECLINING POPULATION

A major focus for Barcaldine Regional Council is the maintenance of sewerage facilities across the region. The low base rate and declining population in some areas means creating entirely new plants are overly expensive, so Council is focusing its efforts on refurbishment of existing systems to meet best practice standards.

In the early 1960s, the town of Aramac had a population of 2,500. By 2011, the permanent population dropped to 300 people plus a further 80 transient people involved in mine work and exploration (ABS 2011).

The Sewage Treatment Plant consists of an Imhoff tank, trickling filter and four polishing ponds. Due to the decline in population, council has had to find new ways to deal with issues relating to low flow into the system.

With no electrical power to the site, it is not practical to pump recycled effluent from the ponds back through the trickling filter to make it operational. However, the reduced plant loading means that the increased detention time in the oxidation ponds ensures compliance with the effluent discharge standards.

With some of the water reticulation and sewerage

assets about 50 years old, Barcaldine faces the challenge of funding asset renewals and potentially large unforeseen capital projects with fewer than 2,000 rateable properties. However, recent upgrades to the water mains to replace old pipes, pumps and reservoirs have given the simple, fit-for-purpose system a new lease on life.

Barcaldine's water is supplied by two bores at a temperature of about 47°C with no treatment needed to comply with the Australian Drinking Water Guidelines. As an open ended system, water runs into two storage reservoirs which overflows into Lagoon Creek. This water is not lost, with overflows used on roadworks.

Barcaldine has three sewage pump stations, and the treatment plant consists of a settling tank, a biological trickling filter, humus tank and two polishing ponds.

Effluent discharges into Lagoon Creek as the concentrated salt levels in the effluent makes it unsuitable for irrigation. In addition there is insufficient quantity to make a focussed reuse scheme viable but discharges meet environmental requirements thanks to the efficient management of the small plant.