THE OUTBACK REGIONAL WATER GROUP

BARCOO SHIRE COUNCIL

Barcoo Shire Council
Area: 61,974 km^2
Population: 360
Water Source: Thomson River, Cooper Creek and sub-artesian Great Artesian Basin
Communities: Jundah, Stonehenge, Windorah

Water Infrastructure:
Connections: 182
Length of Mains: 40 km
Pump Stations: 4 river intake pumps

Sewerage Infrastructure:
Connections: 0
Length of Mains: 0 km
Pump Stations: 0

Covering 61,974 square kilometres, an area nearly the size of Tasmania, Barcoo Shire is one of the largest shires in Queensland. It borders the Longreach Regional Council, the shires of Diamantina, Winton, Quilpie and Bulloo, and the South Australian border. The country's landscape varies from rich red sandhills to the vast flooding plains, which, depending on seasonal rains, can be covered in masses of wildflowers.

The word 'Barcoo' is extremely important to the people of the shire. Here, the Barcoo and Thomson Rivers merge to form Coopers Creek which flows south-west towards South Australia and into Lake Eyre. This is the only place in Australia, perhaps the world, where two rivers flow into a creek.

The Barcoo River was named in the late 1840s by the explorer Edmund Kennedy. Barcoo is an Aboriginal word that means 'water'.

The Barcoo was also immortalised by the great Australian poet, Banjo Patterson, in the poem 'A Bush Christening'. The historic site of Magee's Shanty 'on the outer Barcoo' is situated in the shire.

The shire population is split between the administrative centre of Jundah and two other small communities of Stonehenge and Windorah. Cattle, sheep and tourism are the main industries.

In 2011, water samples from seven western Queensland water service providers were judged by a panel of experts at a ***qldwater*** conference in Normanton, with Barcoo Shire Council's Jundah water supply staking its claim as the first inaugural winner of the Best of the Best Water Taste Test.

The quality of the water is due in part to the clever design of the supply system which supplements the sometimes unreliable surface water supply with bore water treated though a desalination process. Blending surface and bore water is a practical way to extend the meagre water supplies of some western towns. It can also make for a good cup of tea.

SEASONAL VARIATIONS

While water security would rate as one of the biggest challenges during the dry season, Barcoo is a fine example of how a small Council can effectively manage their water services. Assets are in good condition and water quality and security risks have been managed well. Alternative water supply systems have been assessed and Council has implemented dual reticulation to save on water treatment costs.

The dry season opens the Outback roads to an influx of grey nomads and other travellers, causing the population to increase significantly. This influx can put a strain on public facilities such as toilets and caravan parks, and demonstrates the two extremes the area experiences when these same facilities receive very little use during the hotter months.

During the wet season the tourists disappear, but Council is often required to turn its attention to floods.

Over the years flooding has incrementally damaged the downstream control point of the waterholes that are the main water source for the towns of Windorah and Jundah. This has led to a loss of capacity in both waterholes. The impact is somewhat lessened for Windorah due to the use of two separate waterholes for supply purposes and for the town of Jundah, Council is currently preparing a development application to construct a weir to mitigate this situation.

Attracting and retaining staff is another major challenge, with schooling available up to Year 7 when families sometimes leave rather than send their children to boarding school. Succession planning for operators is a major concern.

The absence of a broadband and mobile phone services inhibit the use of telemetry systems used to monitor weir levels, water pumping and treatment plants, which as a result require daily physical inspections.

WATER SECURITY

Conserving limited water supplies while allowing water supplies for gardens under the prevailing arid conditions is a constant balancing act for Council. The use of drought tolerant plants is encouraged and when water restrictions are in place, daytime sprinkler use is restricted. Water meters were installed in 2006 and volumetric charges introduced in 2012, allowing Council to charge for excess water use and assist communities in managing their water use.

The high operating and maintenance costs of water services in the region coupled with a small population makes it hard to make ends meet, and it is acknowledged that water supplies will always need to be subsidised in these small remote communities.

A surface water impoundment formed by a natural rock weir in the Thomson River did hold approximately 12 month's water supply but over time this has partially eroded, therefore threatening the water security for the town of Jundah. Council invested in two more shallow sub-artesian bores and is currently preparing a development application to construct a weir in place of this natural structure.

The brackish bore water is treated using an automated filtration and reverse osmosis (RO) process which produces very palatable water but at a high cost, especially relating to power use. The plant is therefore normally only operated three to four hours per day, also extending the life of the RO membranes which need to be replaced every four to five years at a cost of $25,000.

Commissioned in 2002, the RO plant can produce 200 kL/day, providing an effective safety net for drought in an area with an average annual rainfall of 250 mm and an evaporation rate of three metres!

The river water is treated by conventional polymer coagulation, a settling tank and rapid sand filters. This plant can meet the maximum day demand with 10 hours production. The two water streams are blended in a 90 kL clear water storage tank, chlorinated and pumped to an elevated reservoir for distribution, with a 80/20 ratio river to desalinated bore water.

Stonehenge is also supplied with water from a weir on the Thomson River that is pumped to an offstream storage. The water treatment plant is only eight years old and provides settling, filtration and chlorine disinfection.

Windorah is supplied with water from two water holes on Cooper Creek. The river water is treated by conventional polymer coagulation, a settling tank and rapid sand filters.

All towns have dual reticulation systems with untreated river water used for outside use (approximately 75% of total water consumption). Fire hydrants can use either supply.