

The Goulburn Mulwaree Catchment

The Goulburn Mulwaree Local Government Area (LGA) is 3,232 km² and includes the city of Goulburn and the villages of Marulan and Tarago as well as other small settlements.

In 2001, Goulburn Mulwaree LGA had a total population of 26,500 (Goulburn - 20,884 residents, Marulan - 442 residents, Tarago - 60 residents).

The LGA has a variety of land uses including residential and industrial, with agriculture being the dominant land use.

Climate

- Average summer temperature - 27°C
- Mean winter temperature - 11°C
- Frosts – 24 days/year
- Average rainfall – 650 mm/year
- The past 6 years have seen less than average rainfall
- Reservoirs are only 23.9% full
- Rainfall required to fill reservoirs – in the order of 900 mm/year for some years.

Rainfall

Much of the Goulburn Mulwaree local government area is located in a rain shadow. Historically, the average yearly rainfall has been 650 mm (source Bureau of Meteorology, Progress Street). However, Goulburn's water supplies are currently severely depleted following six years of less than average rainfall. This trend is expected to continue for 2006. On the 27 Nov 2006, reservoirs were only 23.4% full. The unusable component is currently under review.

Goulburn Mulwaree Council predicts it will take a number of years of high rainfall to refill the reservoirs. The rainfall required each year would need to be greater than 900 mm (compared to the average yearly rainfall of 650 mm).

Water Supply Catchment

Goulburn's water supply catchment is in the upper reaches of the Hawkesbury-Nepean Basin. Both Wollondilly River and Mulwaree Creek drain low rainfall catchments and are the main surface water resources for Goulburn.

The LGA is located high in an area dominated by fractured rocks of the Lachlan Fold Belt, which are generally poor aquifers (conductors of ground water). The types of aquifer systems that occur within the local government area are predominantly fractured rock aquifers, with limited water storage.

Groundwater

Groundwater resources in the local government area could be used as a water source for residential and industrial uses. However, the availability of groundwater is restricted by the distribution of geological units (basalts), their aquifer properties (porous basalts), and the water end use requirements (water quality and yield requirements).

A limestone aquifer has been found in the Kingsdale area and may be utilised as an emergency drought groundwater supply. The Kingsdale Borefield may be able to supply up to 3.5 ML per day for a maximum of six months.

The larger Lake George Basin is located adjacent to, but outside the local government area, as are the aquifers of the Sydney Basin (within the Southern Tablelands region).

Groundwater resources:

- Kingsdale Aquifer
 - Sustainable yield approximately 1 ML/day Recharged by rainfall infiltration
 - Potential impacts to local users
- Crookwell
 - Currently produces 1.08ML/day of high quality water
- Lake George
 - Moderate potential
 - Potential water quality issues
- Bungonia
 - moderate to high yield potential

Overall, groundwater could potentially provide up to 15-25% of the estimated total demand.

Water Supply

The major water storages that service Goulburn Mulwaree local government area are the Sooley and Pejar Dams, and the Rossi Weir. These facilities are primarily used to supply water to Goulburn.

Goulburn

The table below lists the surface water resources for Goulburn:

Water source	Catchment Square km	Capacity (megalitres)	Storage Volume ¹ (megalitres)	Storage Volume (percent)
Pejar Dam on Wollondilly River	142	9000	161	1.8%
Sooley Dam	125	6140	3336	54.3%
Rossi Weir on Wollondilly River downstream of Pejar and Sooley Dams	350	330	127	38.5%
Total	759	15470	3625	23.4

Note 1: Storage volume as of 27 Nov 06.

A two-way pipeline connects Sooley Dam to the Rossi Weir. Raw water from the Rossi Weir is pumped to the Goulburn Water Treatment Plant (Clinton Street) then distributed for town use.

Goulburn-Mulwaree Council is currently establishing emergency water supply measures, including the transfer of up to 3 megalitres per day of water from the Wollondilly River at Copford, to the Sooley Dam, and the extraction of groundwater at 1 megalitre per day from the Kingsdale borefield transfer system into Sooley Dam.

Marulan and Tarago

Marulan's water supply is extracted from the Wollondilly River. It comprises a pumping station on Wollondilly River, 680 kilolitre concrete and 35 megalitre PVC-lined reservoirs and a micro-filtration system.

Most of the other villages within the Goulburn-Mulwaree LGA are currently too small to be economically served by water and sewerage services. Water is supplied to these villages by rainwater tanks and, during droughts, water carts.

The water supply to selected allotments in the Tallong Park Estate is supplemented by a privately-operated groundwater supply scheme. Other privately-operated water supply schemes also operate within the LGA, including non-potable (non-drinking) water supply to South Marulan and the Blue Circle Cement-operated potable (drinking) water supply to Tallong.

The main water supply at Tarago is rainwater tanks and private bores.

Sewerage

Goulburn and Marulan are the only two sewered towns within Goulburn Mulwaree local government area.

Goulburn

The Goulburn sewerage reticulation system covers an area of approximately 1,850 hectares, comprising 7,600 residential connections and 610 non-residential connections. Approximately 150 septic tanks remain in service.

The existing Goulburn Sewage Treatment Plant at Ross Street is a conventional trickling filter plant, with sedimentation tanks. Excess flows are held in maturation ponds and wet weather storage.

Construction is scheduled in early 2007 on augmentation works to the storm handling facilities at the Ross Street Sewage Treatment Plant.

The effluent produced at the Plant is irrigated onto Council farms (Gorman Road, Murrays Flat Road, Kenmore and the Goulburn Racetrack), as it does not meet current standards for river discharge.

Current effluent quality is insufficient to consider other re-use opportunities based on the current treatment processes. High use could potentially impact on surface water and groundwater.

Goulburn Effluent Reuse

- Effluent produced at the Plant is irrigated onto Council farms near Gorman Road (3.5 km) - Gorman Road, Murrays Flat Road, Kenmore and Goulburn Racetrack
- Disinfected in maturation ponds before irrigation
- High effluent application rates – the effluent produced exceeds the capacity of the irrigation area. Higher use could potentially impact on surface water and groundwater quality
- Council owns 243 ha of farmland, but needs 334 ha for sustainable effluent management
- High nitrogen and phosphorus concentrations in effluent, limiting re-use options

Marulan

The Marulan Sewage Treatment Plant produces 25–26 megalitres per year of effluent, which is used for irrigation of 30 hectares of farmland. The plant will be upgraded using developer contributions. This will cater for approximately 1187 or dwellings (or equivalent).

Tarago

Tarago is too small to be economically serviced by a reticulated sewerage system and is serviced by a combination of septic tanks and other on-site systems.

Stormwater

About half of the LGA stormwater catchment is located upstream of Goulburn.

65% of the total stormwater flow in Goulburn (south and east) drains to the Mulwaree Ponds, while the remaining 35% drain from the northern areas to Wollondilly River and Kenmore Creek.

Goulburn has a formalised stormwater drainage network fitted with 51 gross pollutant traps along rivers and creeks to improve water quality. Discharge from the rest of the network remains untreated. The management of stormwater is undertaken in accordance with Council's Urban Stormwater Management Plan (2000).

Marulan has a system of culverts (channels or drains that run under roads or embankments), and stormwater runoff is into Joarimin Creek.

Tarago has natural drainage that flows into the Mulwaree River.

The Marulan Stormwater Management Plan identifies activities in the town that have the potential to affect stormwater quality. It details actions to be implemented, such as:

- community involvement
- behavioural and preventative strategies
- natural ecology
- opportunities to filter or treat stormwater for reuse.