Bundaberg Irrigation Scheme

Ben Anderson Barrage

Bundaberg is one of the driest sugar-producing areas in the State with average rainfall of 1,000mm. For many years, up until the early 1970's agriculture had drawn on a small subartesian water resource to irrigate crops. During the 1960's demand for sugar cane was rising due to the world sugar boom. The area irrigated using groundwater supply doubled between 1961 and 1968.

Woongarra Irrigation Channel

The combination of a decade's increasing demand and the droughts of 1964, 1965 and 1969 were taking their toll. Demand for water was quickly depleting the groundwater reserve and salinity levels were increasing as seawater seeped through to supplement the loss. It was necessary that some form of regulated irrigation scheme be established to supplement underground water supplies.

Therefore, in 1970, the Queensland Government adopted a proposal for a two-phase scheme to provide water supplies for most of the Bundaberg district. Construction began in 1970, with the second phase completed in 1993. Walla Weir (Now know as Ned Churchward Weir) was added to the scheme in 1998.

Phase One was the "rescue operation" stage to stabilise the condition and supply of water. Phase Two was a long-term stage to bring water to previously unirrigated farms in the Gin Gin, Bingera and Isis areas.

About the Scheme

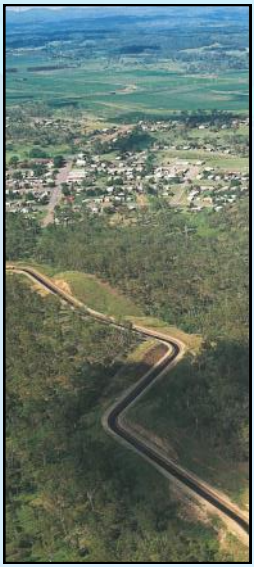
The Bundaberg Irrigation Area supplies irrigation water to 55,000 hectares of farmlands surrounding Bundaberg, Childers and Gin Gin as well as assured supplies for the City of Bundaberg and communities in the Bundaberg Regional Council area.

The use of irrigation supplies ensures the Bundaberg area maintains its status as am important sugar producing district, Australia's largest producer of field grown tomatoes, sweet potatoes and macadamia are a significant contributor to Queensland's overall production of fruit and vegetables supplying markets throughout Australia and overseas.

The scheme is unique in Queensland in that it is the only large-scale irrigation area that was designed to serve existing farming enterprises. Over 600 kilometres of channel and pipeline traverse the landscape distributing supplies to over 1,000 properties connected to the surface water scheme.

Phase One Development

Phase One of the Bundaberg Irrigation Area was completed in 1988 and serves part of the Gooburrum, Woongarra, Givelda and Abbotsford areas. Recharge trials proved that increasing the underground supplies was inappropriate. The solution adopted was to reduce the use of groundwater by providing surface water to approximately half the assigned area, irrigating from that supply, with groundwater supplying the remaining area.



Gin Gin Channel

This method was particularly relevant in those areas badly affected by salt intrusion, such as the Fairymead and Burnett Heads areas. With reduced permanent demand on groundwater supplies, it was anticipated that water levels would either stablise or return to the safe limits of earlier times.

Measurement of underground water quality and water levels since the introduction of surface water has indicated that with reasonable recharge rainfall and some restriction to extraction, a stable water situation has been achieved. Further "rescue operations" are under investigation to alleviate restrictions and protect the resource.

Fred Haigh Dam, Monduran Pump Station and Gin Gin Main Channel

The main source of water for the scheme is Fred Haigh Dam. Fred Haigh Dam, completed in 1975, lies 74.6 kilometres from the mouth of the Kolan River and has a storage capacity of 562,000 megalitres and a reservoir area at full supply level of 5,300 hectares. The storage has a maximum water depth of 43 metres and a catchment area of 1,300 square kilometres.

Monduran Dam

The dam, previously named Monduran Dam, was renamed Fred Haigh Dam to commemorate the leading role played by Mr F.B. Haigh, M.B.E., M,E., F.I.A.M., who for 19 years was Commissioner of Irrigation and Water Supply in the Queensland (now Department of Environment and Resource Management) and during whose term of office the Bundaberg Irrigation Scheme was investigated and construction commenced.

Releases to the Kolan River are controlled by outlet valves on the downstream end of the tunnel built under the dam wall. This supplements river flow as required. There are two release points for the dam.

Monduran Pump Station, located downstream of the dam, takes its supply from the tunnel and delivers water from the dam into Gin Gin Main Channel to provide water to farm lands in the Gin Gin and Bingera areas and to supplement the flow in the Burnett River if necessary.

Ben Anderson Barrage

Ben Anderson and Kolan River Tidal Barrages

These barrages provide additional storage capacity for the project. The Ben Anderson Barrage, previously the Burnett Barrage, was renamed to commemorate the lead role played by

Mr Ben Anderson in bringing to fruition the local community's aspirations for an irrigation scheme to serve the area. Mr Ben Anderson served on the Bundaberg and District Irrigation Committee for 20 years (17 as chairman) and during this term the Bundaberg Irrigation Area was investigated and construction commenced.

Kolan Barrage

The Ben Anderson Barrage is 25.9 kilometres from the mouth of the Burnett River and has a capacity of 27,000 megalitres. This also provides storage for part of the water requirements for the City of Bundaberg and Bargara and Burnett Heads. The barrage was refitted with a state-of-the-art vertical slot fish ladder in 1997 to cater for fish migration.

The Kolan Barrage is located 14.5 kilometres from the mouth of the Kolan River and has a capacity of 4,000 megalitres.

The Kolan Barrage was fitted with a vertical slot fish ladder in 1998 to improve fish migration.

Gooburrum Irrigation System
The provision of channel water, accompanied by the closing down of some irrigation bores, has resulted in the demand on the underground basin in the Gooburrum area approaching the estimated safe yield of the basin.

Gooburrum Pump Station, located 6 kilometres upstream of the Kolan Barrage, delivers water to the Gooburrum area through a balancing storage and system of open channels and pipelines. The reticulation system is controlled by automatic regulator gates which maintain constant downstream water levels, thereby reducing wastage by providing water to farms only as required.

Bucca Weir
The roller compacted concrete weir was constructed on the Kolan River, 38 kilometres from the mouth, to provide an additional 9,750 megalitres of storage between Fred Haigh Dam and the Kolan Barrage.

Abbotsford Irrigation System
This minor system supplies water from the Kolan River to farms through 4 kilometres of pipeline.

Woongarra Irrigation System
This system supplies farms through 122 kilometres of channel and also secures groundwater supply. Woongarra Pump Station supplies water from the Ben Anderson Barrage through a balancing storage and a system of open channels and pipelines. The reticulation system is controlled by automatic regulator gates located along the earth channels.

A relift pump station, located at 23 kilometres on the Woongarra Main Channel, pumps water to a small reservoir from which the Burnett Heads and Bargara area are served.

Givelda System
This minor system originally had its own pump station from the Burnett River but is now supplied by gravity from the Isis Main Channel and provides water through 10 kilometres of pipeline.

Woongarra Channel

Phase Two Development

Phase Two of the scheme supplies water to the Gin Gin, Bingera and Isis areas. Generally, these areas were previously dry-farmed and suffered severe losses due to drought.

Gin Gin Irrigation System
This system presently supplies water through 68 kilometres of open channels and pipeline. The water is supplied by gravity from Gin Gin Main Channel and by a relift pump station to the Tirroan area.

Isis Irrigation System
Isis Pump Station, located 29 kilometres upstream of the Ben Anderson Barrage on the Burnett River, delivers water to the Isis and Givelda areas via a reticulation system which, like previously constructed systems, is operated through a network of open channels and controlled by automatic regulator gates, a balancing storage, relift pump stations and pipelines.

Isis Pump Station

Bingera
The Bingera system presently supplies water through 114 kilometres of open channels and pipelines. The water is supplied by gravity from Gin Gin Main Channel through a system of open channels, pipelines and relift pump stations. Bingera Main Channel directs water into Bullyard Creek Balancing Storage from where it is pumped to supply irrigation water. Two small relift areas are supplied at McIlwraith and Bucca from the Bingera System.

Ned Churchward Weir

Ned Churchward Weir, previously known as Walla Weir, was completed in September 1998, is located at Jonson's Rocks, 74 kilometres from the mouth of the Burnett River. It is a concrete gravity structure with a storage capacity of 29,000 megalitres. The primary purpose of the storage is to underpin the reliability of existing irrigation allocations.

Ned Churchward Weir

The weir is equipped with a state-of-the-art fish lock to enhance fish migration in both upstream and downstream directions.

The weir was jointly funded by the Commonwealth and State Governments under the Sugar Industry Infrastructure Program with significant contributions from the local community.

The weir is operated according to stringent environmental guidelines to preserve the significant environmental values of the ecosystem.

Paradise Dam

Paradise Dam, also known as Burnett Dam, is located on the Burnett River. The dam is situated approximately 20 kilometres north-west of Biggenden and 80 km south-west of Bundaberg. With a surface area of 2,951ha, Paradise Dam holds 300,000ML. It also has a maximum depth of 38.2m.

The Paradise Dam was Burnett Water's major construction project and practical completion was achieved at the end of November 2005 by the Burnett Dam Alliance.

On the 25th of September 2019 SunWater announced that they would release 105,000 ML of water from Paradise Dam due to safety concerns over the dam's integrity. Since then the wall of Paradise Dam has been lowered by 508 metres and its capacity reduced from 300,000 ML to 170,000ML.

In late 2021 and early 2022 farmers welcomed the announcement that both State and Federal Governments would contribute to the reinstatement of Paradise Dam at a cost of $1.2 Billion with work likely to commence on 2024 and completion in 2028.

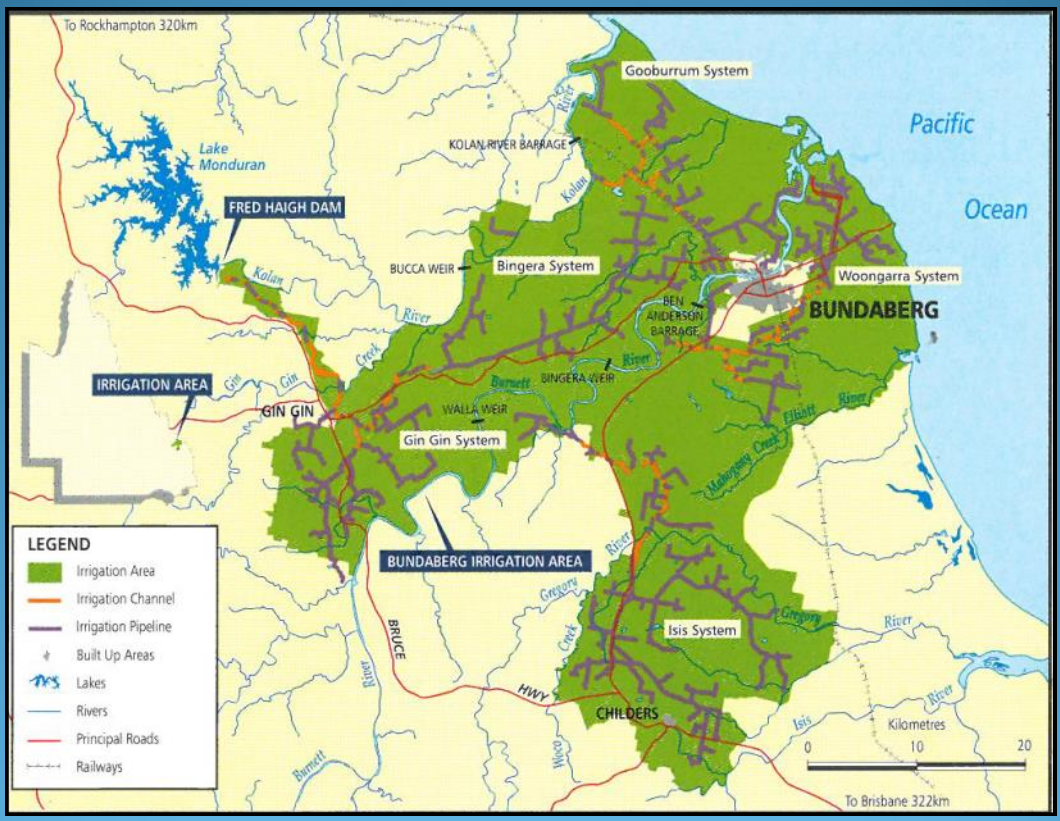
Paradise Dam

Paradise Dam

Bundaberg Irrigation Area Statistics

TECHNICAL SPECIFICATIONS	
Area irrigated	52,400 Ha
Catchment area	36,000km^2
Average annual rainfall	950-1,100mm
Annual groundwater yield for irrigation	55,000ML
Combined storage capacity	626,800ML
Total channel length	92km
Total pipeline length	450km

Pump Station Details			
Irrigation System	**Pump Station**	**Number of Pumps**	**Pump Capacity (megalitres/day)**
	Monduran	4	1,100
Woongarra	Woongarra Walker Point	5 4	400 225
Gooburrum	Gooburrum	3	300
Gin Gin	Tirroan	2	72
Bingera	McIlwraith Bullyard Bucca	2 4 2	60 415 60
Abbotsford	Abbotsford	2	24
Isis	Isis North Gregory Quart Pot Creek Dinner Hill	3 2 2 (to Farnsfield) 2 (to Childers) 3	648 63 275 250 160


To Rockhampton 320km
Lake Monduran
FRED HAIGH DAM
Kolan River
KOLAN RIVER BARRAGE
Gooburrum System
Pacific Ocean
BUCCA WEIR
Bingera System
Woongarra System
BEN ANDERSON BARRAGE
BUNDABERG
IRRIGATION AREA
Gin Gin Creek
GIN GIN
WALLA WEIR
BINGERA WEIR
Burnett River
Elliott River
Mahogany Creek
Gin Gin System
BUNDABERG IRRIGATION AREA
Isis System
Gregory River
Gregory Creek
BRUCE HWY
CHILDERS
Isis River
Wuruma Creek
Burnett River
Kilometres
0
10
20
To Brisbane 322km
LEGEND
Irrigation Area
Irrigation Channel
Irrigation Pipeline
Built Up Areas
Lakes
Rivers
Principal Roads
Railways