

## **Mareeba-Dimbulah Water Supply Scheme**

### **History**

Settlement on the Atherton Tableland dates back to the years immediately following explorer James Mulligan's discovery of the area in 1875, when John Atherton took up "Emerald End" to become the first settler in the Barron Valley.

Soon thereafter, the establishment of the Hodgkinson Goldfield and the discovery of tin deposits in the Wild River brought further settlement. Improved access to the coast followed, creating a ready market for farm produce.

Early farming concentrated on vegetables, corn, fruit and cattle. Tobacco became a successful crop in 1928 and in 1930 the Government opened large areas of the Mareeba-Dimbulah area for selection.

After a decade of set-backs, it became clear that irrigation was the key to successful tobacco cultivation. Eight weirs were built on local streams, thus permitting limited irrigation development. It was obvious that if more water could be made available, considerable expansion of the industry could occur.

At the same time, investigations began into increasing the generating capacity of the Barron Gorge Power Station to meet a growing demand for power. This could not be done without a storage on the river to even out seasonal flow variations.

In 1952, the decision was taken to build a dam on the Barron River about 12 kilometres from Atherton and construction of the associated Mareeba-Dimbulah Irrigation Area was approved.

Construction of the dam began in 1953 and was completed in 1958.

### **Uses of Water**

#### **Irrigation**

Water is supplied for irrigation of mangoes, bananas, pawpaws, various citrus, avocados, tobacco, general horticulture, sugar cane, tea-trees and coffee and many other crops.

Until recent times, tobacco was the major crop grown in the area. Sugar cane is now the dominant crop. Production is spread across the whole scheme but is centred mainly around the Arriga flats where a sugar mill has been constructed.

In recent years plantations of mango, banana, pawpaw, avocado, lychee, macadamia, citrus and other nuts and fruits have been established.

There is also a significant market garden industry that supplies southern consumers. Tropical grasses and legumes for seed production are also cultivated.

Other water uses include irrigation of crops such as grapes, stone fruits, custard apples and flowers, and irrigation of pastures for beef cattle fattening and stud breeding.

### **Urban Water Supplies**

The townships of Tinaroo, Walkamin, Mareeba, Kuranda, Mutchilba, Dimbulah and Yungaburra are supplied from the scheme.

### **Hydro Power Generation**

The Tinaroo Falls Dam is able to provide water to the Barron Gorge Hydroelectric Power Station at Kuranda.

In addition, a mini hydroelectric power station is proposed at Tinaroo Falls Dam. The planned 1.6 MW mini power station has the ability to produce enough green energy to power approximately 100 homes per year.

## **Major Storage**

### **Tinaroo Falls Dam**

Tinaroo Falls Dam is a mass concrete, gravity structure located on the Barron River above a series of rapids known locally as “Tinaroo Falls”, and about 100 kilometres upstream of where the river discharges into the Coral Sea near Cairns.

The top of the dam wall is 45 metres above the riverbed and has a central ogee crest spillway, which is 76.2 metres wide and 3.7 metres deep, to pass floodwaters downstream. Two 1.5 metre diameter conduits through the dam wall discharge water to the irrigation channel and an additional 1.5 metre diameter conduit allows water to be released to the river.

A subsidiary earth and rock-filled embankment, which is 6.4 metres high and 250 metres long, contains some 23,000 cubic metres of fill and was built across a saddle about a kilometre south of the main dam wall to prevent water escaping during flooding. The road into the Tinaroo Township runs along the top of this wall.

## **Channel/Pipeline System**

### **Channel System**

Water from the dam is distributed by gravity through 176 km of main channel to the various sections of the scheme, namely Walkamin to the south of Mareeba, East Barron and the Mareeba area itself, Paddy’s Green and Arriga to the west of the town, and along the south bank of the Walsh River through Mutchilba to beyond Dimbulah. Within these sections, a further 189 kilometres of subsidiary channels distribute water to farms, dwellings and townships. Five balancing storages at Nardello’s lagoon, East Barron, Arriga, Biboohra and Jabiru Lagoon ensure that effective supply is maintained throughout the system.

In general, the main channels are either open earth or concrete lined. Short lengths of concrete-lined steel pipe, reinforced concrete bench flume and cast in-situ concrete pipeline have been used where the terrain and soil type require them.

### **Relift Areas**

Two additional areas, Paddy's Green and Price Creek, are served by four pump stations which lift water to concrete balancing storages for further reticulation.

### **Supplemented Streams**

Water is also supplied from streams supplemented with water from the channel system. In this way the extent of the channel system has been managed and better use made of natural supplies available from such streams.

Releases are made to tributaries of the Barron, Walsh and Mitchell rivers. In total, water is available for diversion from 276 kilometres of supplemented streams.