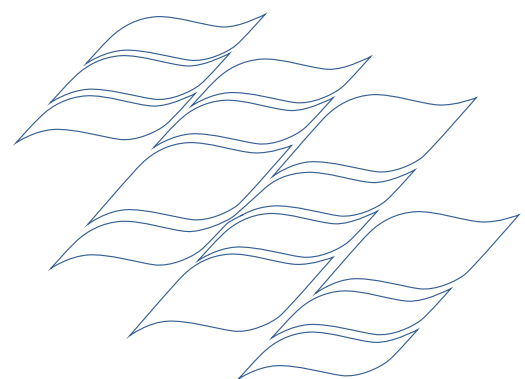


Appendix 24

[RETURN TO APPENDICES LIST](#)

Activities excluded from Benchmarking – Land &
Catchment Management, Hatchery & Recreation Area
(Gladstone Area Water Board)



Activities Excluded from Benchmarking

Several activities were excluded from the benchmarking activities undertaken by Marchmont Hill Consulting because appropriate comparison costs for similar activities in peer organisations were difficult to obtain.

The purpose of this document is to describe the activities that were not benchmarked and discuss allocation of resources to those activities. The qualitative description of resources devoted to each activity is intended to be sufficient to demonstrate that GAWB's level of resourcing and resource allocation is appropriate.

In terms of aggregate land and catchment management, the fish hatchery and recreational area require employment of nine staff. The total budgeted operation and maintenance expenditure for 2009/10 is \$1.7m.

Land and catchment management

Integration with GAWB's business

GAWB's primary purpose of owning land (approximately 30,000ha) is for water storage and catchment/water quality management. Land use within the catchment can adversely impact on water quality, increasing the cost of treating water.

Consistent with the recommendations of the Coordinator-General contained in the report approving the raising of Awoonga Dam dated January 2001 ('the CG Report'), GAWB has determined, after consideration of storage requirements, potential flood levels, land and catchment management, water quality, public safety and environmental management issues, that the boundary of Lake Awoonga be FML of 47m AHD, or FSL of 45m AHD plus 200m buffer or logical and practical boundary (whichever is the greater), depending on the topography and infrastructure of each location or sites that are required for other GAWB business. This boundary is consistent with accepted best practice for water storages with a boundary of a 200m buffer around FSL and also includes areas of land required to be maintained by GAWB for environmental and recreational uses, to meet commitments made in the Environmental Impact Statement (EIS) for raising the dam.

The land within this boundary comprises a combination of freehold, fixed term Crown leasehold (mainly for grazing purposes), Crown reserves and unallocated State land. There are also a number of public roads within this area that were inundated or subject to inundation. To meet its water supply, water quality and environmental objectives, GAWB is required to control land use around the impoundment and to control public access. Unrestricted public access can lead to the spread of noxious weeds and other pests, erosion, damage to flora and fauna, wildfires and other risks to public safety.

As a freehold landowner, GAWB has long-term security of tenure and the ability to control and manage land uses. This ability to control and manage land uses is more limited in respect to Crown land, and long-term tenure is not assured.

Objectives of the function

Land and catchment management are integral to GAWB's key business goals of meeting water needs (including managing water quality) and corporate responsibility (including environmental responsibility, safety and community relations). GAWB seeks to manage its land holdings sustainably in accordance with its statutory and common law obligations. GAWB aims to contribute to long-term environmental sustainability through the application of best practice in natural resource management and infrastructure development.

As part of its Environmental Management Plan (EMP) for the raising of Awoonga Dam, GAWB adopted a Catchment and Land Use Management Plan covering flora and fauna management, weed management, weed and pest management, land use management and land contamination management.

Weed management

As a landowner GAWB is required under section 77 of the *Land Protection (Pest and Stock Route Management) Act 2002* to take reasonable steps to keep GAWB's land, adjoining land and the beds, banks and watercourses on and adjacent to GAWB's land free of class 1 and class 2 pests (as categorised under the *Land Protection (Pest and Stock Route Management) Regulation 2003*). GAWB seeks to control and to prevent the spread of declared class 2 noxious weeds on GAWB controlled land – i.e. giant rats tail grass (GRT), rubber vine and parthenium. GAWB also seeks to keep Lake Awoonga and its tributaries free of class 2 noxious water weeds which potentially impact on water quality and aquatic flora and fauna - salvinia and hymenachne.

Under its EMP for the raising of Awoonga Dam, GAWB also undertook to control environmentally destructive weeds such as cat's claw creeper and yellow oleander. GAWB also seeks to control weeds of national significance such as lantana.

Pest management

Feral pigs and feral dogs are also class 2 pests under the *Land Protection (Pest and Stock Route Management) Regulation 2003* which GAWB is required under section 77 of the *Land Protection (Pest and Stock Route Management) Act 2002* to take reasonable steps to control. Control of these pests is required, to reduce risk to public safety and native fauna within the catchment. Pigs can also cause environmental damage by digging up large

areas of native vegetation, potentially increasing erosion and spreading weeds.

Fire management

As a responsible landowner and good corporate citizen, GAWB has an obligation to prevent the outbreak of wildfires on its land and particularly to prevent the escape of fires onto adjoining land. Uncontrolled fires within the catchment have the potential to impact on water quality and native flora and fauna or extend to neighbouring land putting lives and property at risk. GAWB also seeks to prevent the spread of fires to remnant vegetation systems.

Revegetation projects

Under section 5.5 of the CG Report, GAWB was required (as an offset for the inundation impacts on remnant ecosystems), to finalise and develop a conservation management strategy incorporating remediation and maintenance of vegetation and habitat value of 4,157ha of existing remnant vegetation, and regeneration and protection of at least a further 300ha of previously cleared or degraded areas within the pre-clearing extent of RE12.3.3 and RE11.3.4 above 47m AHD to remnant status with significant habitat value.

General maintenance

GAWB is required to maintain the improvements on its properties such as houses, sheds, fences, gates etc.

Application of resources

GAWB employs a full-time Land Manager who is responsible for the Land Rationalisation Project and management of land and agistment issues on GAWB land in the Boyne Valley. GAWB also employs a full-time Land Management Officer (who reports to the Land Manager), responsible for weed, pest and fire management, fencing and general maintenance. GAWB's Land Management Officer is also required to deal with any unauthorised use of GAWB's land (e.g. pig hunters, illegal camping).

At Full Supply Level (FSL) Lake Awoonga has an area of over 6,000ha, without allowing for flooding. At its current level of 32.93m AHD, an area of about 4,400ha is inundated, leaving over 25,000ha of land to be actively managed. Given the size of GAWB's landholdings, significant travelling is required to isolated areas (GAWB's Land Management Officer averages about 200km per day in his vehicle). GAWB has been developing its communication systems to increase the area of radio coverage within the Valley for the safety of GAWB's employees.

When required, GAWB engages external contractors to assist with grading roads and firebreaks, weed control and maintenance.

Land Rationalisation Project

GAWB's Land Manager is responsible for acquiring any lands within the adopted boundary of Lake Awoonga of which GAWB is not the freehold owner (including freeholding of unallocated State land, reserves and State leasehold where able and resolving native title issues) with a view to amalgamating into one freehold parcel. This requires regular interaction and negotiation with representatives of several government departments including land and environmental sections of the Department of Environment and Resource Management (DERM), Queensland Primary Industries and Fisheries (QPI&F) as part of the Department of Employment, Economic Development and Innovation and Gladstone Regional Council.

Road closures

There were a number of gazetted roads on GAWB land which are no longer needed for public purposes. GAWB's Land Manager has arranged for GAWB to progressively purchase those roads from DERM, amalgamate them with GAWB's adjoining lands, and arrange for the official closure of the roads. As a condition of these permanent road closures, GAWB is required to ensure continuity of existing easements crossing those roads. The permanent closure of roads is required for safety and protection of water quality, flora and fauna. Road closures enable GAWB to restrict uncontrolled public access to GAWB land, thereby reducing instances of unlawful camping, hunting, four wheel driving and trail bike riding, fires and potential spread of noxious weeds.

Weed management

Control and eradication of land-based weeds are managed by GAWB's Land Management Officer. This is a time consuming, ongoing task. Parthenium and GRT affected areas need to be sprayed regularly to prevent further outbreaks because the seed banks can last for 12 years. On some occasions external contractors are engaged to assist with weed control, however it is more efficient and cost effective for weed control to be effected by GAWB staff.

Control and eradication of water weeds are predominantly carried out by GAWB's rangers via boat and the installation of barriers across creek mouths. GAWB's Land Management Officer carries out some land based treatment of areas close to shore. On some occasions external contractors are engaged to assist with salvinia control.

Locations of weed affected areas have been mapped and GAWB's Land Manager is preparing a weed management plan in conjunction with GAWB's Land Management Officer and Recreation Manager. GAWB uses weed management processes and chemicals which have least impact on the environment.

Pest management

GAWB's Land Management Officer lays baits for feral pigs and dogs from time to time under controlled conditions as approved by QPIF

To reduce GAWB's pig control costs, GAWB is currently seeking to enter into an arrangement with a licensed commercial pigger to trap and remove pigs from GAWB land under controlled conditions (at no cost to GAWB).

Fire management

Given the dry nature of GAWB's land within the Boyne Valley, fire management is essential.

GAWB has an established process of grading firebreaks annually (between March and July) in preparation for the fire season. This work is carried out by a contractor under direction of GAWB's Recreation Manager (for the Lake Awoonga Recreation Areas and around the Awoonga Dam pump station and associated infrastructure) and under direction of GAWB's Land Management Officer on GAWB's other land in the Boyne Valley.

GAWB's Land Management Officer and rangers also carry out pre-season hazard reduction burning on a regular basis.

GAWB is developing a Wildfire Management Plan as part of its Disaster Management Plan framework.

GAWB's Land Manager, Land Management Officer and recreational area staff assist with fire fighting on GAWB land when there are outbreaks of wild fire. GAWB is currently further developing its fire fighting capability including providing appropriate further training for relevant staff. GAWB has a specially equipped fire truck and is required to ensure that this vehicle is maintained. Fire fighting equipment must also be maintained and replaced as required in readiness for use at all times.

Fencing

GAWB's Land Management Officer carries out fencing activities including repairs as and when required.

Agistment management

GAWB has arrangements with a number of graziers in the Boyne Valley for agistment of cattle on GAWB land. Many of these arrangements are with landowners from whom GAWB purchased land for the dam raising, to enable them to continue to use the subject land until inundated. Some agreements are with adjoining landowners. The Land Manager is responsible for managing documentation of these agistments. Both the Land Manager and Land Management Officer actively liaise to maintain good working relationships with agistees and neighbouring landowners. The Land

Management Officer is also responsible for overseeing agreements to ensure that agreees are complying with their obligations under the agreements.

As well as the income from agreement fees assisting with some of the costs of weed management, cattle help to keep fuel loads down as part of GAWB's fire management strategies.

Revegetation projects

GAWB has engaged QPI&F to implement and monitor the revegetation projects. A Vegetation Regeneration Plan was developed in 2002, and tree planting was completed on GAWB land at "Netherleigh" in 2002 (three plots) and 2003 (three plots), and near Futter Creek in 2004 (four plots). QPI&F carries out monitoring works in conjunction with GAWB, provides recommendations as to management strategies and prepares six monthly reports at GAWB's cost (contract fee for period 1 July 2008 to 30 June 2011 is \$156,740.00 plus GST). Monitoring is carried out at 25 plots comprising the 10 planted plots, three control plots, three remnant plots and nine natural revegetation plots.

In addition to payment of the monitoring fees to QPI&F, GAWB is required to carry out management activities within the revegetation plots including tree thinning, weed control and hazard reduction burning. These tasks are undertaken by GAWB's Land Management Officer.

Maintenance

GAWB is responsible for the ongoing maintenance of buildings existing on GAWB land. The buildings on the property known as 'Glengarry' are heritage listed and are in poor repair. GAWB has fenced these properties off due to public safety concerns. Houses and outbuildings at 'Cluden' and 'Eastern Boyne' require regular maintenance and upkeep. 'Netherleigh' homestead is currently uninhabitable due to a severe storm in 2008; and the building will be demolished in the future.

GAWB's Land Management Officer also attends to other general maintenance requirements e.g. replacement of cattle grids, water tanks, etc.

Hatchery

Integration with GAWB's business

In the early 1980s, GAWB constructed Awoonga High Dam stage 1 (30m AHD) downstream of the existing weir (18.87m AHD, which structure included a fishway). The 30m dam did not include a fishway. An Impact Assessment Report commissioned by GAWB for the 30m raising recommended a number of ameliorative actions to minimise the detrimental impacts of the dam construction including '*encourage the introduction of several native fish species into the dam and adjacent streams*'. In accordance with that recommendation, fingerlings have been stocked into Lake Awoonga since early 1980s.

Up to March 1990, approximately 250,000 fish were released into Lake Awoonga. A survey conducted in 1991 found that only small numbers of these stocked species survived to an angling size. In response to this, GAWB established a fish hatchery in partnership with Gladstone Port Authority (now Gladstone Ports Corporation Limited) to produce juvenile fish in high numbers to stock Lake Awoonga and create a viable recreational fishery. Releases of fingerlings produced from this hatchery commenced in 1996.

GAWB's EIS in June 2000 for the 40m raising of the dam noted in section 17.7:

"The fish species that are now, and would continue to be, most affected by the proposal in the future are migratory fish such as barramundi, ox-eye herring, eel and mullet. Enhancement of the populations of such species in the Boyne River catchment is likely to be best achieved by stocking programs and/or incorporating effective fish transfer systems... There are no plans to install a fishway over Awoonga Dam, as no effective mechanisms are known to exist for a dam this size."

The EMP developed by GAWB as part of the EIS (June 2000) notes in its objectives in section 4.3.2:

- *Reduce as much as practicable the adverse impacts on aquatic flora and fauna (including estuarine) during construction and operation of Awoonga Dam*
- *Where unavoidable impacts will occur, implement strategies to mitigate those impacts to an acceptable level.*

One of the mitigation strategies adopted by GAWB under its EMP was the development of a Fisheries Management Plan and fish restocking program. This function is therefore directed to meeting GAWB's environmental and corporate responsibility objectives.

Objectives of the function

The main objectives of GAWB's fish stocking program are to ameliorate the environmental impact of the construction of the dam wall and to maintain the biodiversity in Lake Awoonga, the Boyne River and adjacent streams. An important secondary objective is to create a viable recreational fishery.

GAWB operates a hatchery to enable it to produce the fish required for its stocking program. The GAWB hatchery is currently the only hatchery in Queensland producing the South East strain of barramundi native to Lake Awoonga.

Application of resources

GAWB currently operates its hatchery from premises provided by Gladstone Ports Corporation Limited at Lord Street, Gladstone.

The day to day operations of the hatchery are managed by GAWB's Hatchery Manager. He is assisted by GAWB's Corporate Services Assistant and Casual Hatchery Assistant.

The hatchery maintains broodstock in four tanks. These tanks must be maintained with water quality, air and temperature at levels required for the health of the fish. Broodstock are required to be fed daily. Filters and other equipment must be maintained by hatchery staff. The Hatchery Manager is required to obtain additional broodstock as needed to maintain the genetic diversity. The new broodstock must be disinfected before release into the broodstock tanks. The health of the broodstock is checked regularly and any health conditions treated as required.

The water in the tanks is a combination of potable water and salt water drawn from nearby Auckland Creek. There are times when the Auckland Creek water is of poor quality (due to external factors) and this requires additional work in cleaning and maintaining filters to bring the water quality to an acceptable level.

The breeding season for barramundi is August to March. This is a very busy time of year involving periods of overtime and nightwork. Females have to be injected and samples of egg mass collected and monitored to ensure suitability for spawning. Water in the tanks must be balanced and aerated to ensure suitable conditions. Larvae are collected and placed in larvae rearing tanks for 30 days with regular feeding. At 20mm, they are moved to the nursery tanks and regularly graded and moved on to other tanks. Water quality, air and temperature must be maintained in all the tanks at all times. At 50mm the fingerlings are ready for sale.

Hatchery staff also produce algae and live prey for feeding. The main purchases for the hatchery are: larvae, fingerling and broodstock feed; water treatment and disinfection products; and oxygen.

GAWB's Hatchery Manager is also responsible for marketing. GAWB has standing arrangements for sale of fingerlings to stocking groups in the Central Queensland area and also sells to private purchasers, aquaculture farms and aquariums. Some orders are delivered by bus transport while most orders are delivered by hatchery staff. These sales assist to meet the costs of production of fingerlings for the fish stocking program.

GAWB's hatchery has also produced mangrove jack (with limited success) and sea mullet for stocking Lake Awoonga.

GAWB's Hatchery Manager selects and releases fingerlings to Lake Awoonga and monitors the Lake Awoonga fishery.

Maintenance of hatchery equipment and general cleaning tasks are completed by hatchery staff. Some plumbing and electrical work and maintenance of the fire safety and alarm systems are outsourced.

Recreation

Integration with GAWB's business

The construction of Awoonga High Dam has had some detrimental impacts on the environment of the Boyne River valley. As an offset to this, the increased storage volume has enabled GAWB to develop a freshwater recreational facility for the benefit of the Gladstone regional community.

Coomal and Riverston Bay picnic areas were developed with the initial completion of the Awoonga High Dam (30m AHD) in 1984. Expansions were undertaken between 1990 and 1993 due to increased community use of the areas.

Ironbark Gully picnic site was developed between 1992 and 1994 to meet increased user demand and relieve pressure on the Coomal Bay and Riverston Bay facilities.

Infrastructure (like picnic shelters and amenities blocks) subject to inundation were relocated to higher ground as part of the works associated with raising the dam wall to 40m AHD.

The 'Raising of the Awoonga Dam (Boyne River) EIS Assessment Report' by the Coordinator-General in January 2001 placed condition 7.4 on GAWB which states '*That the proponent replaces non-GAWB recreational facilities, which will be affected by the new dam, with a similar standard of recreational facilities*'.

As a result, GAWB developed the Boynedale Bush Camp near Santa Glen Crossing.

Objectives of the function

GAWB provides recreational facilities to meet its obligations under the EIS and its goal to be a good corporate citizen. The primary objective is to maintain safe and attractive facilities for the community. An additional benefit for the community is the contribution this facility makes to tourism in the region.

Application of resources

GAWB provides a number of recreational areas:

Boynedale Bush Camp

Boynedale Bush Camp comprises a camping area near the western shores of Lake Awoonga. There are 20 camp sites, four picnic tables, two shelters, four to five fireplaces and composting toilets. There is a further picnic table at the lookout.

The camping and lookout areas are maintained by GAWB's Land Management Officer. The toilet building and fireplaces are cleaned weekly. The toilet pits are emptied by a licensed contractor annually, and waste is removed to an approved site. The toilet facilities need to be upgraded to meet increased usage of the camp facilities.

The area is mowed as needed – approximately fortnightly during growing months, less often in drier periods. Trees are trimmed as and when required. JJ Richards & Sons are contracted to provide a rubbish collection service.

The Boynedale Bush Camp is accessed via a council-controlled road from the main road to the Boynedale railway crossing, then by a graded track maintained by GAWB. This access was recently realigned so as not to be subject to inundation should the lake reach full supply level of 40m AHD. The realigned access track was constructed with road base materials accessed from GAWB's nearby quarry. It includes drainage, gullies and culverts to ensure all weather access. The track is required to be graded at two to three year intervals.

Lake Awoonga Recreation Area

GAWB employs a Recreation Manager, two rangers and a trainee ranger (recreational area staff) on a full-time basis to attend to management and upkeep of GAWB's main recreational areas.

Coomal and Riverston Bay picnic areas

Comprising an area of about 13,000m² these are the main recreational areas frequented by day visitors. Facilities include:

Coomal Bay – five shelters with picnic tables and four double plate electric barbecues, and a waterfall.

Riverston Bay – main amenities block (male, female and disabled toilets), two playgrounds, volleyball court, composting toilets, seven picnic shelters including picnic tables, and seven wood-fired barbecues.

Castletower Lookout (between Riverston Bay and Ironbark Gully)

This area includes two shelters, a wood-fired barbecue, a viewing platform and irrigated turf and gardens. It is a popular site for weddings.

Ironbark Gully Picnic Area

This area comprises an area of 37,500m². Facilities include nine picnic shelters with picnic tables, playground, composting toilets, nine woodfired barbecues and a waterfall.

Lookouts and tracks

GAWB maintains three lookouts in the Lake Awoonga Recreational Area and about 5km of walking tracks. The lookout areas are required to be mowed, and signs and fencing maintained. The walking tracks are graded and resurfaced with decomposed granite two to three times per year depending on weather.

GAWB's recreational area (rec area) staff clean all picnic tables and barbecues in the picnic areas once per week. Shelters are cleaned monthly and checked regularly for any maintenance issues. Amenities blocks are also cleaned weekly. Wood for the wood-fire barbecues is collected by the rec area staff and placed in central bins in the Riverston Bay and Ironbark Gully areas for use by the public.

Rubbish bins are provided around the facilities. They are required to be emptied and the rubbish taken (daily during summer/spring, three times a week during autumn/winter) to a central collection area which is cleared by external contractors once per week.

GAWB's Recreation Manager has developed a maintenance works program for the ongoing inspection and maintenance of the facilities at each of the picnic areas, which includes painting and regular repairs.

There are a number of gardens in the Lake Awoonga Recreational Area that require ongoing weeding, mulching and trimming and replanting. Irrigation works are being upgraded to improve efficiency of water usage.

Mowing and whipper-snipping are completed every two weeks in summer and every three weeks in winter. This takes two staff four days, and is undertaken during the week when there are fewer members of the public using the areas. Waterfall pumps also require regular cleaning and maintenance.

The carparks (12,295m²) and access roads (about 3km) are maintained by the rec area staff. This approach has been found to be more cost effective than using external contractors.

The rec area staff attend to public enquiries as required, and one staff member is rostered on call each weekend to attend to any urgent issues. Staff also provide security/surveillance for the recreational areas including prevention of unauthorised camping or other breaches of conditions of entry.

Boat ramp

GAWB provides a public boat ramp near Ironbark Gully, which is maintained as required by the rec area staff. A fish cleaning station and bin are also maintained in this area and emptied weekly by external contractors.

Kalinda building

This building was formerly operated as a café/restaurant by lessees. It is now an information centre providing information displays about the history of the water storage facilities, weed and pest management, flora and fauna and water conservation. This facility is maintained by rec area staff who are available to provide information for the public. It will also be available for use by school groups.

Ranger workshops and office

GAWB maintains two large sheds (one containing an air-conditioned office and meal room) near the recreational area. Vehicles, including the fire fighting vehicle, the boat and mowers etc are stored in the sheds. Cleaning and general maintenance of these facilities is carried out by rec area staff. External contractors are engaged as required to carry out works requiring specialist skills (e.g. electrical and plumbing). Arrangements are made and overseen by the Recreational Manager.

Regular maintenance and vehicle checks for the vehicles and machinery are carried out on a weekly basis by rec area staff. Vehicle and machinery repairs are generally undertaken by external contractors.

Houses

GAWB owns five houses in the Lake Awoonga Recreational Area. Three were constructed in the 1970s with the final raising of the weir. The remaining two houses were constructed in the 1980s and associated with Awoonga High Dam stage 1 construction. One of these houses is currently leased to the managers of Lake Awoonga Caravan Park for commercial rent. Two are occupied by GAWB staff.

Given the age of the houses, these buildings are in need of some painting, new floor coverings and minor repairs, in order to maintain their value.

Sewage treatment plant

GAWB operates a sewage treatment plant at Lake Awoonga Recreational Area to service the requirements of the amenities, caravan park and houses.

GAWB's rec area staff are required to carry out day to day monitoring and maintenance work of the sewage treatment plant facilities.

Lease and licence management

GAWB has a number of lease and licence arrangements within the Lake Awoonga Recreational Area which are required to be documented and managed:

- commercial lease for the Lake Awoonga Caravan Park (10 years with options to renew for 10 years and five years respectively)
- licence for operation of houseboat and leisure craft hire business
- licence for operation of a houseboat on the Lake
- three licences for operation of fishing charter vessels on the Lake (line fishing only)
- three leases at nominal rent to local community groups for community purposes.

GAWB's Land Manager and Recreation Manager monitor compliance by the lessees and licensees with the terms of the agreements.