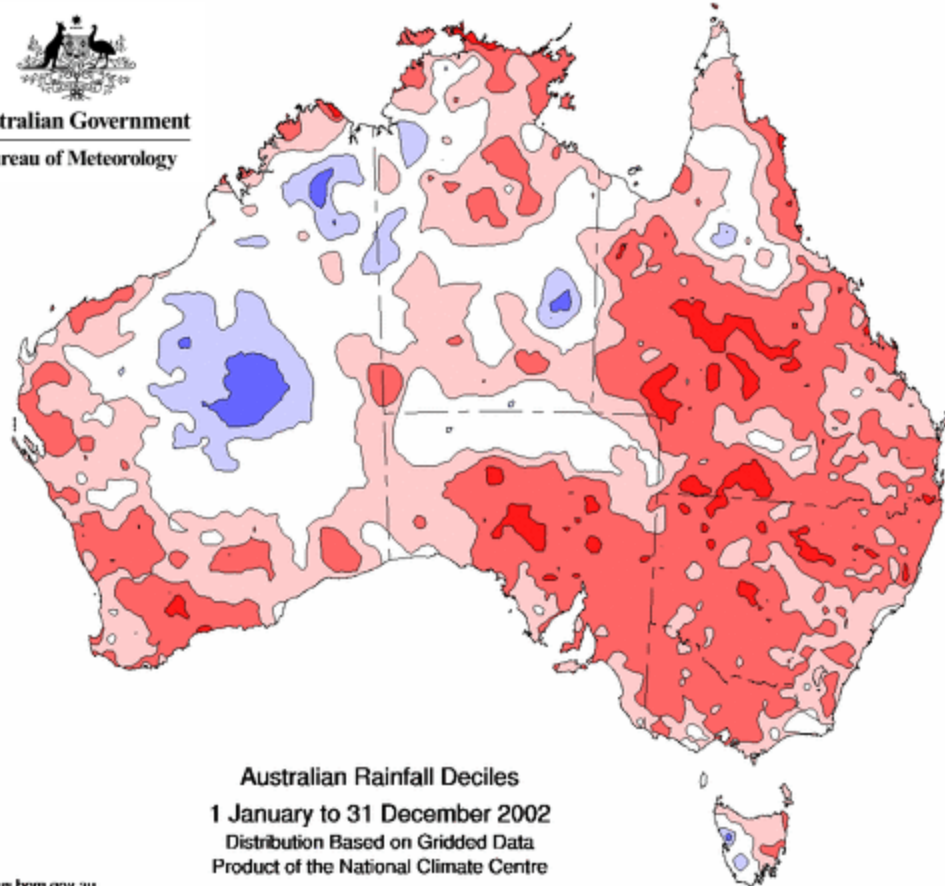


Recent Severe Droughts in Australia



Australian Government
Bureau of Meteorology



Rainfall Decile Ranges

10	Highest on Record
9	Very Much Above Average
8-9	Above Average
4-7	Average
2-3	Below Average
1	Very Much Below Average
	Lowest on Record

Australian Rainfall Deciles
1 January to 31 December 2002
Distribution Based on Gridded Data
Product of the National Climate Centre

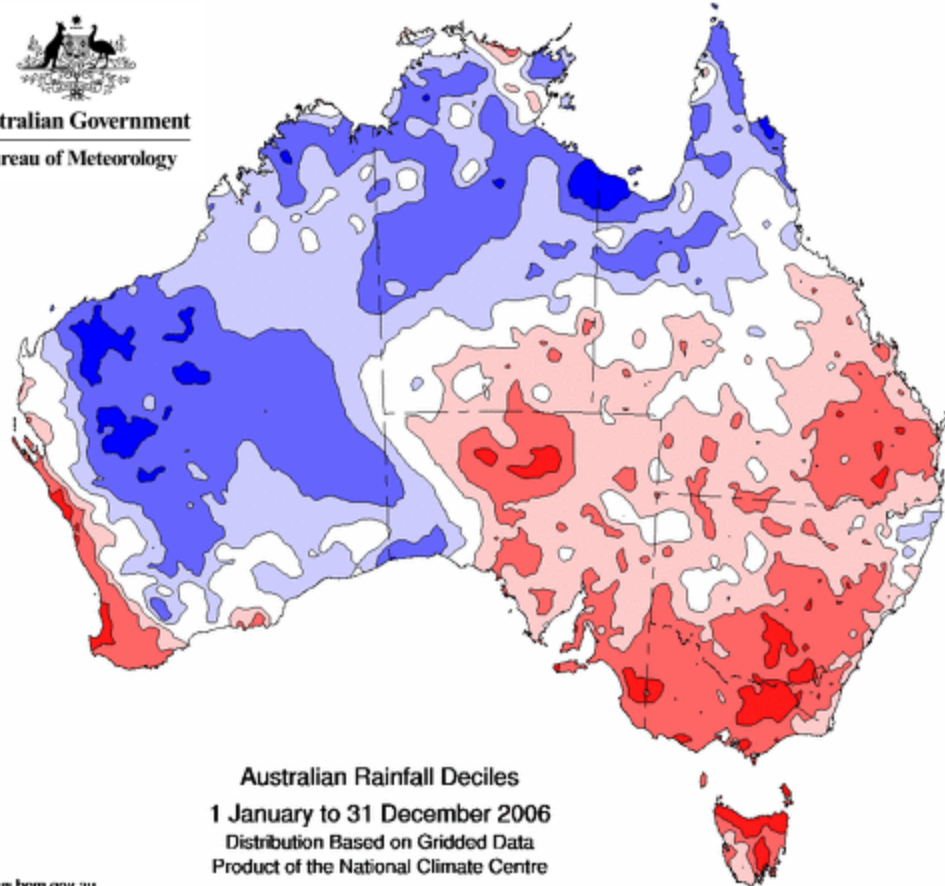
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Bureau of Meteorology



Rainfall Decile Ranges

10	Highest on Record
9	Very Much Above Average
8-9	Above Average
4-7	Average
2-3	Below Average
1	Very Much Below Average
	Lowest on Record

Australian Rainfall Deciles
1 January to 31 December 2006
Distribution Based on Gridded Data
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Drought in NSW Australia

- New South Wales has followed the same path as Western Australia, announcing a new desalination plant for [Sydney](#) to cost \$1.3 billion.^[6]
- Sydney Water has imposed fines of \$200 for violations of the rules for individuals, \$500 for businesses, and \$2,200 for water theft.^[7] Rules are enforced by Sydney Water staff through random checks.

	Stage 1	Stage 2	Stage 3	Stage 4
Canberra was subject to Stage 1 restrictions from 1 November 2005, which were increased to Stage 2 after a year on 1 November 2006. The continuing drought led to further				
Sprinklers and irrigation:	Alternate days, 7-10am & 7-10pm	Drippers only, 7-10am & 7-10pm	No reticulation	
Hand-watering gardens and lawns:	No restrictions	Alternate days, 7-10am & 7-10pm	No watering lawns; watering plants alternate days, 7-10am & 7-10pm	Greywater only
Swimming pools:	No emptying or filling; Topping-up allowed		No topping-up, emptying or filling	
Car washing:	Once a week, or at commercial car wash	Once a month, or at commercial car wash	Only at commercial car washes	No car washing
Window cleaning:	Only with bucket or high-pressure, low-volume cleaner	No window cleaning		

Brisbane

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	
Reticulation sprinklers:	3 days/week	No sprinklers					No external water use without permit
Sprinkler times:	4-8am & 4-8pm						
Hose watering of gardens:	3 days/week		No hosing				
Hose watering times:	4-8am & 4-8pm	Before 7am & after 7pm					
Bucket/watering can watering times:	Any time			3 days/week; 4-8am & 4-8pm	No watering lawns; Otherwise 3 days/week, 4-7pm		
Pool filling:	Any time			Requires approval			
Topping-up pools:	4-8am & 4-8pm, 3 days/week	7pm-7am, 3 days/week	4-8am & 4-8pm, 3 days/week	4-7pm, 3 days/week	Log required		
Hosing hard surfaces:	Prohibited at all times						
Car/window washing:	Hose or bucket		Bucket only		Bucket only, to wash mirrors, lights & windows		

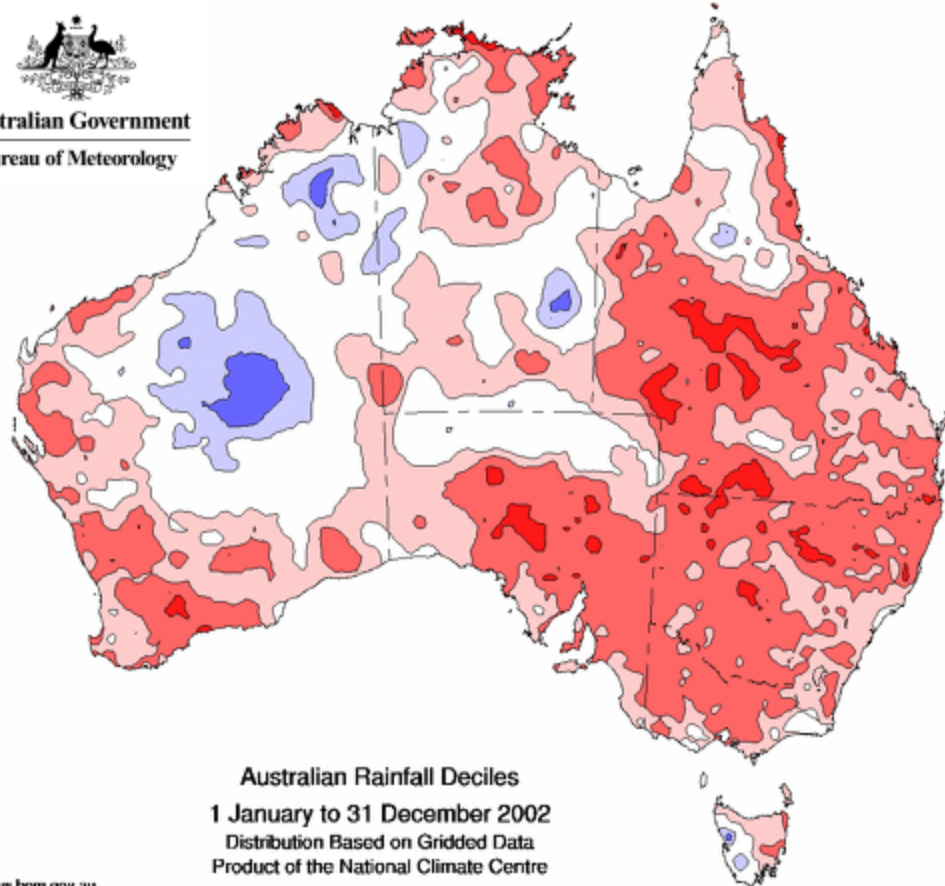
Brisbane at level 5

- More than two million Australians are subject to the highest level of water restrictions, which came into effect across south east Queensland in 2008. The Level 5 restrictions, which apply to 12 local councils, including the city of Brisbane, mean the effort to save water has shifted focus from outside to inside people's homes. Consumption is now limited to **140 litres per person per day, with chronic over-users facing heavy fines** and their shower pressure reduced to a trickle.
- The desalination plant is a rainfall-independent component of the State Government's \$7-9 billion South East Queensland Water Grid, the largest urban drought-response package in Australia's history. **"The desalination plant will add 125ML a day** to our drinking supplies when it is fully operational in January 2009. That's almost a fifth of SEQ's daily needs
- A controversial dam proposed by the Queensland government will be useless as a drought relief measure and a burden on taxpayers, a water expert says. **Professor Stuart White, from the Institute for Sustainable Futures at Sydney's University of Technology, on Friday described the Traveston Crossing Dam as unnecessary and costly. The \$1.7 billion** dam near Gympie in the state's south-east is the subject of a federal parliamentary inquiry following uproar from local residents

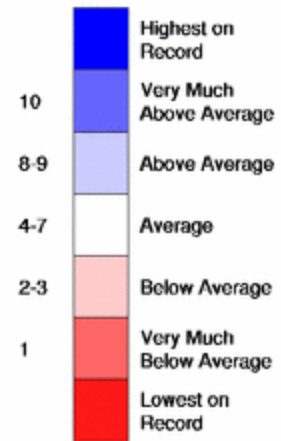




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Rainfall Decile Ranges



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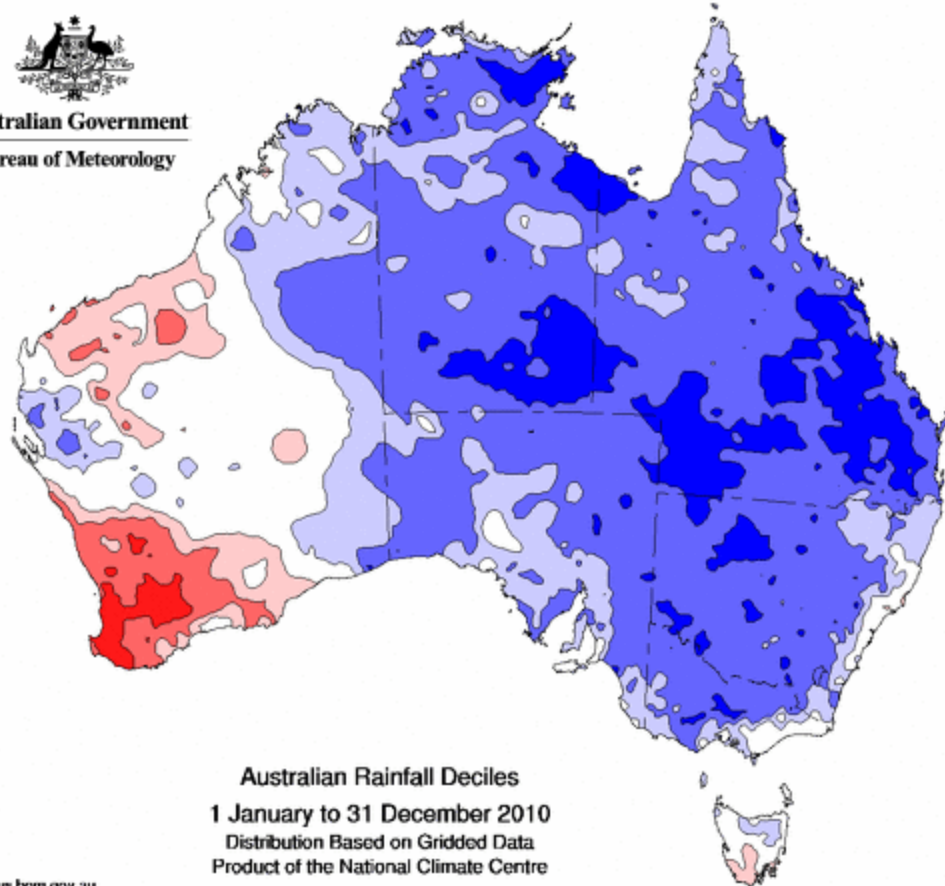
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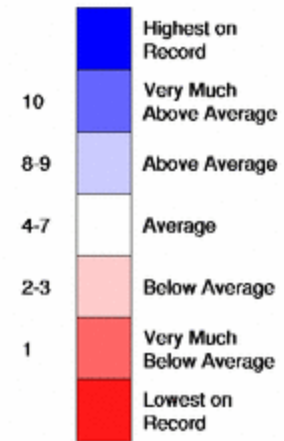
Issued: 01/01/2010



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Rainfall Decile Ranges



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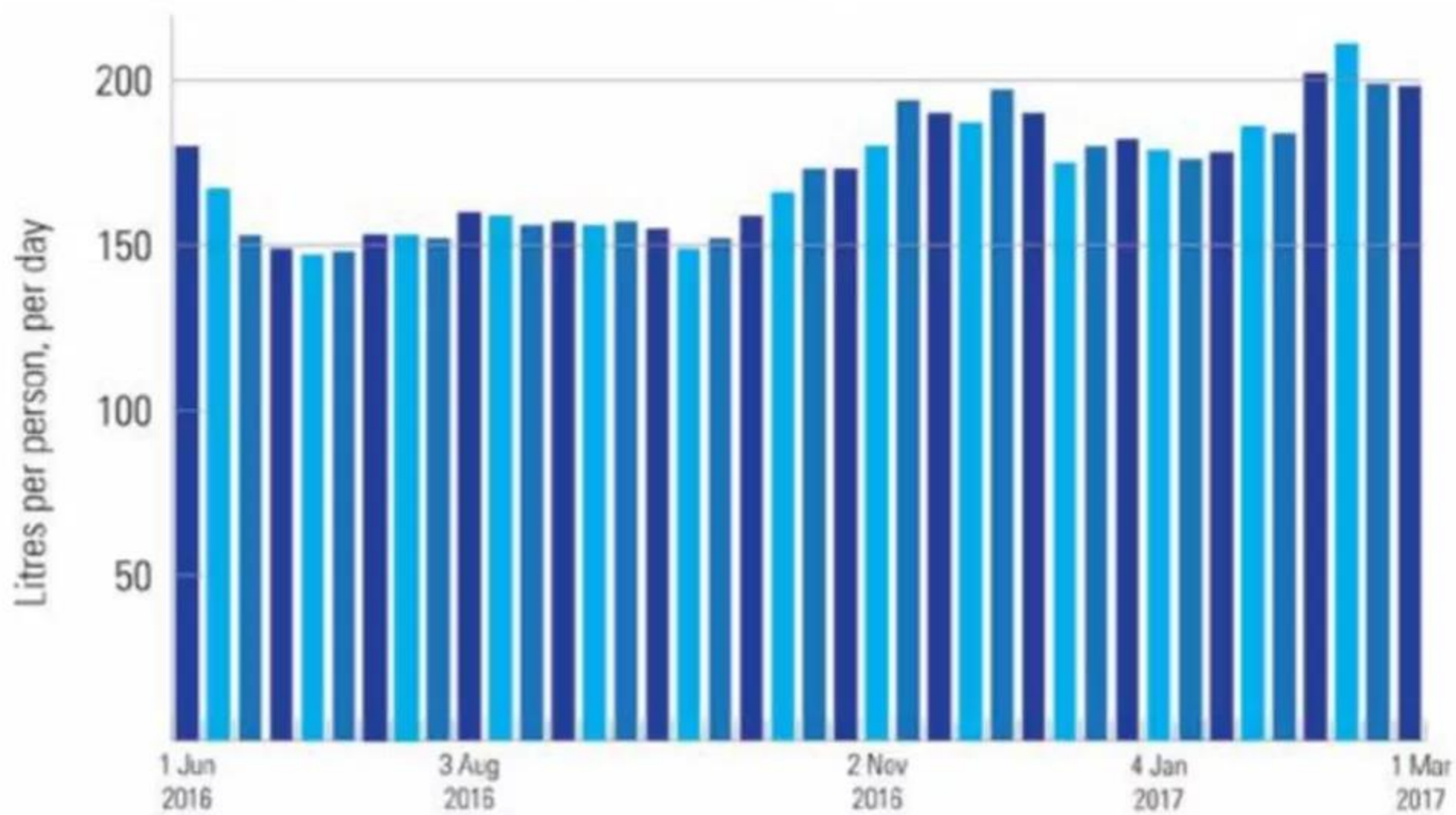
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South East Queensland water consumption between June 2016 and March 2017



- **Anna Bligh**
Queensland Premier
(is a descendant of [William Bligh](#), who is famous for the [Mutiny on the Bounty](#))

Introduced a \$9billion drought proof plan including:

A desal plant at Gold Coast

Building a new dam North of Brisbane

Major trunk main grid to connect every dam and every source

Started 3 Corporations to manage these

Started 3 Distribution Corporations to manage the whole of South Queensland's Water

Became a public hero during the 2010 floods

2012 was reduced from 51 seats to seven because of the after effects of the drought

So did the next premier Campbell Newman described as having a Sep Blatter attitude to water

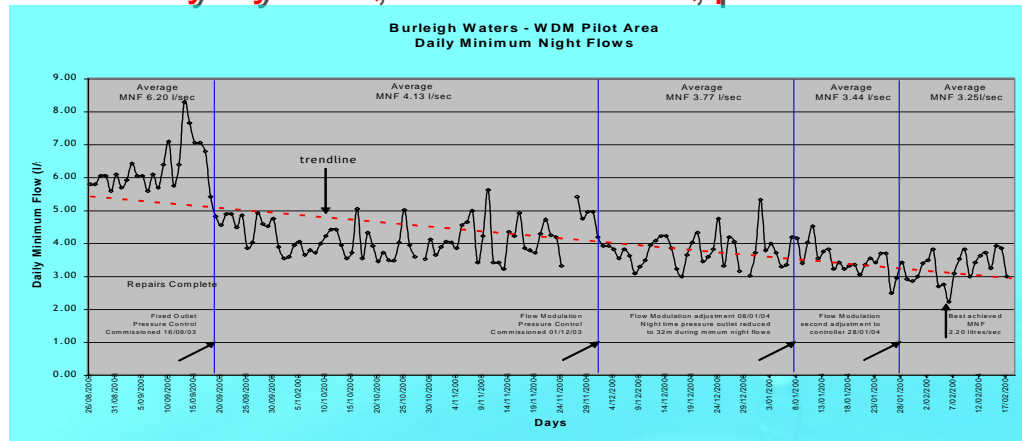


My Opinion

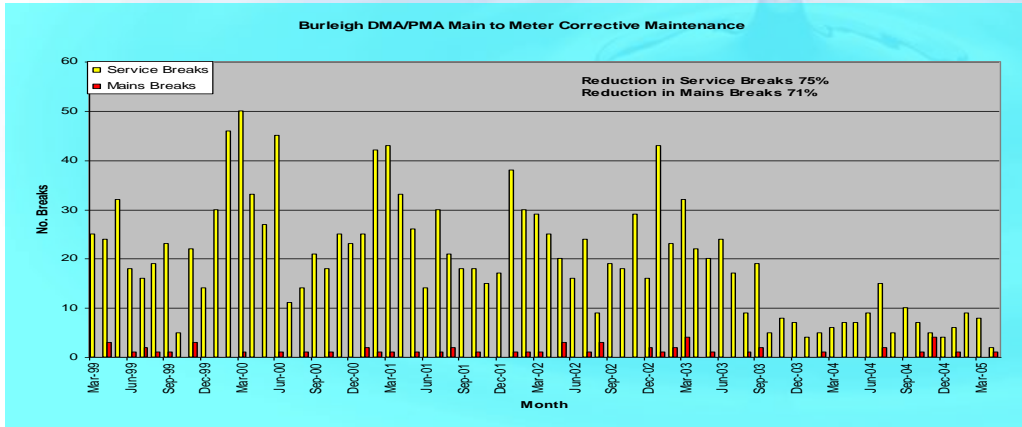
- Brisbane city water management let down the people
- No bulk metering of significance
- Less than 2% DMA's
- Hardly any Pressure control for water loss
- Arrogant management
- Gold Coast and Logan city were very wise as they hired WBW to reduce losses and burst frequency

Second Principle: Reduce Excess Pressures: An Australian Example (Gold Coast):

Gravity System, 3300 services ; pressure reduced from 72 to 50 metres



**Night flow reduced
from 6 litres/sec
to 3 litres/sec**



**Mains repairs
reduced by 71%**

**Service pipe repairs
reduced by 75%**