



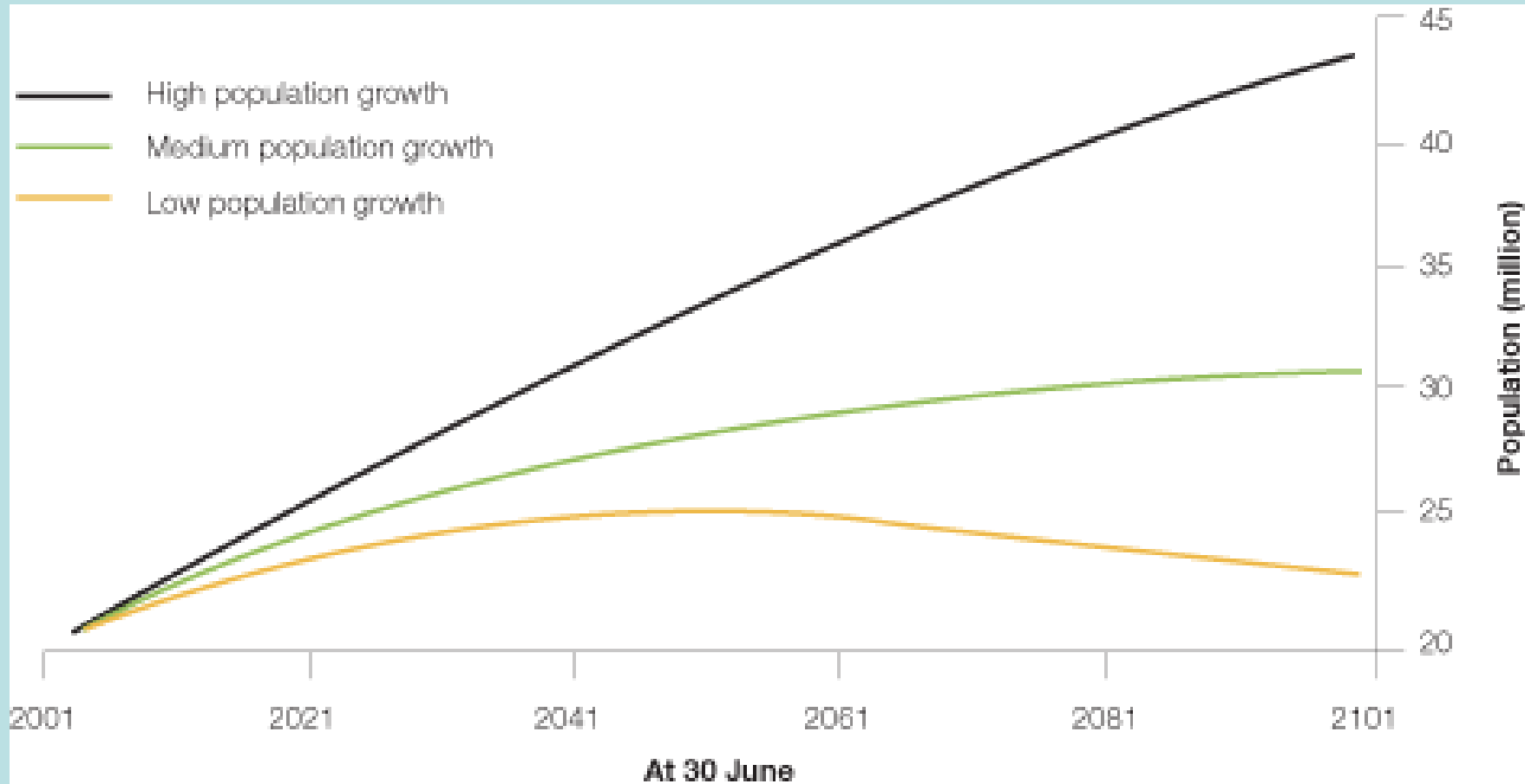
“Fresh water has become the blue gold of the 21 century – a precious commodity that will determine the fate of nations and societies”

Maude Barlow - The Council of Canadians.

THE WORLD'S WATER HOTSPOTS





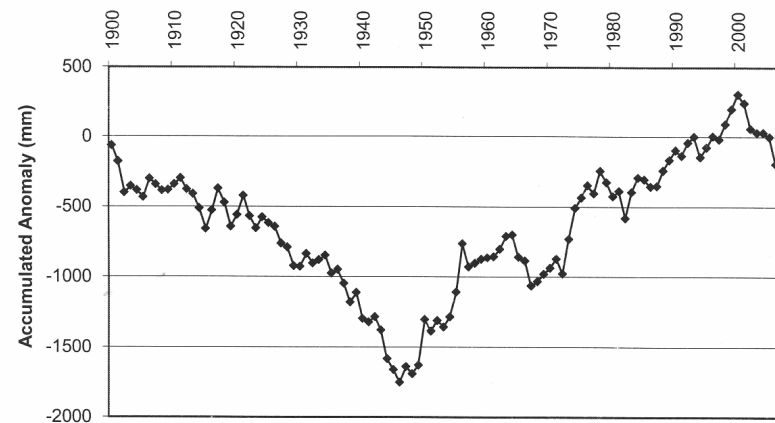
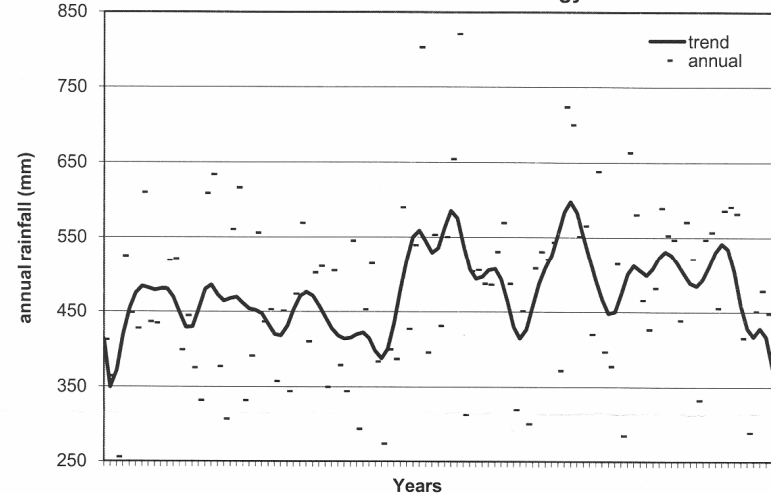


Three projections of possible population growth for Australia.

The 20th century opened with the Federation Drought, and relatively dry conditions persisted for a half a century, accentuated by severe drought periods around the time of the First World War and the decades of the middle 1930s through to the end of Second World War.

The second half of the 20th century was generally wetter than the first half, with three periods of sequential, high rainfall years. Dry conditions similar to the first half of last century have been experienced again since around 2000. A plot of the accumulated anomaly illustrates these longer-term trends.

Murray-Darling Basin Annual Average Rainfall 478 mm
Source: Bureau of Meteorology



Murray-Darling Basin Accumulated Rainfall Anomaly

WATER WASTE IN CITIES.

- ❖ Every city building is required to test its fire sprinkler systems. Every week, the buildings flush millions of litres of drinking water through these systems and into the drain.
- ❖ Every year, metropolitan water companies lose billions of litres of water to leakages and breakages in old and over-pressured pipes.
- ❖ Every day city dwellers use millions of litres of high quality water to fill and flush toilet bowls.
- ❖ Every day, commercial car washes use millions of litres of high quality water.
- ❖ We have square miles of flat surfaces in such places as airports, shopping centre car-parks, university campuses, and sports complexes. The owners and operators of these facilities are not required to capture and reuse any of the storm water that falls on their premises.
- ❖ To operate and function, the city of Melbourne needs about 480 GL of freshwater each year. In an average year about 450 GL of rainwater falls over Melbourne and yet hardly any of this is captured and used.



HOUSEHOLDS

- In 2004, the total volume of water required by the average household on Sydney's 'North Shore' was 3,300,000 litres!
- About 350,000 litres was consumed directly.
- the rest (approx. 2.7 million litres) was used as "embodied" water.
- Half of this was the water required to grow the food being consumed.

Water consumption L/ person/ day

- Victoria - 248
- New South Wales – 230
- South Australia – 258
- ACT – 260
- Queensland – 340*
- Tasmania – 392
- Northern Territory – 419
- Western Australia – 493

Where does the water go?

- gardens and lawn (34%),
- bathroom (26%);
- toilet (20%);
- laundry (15%)
- kitchen (5%).



**WATER RETROFIT OF THE GREATER METROPOLIS OF MELBOURNE
(1 million residences) ****.**

Action	Water savings at 2015 (GL/year)	Cost
4.5 / 3 litre dual flush toilets	4.6	
3* shower heads	12.6	
Dead space water valves	25 -35	
Pressure reduction valves	5 – 6	

Total water saved	47.2 – 58.2	

Cost per residence		\$3000
Total cost		\$ 3.0 billion

Water tank (2680L)	60 billion L/year	
Cost per residence		\$ 2,200
Total cost		\$2.2 billion

GRAND TOTAL COST		\$ 5.2 billion
GRAND TOTAL WATER SAVED	107.2 – 118.2 billion L/year	

(** DOMESTIC WATER EFFICIENCY IS LOCKED IN FOREVER)**

Value for Money?

	Murray Darling Basin	Food Bowl Stage 1.	N-S Pipeline	N-S Pipeline (low Food Bowl yield)
ACTION	50% irrigators up to WBP	Infrastructure upgrade	Pipe water to Melbourne	Pipe water to Melbourne
TOTAL WATER	900 GL	225 GL	75GL	75GL
COST \$	\$200-500 million	\$1 billion	\$1.08 billion	\$1.255 billion
\$ per ML gained	\$200-500	\$4,500	~ \$15,000 ***	~ \$17,500 ***

*** energy costs will be extra



“The course of human events, even the greatest historical events, is not determined by the leaders of a nation or a state, like presidents or governors or senators. They are controlled by the combined wisdom and courage and commitment and discernment and unselfishness and compassion and love and idealism of the common ordinary people.”

Jimmy Carter in *An Hour Before Daylight*. 2001