WATER SERVICES ASSOCIATION OF AUSTRALIA

International Water Forum

Carl Radford, Water Services Association of Australia

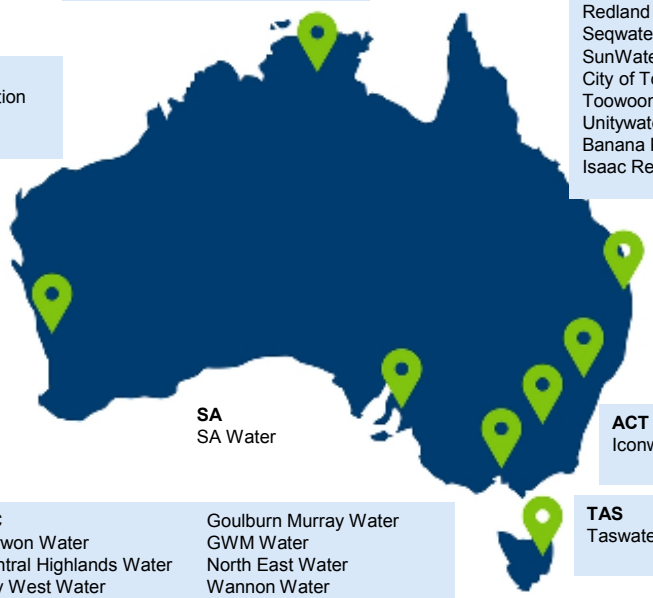
October 2017

Climate Change Adaptation and the Australian Urban Water Industry

What is WSAA?

- Peak body for water utilities
- Members provide services to over 20 million Australians (around 80-90% of population)
- Members have annual revenue over $15 billion
- Members manage over $150 billion in assets

WSAA Utility Members



NT
Power and Water Corporation

WA
Water Corporation
Aqwest

SA
SA Water

QLD
Queensland Urban Utilities
City of Gold Coast
Gladstone Area Board
Logan City Council
Redland City Council
Seqwater
SunWater
City of Townsville
Toowoomba Regional Council
Unitywater
Banana Regional Council
Isaac Regional Council
Mackay Regional Council
Mount Isa Water Board
Southern Downs Regional Council
Wide Bay Water
Whitsunday Regional Council
Cairns Water
Western Downs Regional Council

NSW
Gosford City Council
Goldenfields Water
Hunter Water
Shoalhaven Water
Sydney Water
WaterNSW
Queanbeyan Regional Council
Byron Shire Council
Lithgow City Council
Eurobodalla Shire Council
Lismore City Council
MidCoast Water
Port Maquarie-Hastings Council
Tweed Shire Council

ACT
Iconwater

TAS
Taswater

VIC
Barwon Water
Central Highlands Water
City West Water
Coliban Water
Gippsland Water
Goulburn Valley Water
Melbourne Water
South East Water
Western Water
Yarra Valley Water
Goulburn Murray Water
GWM Water
North East Water
Wannon Water
Lower Murray Water
South Gippsland Water

NZ
Watercare Services
Wellington Water

WSAA'S central functions

1. Collaboration

- Between members information sharing and problem solving
- On projects that are too big or expensive to do alone

2. Advocacy

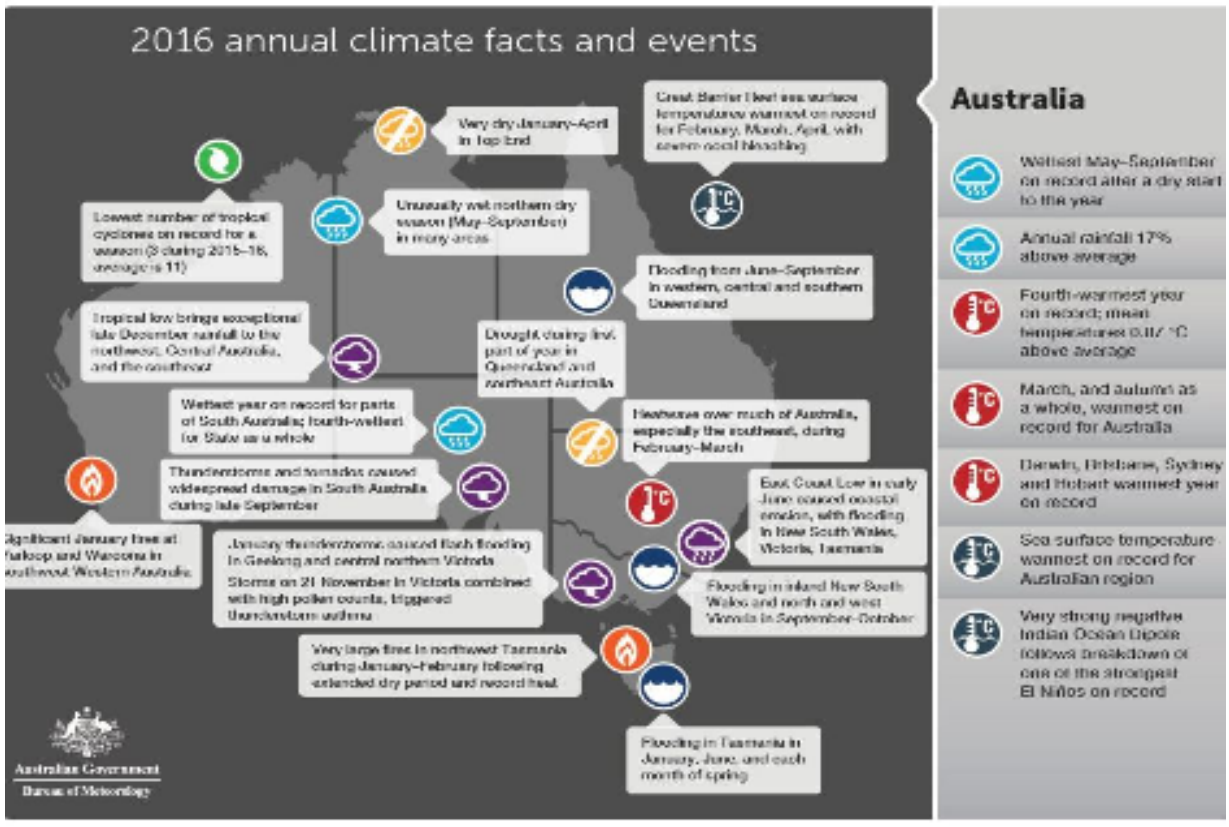
- Representing industry interests in Canberra
- Influencing policy
- International representation

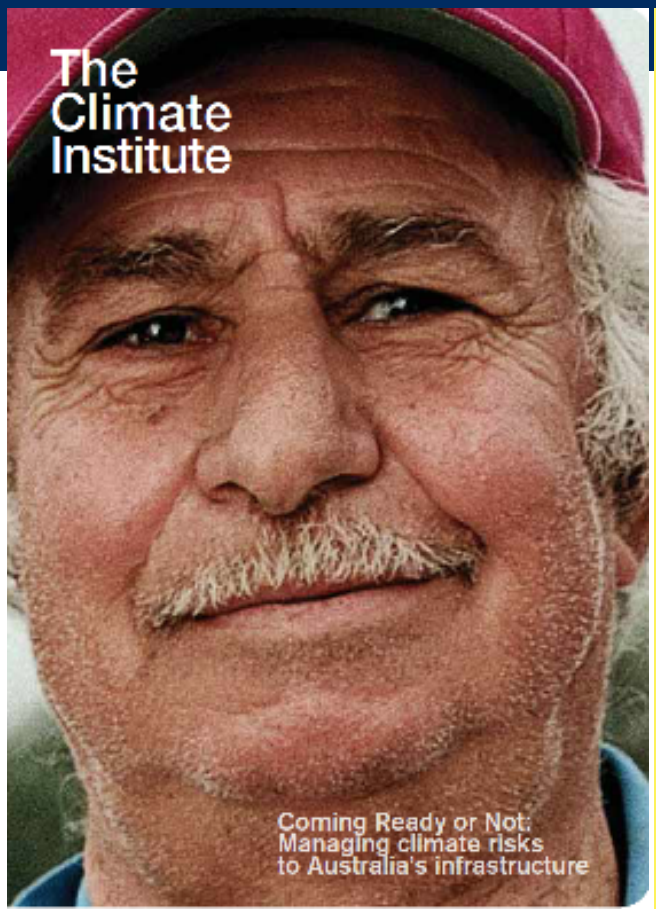
3. Innovation

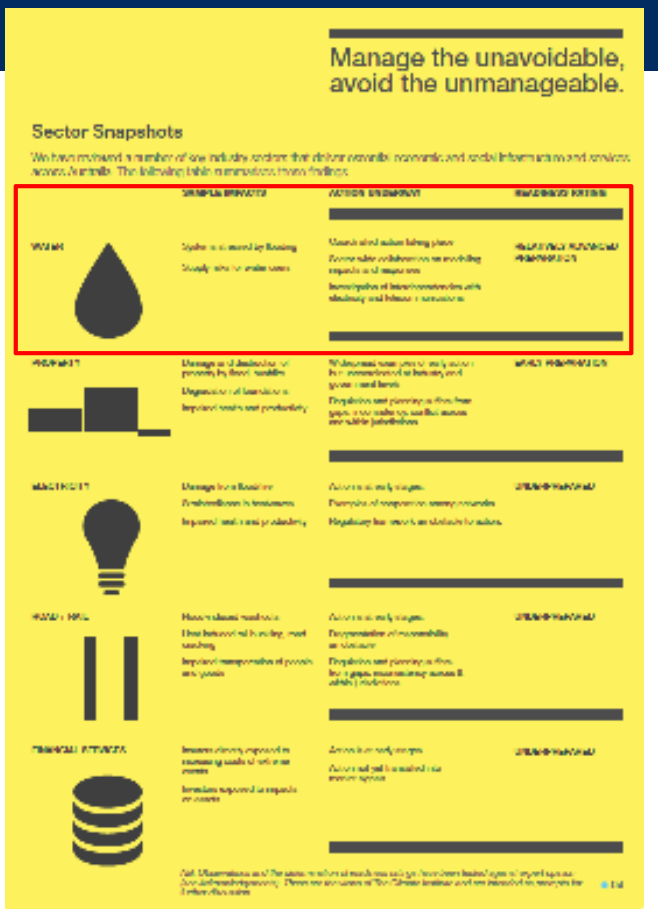
- A filtering point for latest technology
- Introducing new ideas from Australia and overseas
- Benchmarking

Risks & challenges for urban water utilities

Australia's climate in 2016







Setting the Scene

At a National level

CSIRO

Australian Government
Bureau of Meteorology

- Latest projections released 2016
- State of Climate Reports with BoM

NCCARF
National Climate Change Adaptation Research Facility

Australian Government
Department of the Environment

- Phase 2 – focus on coastal impacts
- Funding of $8.8 Million
- End User Reference Grp involvement

WATER SERVICES ASSOCIATION OF AUSTRALIA

WITNESS KING TIDES
A PROJECT BY GREEN CROSS AUSTRALIA

- Developed National Adaptation Guidelines
- Building resilient communities

National Adaptation Guidelines

Objective

- incorporate ‘best practice’ consideration of climate change risks and responses into business as usual using a straightforward, logical approach

Addresses

- broad range of climate change - related hazards including damage to infrastructure, disruption of services from power failure, telecom disruption etc.

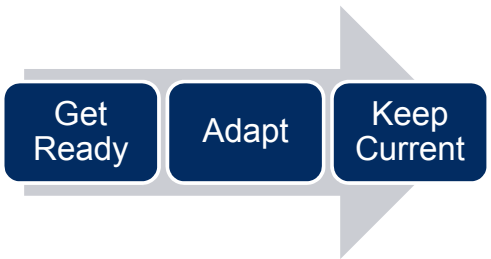
Outcomes

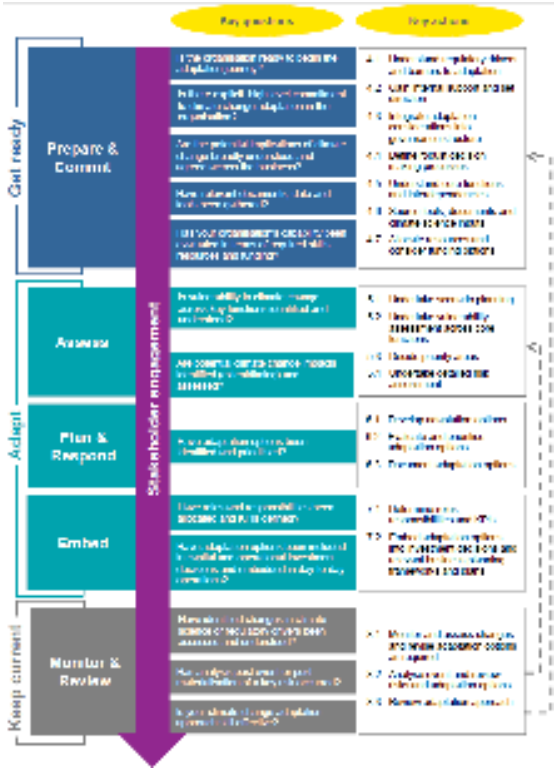
- National effort
- A way forward for integrating within business as usual
- Consistent Approach
- Industry leadership
- Assurance for Regulators
- expand awareness and approach to planning (Rethinking Adaptation for a 4 degree world)

Climate change adaptation decision framework

Five main ‘steps’

1. **Prepare and Commit**
2. **Assess**
3. **Plan & Respond**
4. **Embed**
5. **Monitor and Review**

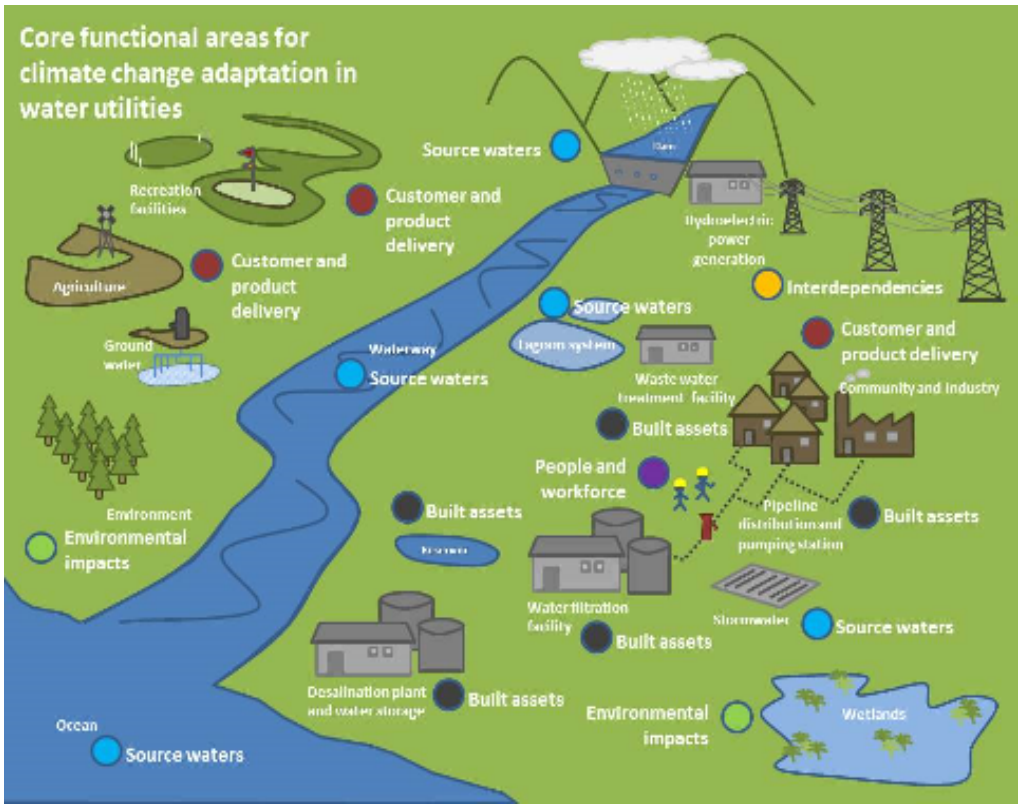




The appendices also link to useful sources, tools and references

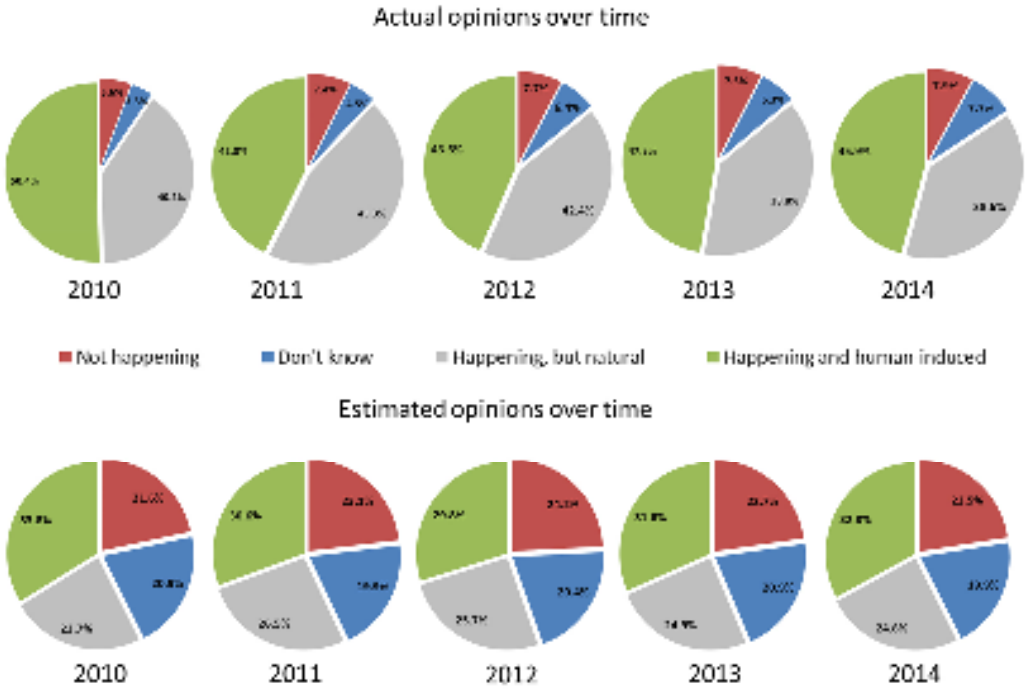
- Climate data
- Tools for adaptation planning
- Examples of adaptation planning documents and Australian case studies
- Stakeholder consultation
- Scenario planning
- Vulnerability and risk assessments
- Adaptation options and maladaptation

The technical appendices provide additional guidance for core functions



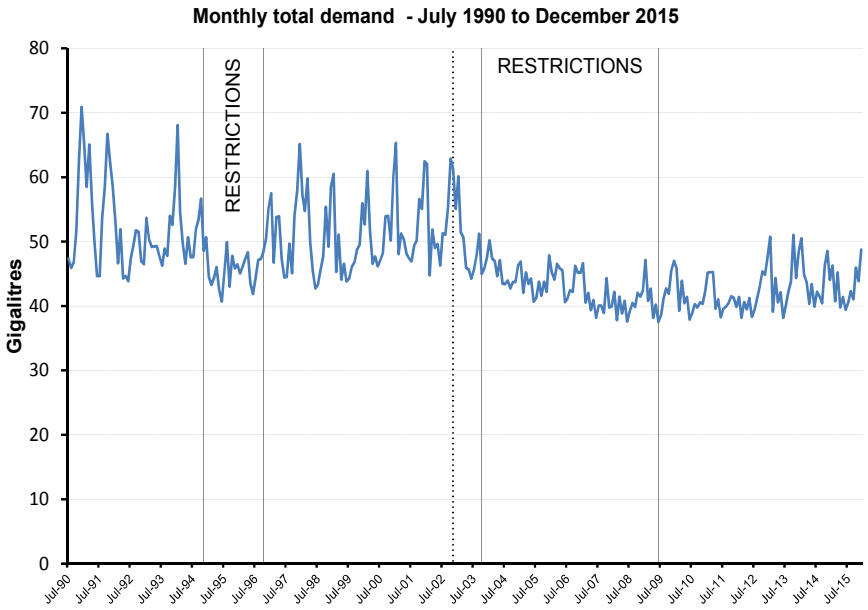
Community attitudes

The majority of Australians (78%) accept that the climate is changing. Regardless of their age, gender or level of education.



Customer Demand

Source: Sydney Water



Challenges for urban water

- Climate change viewed as a strategic risk, but ‘best science’ isn’t easily useable
- Perception that it’s essentially about urban water supply security where variability is a key driver
- Distractions caused by a focus on ‘mitigation’ and carbon pricing, with ‘adaptation’ playing second fiddle
- There are complex interdependencies at play but only patchy collaboration
- Quantifying risk, costs, benefits and timeframes has been challenging

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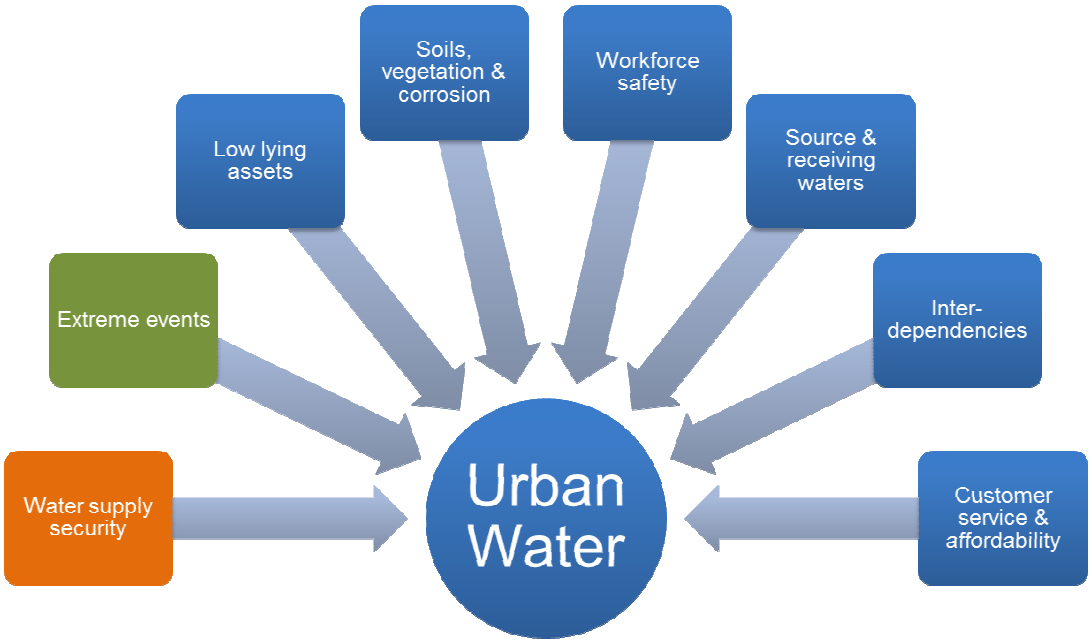
Critical longer-term issues



Climate risks

Brisbane floods 2011

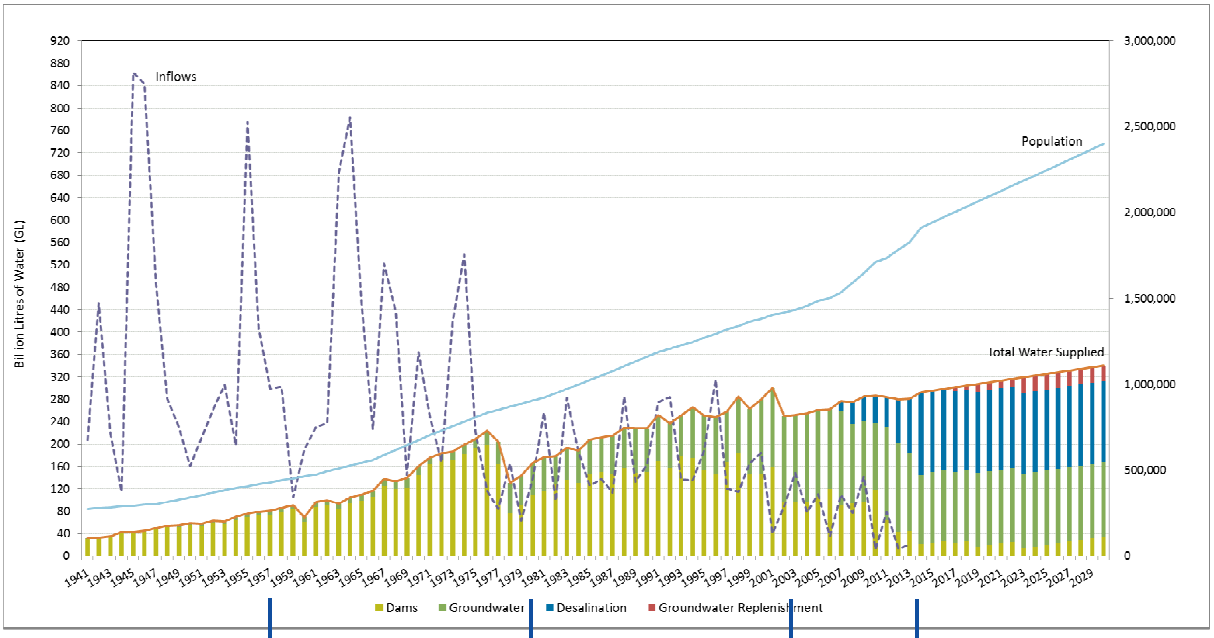
Blue Mountains bushfire 2013

Victoria heatwave 2014

Water supply security

- Always top of mind:
- Securing supplies in response to drought
- Climate variability a key driver
- $30 billion urban water investment
- Ensuring quality as well as quantity

Perth metropolitan water supply



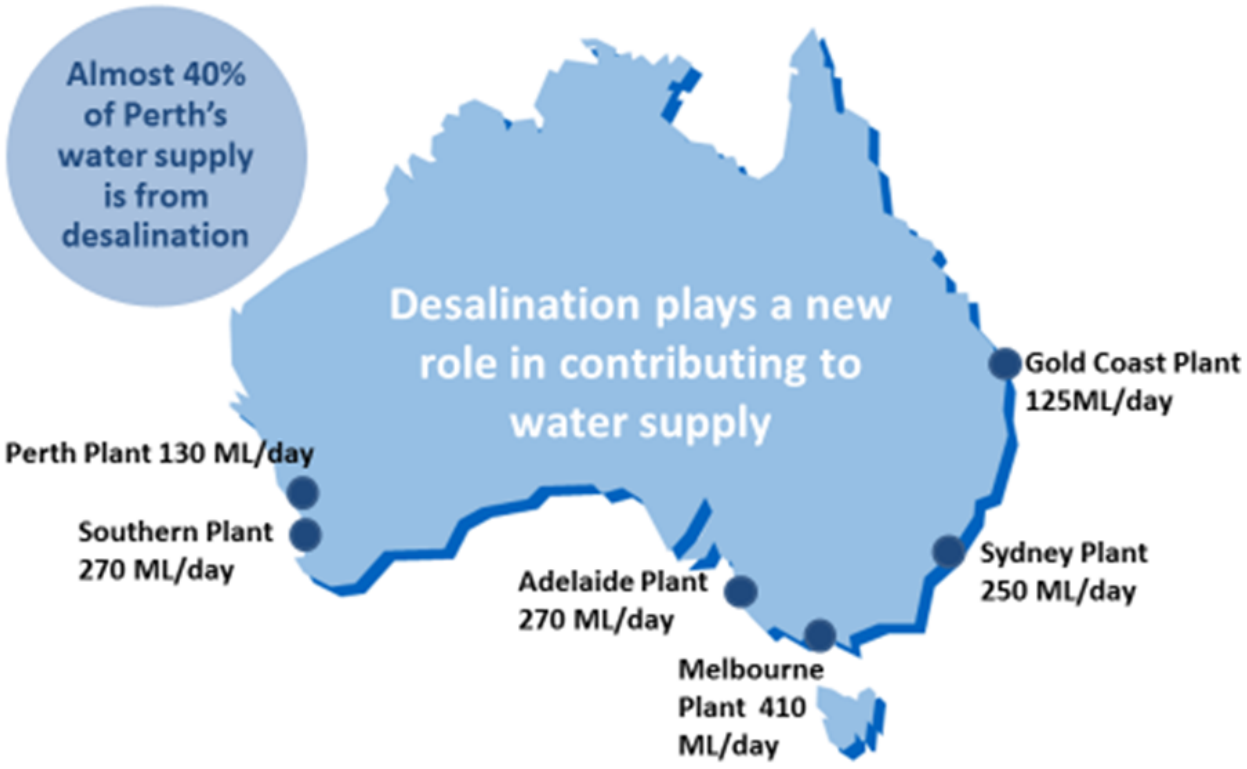
1958
92% Dams
8% G/water

1980
65% Dams
35% G/water

2004
38% Dams
62% G/water

2014
7% Dams 50% Desal
42% G/water
1% GWR

Desalination plants



Bushfires

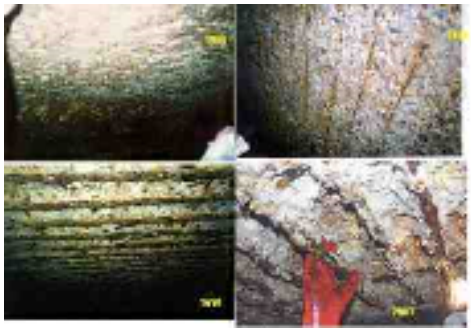
- Multiple impacts:
- Catchments & supplies
- Exposed infrastructure
- Worker health & customer impacts

Flooding of low lying assets

- Extent of exposure being determined:
- Sewers & stormwater channels
- Inundation & capacity, corrosion
- Implications for energy, chemicals & treatment

Buried infrastructure

- Research underway:
- Accelerated corrosion & odour
- Predicting pipe failure in critical water mains
- Episodic drought & wetting
- Vegetative impacts



Customers

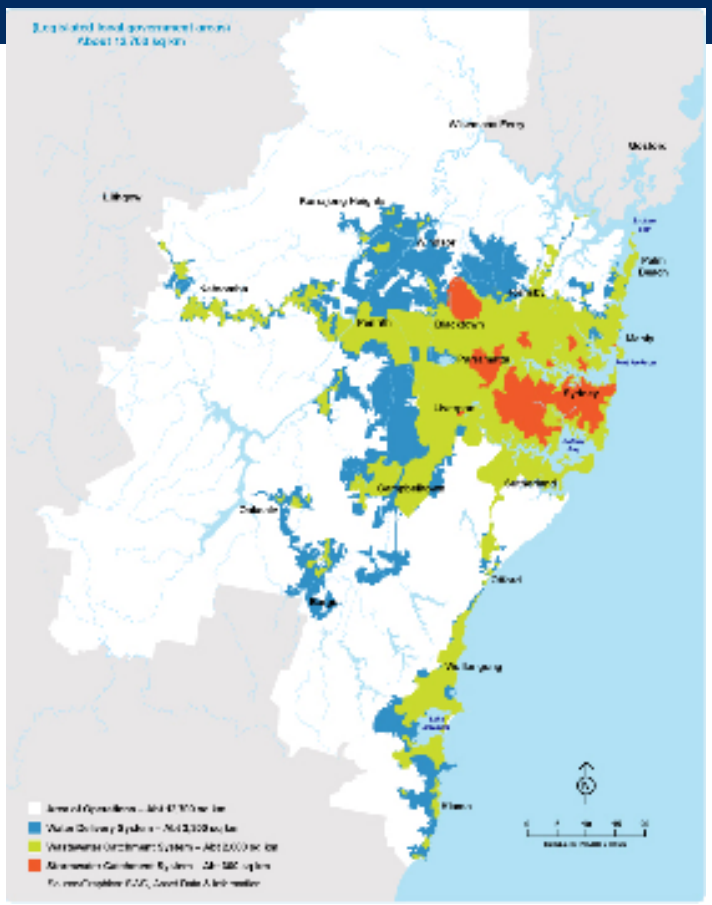
- Consider implications for:
  - Supply disruptions (black/brown-outs, fire)
  - Main breaks (ground wetting and drying)
  - Response times (emergency resourcing)
  - Taste & odour (algal)
  - Water pressure (fire)
  - Increased cost

Sydney Water

- Serves 4.3 million customers daily
- 12,700 km2 operational area
- Water, waste water & recycled water services
- $36 billion existing assets
- $1.6 billion annual turnover

Our systems

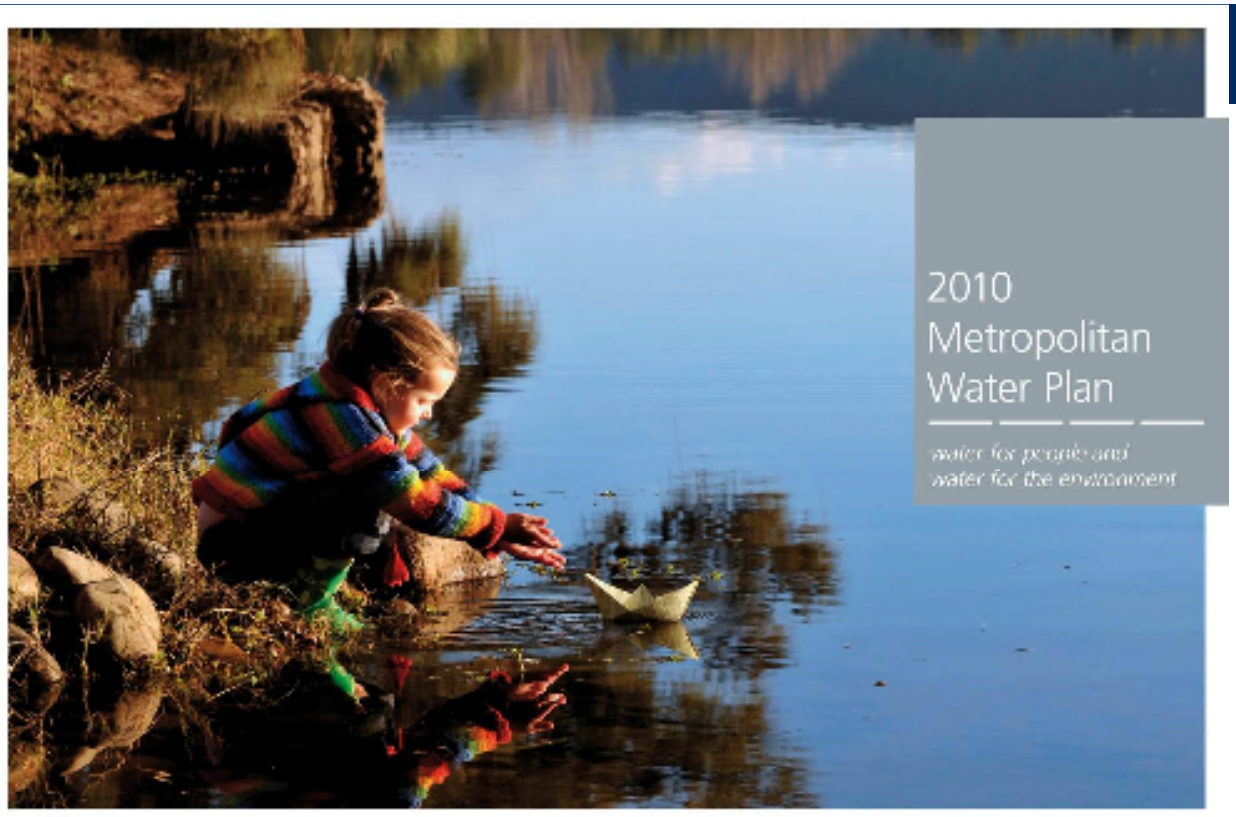
- 1.4 billion litres of water/day
- Water supplied via 21,000 km of water pipes, 251 reservoirs and 164 pumping stations
- Wastewater managed via 24,000 km of wastewater pipes, 680 pumping stations, 14 water recycling plants and 16 treatment plants.
- ~ 400km of stormwater channels



Sydney Water's Journey

- Modelling climate change impacts from 2000
- Supply/Demand planning initial focus
- Involvement in NARCLiM – from 2011
- Shift in focus to infrastructure impacts through Climate Change Adaptation Program – 2009 to 2013
- Development of AdaptWater tool
- Ongoing implementation, monitoring & engagement
- New projects incl. National Guidelines

2000 → 2016 →



NSW GOVERNMENT

Water4life

Where Can I Get a Copy of the WSAA Guidelines?

The new WSAA Climate Change Adaptation Guideline is available free of charge from the WSAA website:

www.wsaa.asn.au

How to find us

Twitter
@admlovell
@wsaa_water

LinkedIn
Water Services Association of Australia (WSAA)

Web
www.wsaa.asn.au

Questions

Any QUESTIONS???