

Submission to the
Environment and Communications Senate Committee
*Recent trends in and preparedness for extreme
weather events*

January 2013



WATER SERVICES
ASSOCIATION OF AUSTRALIA

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Committee Secretary
Senate Standing Committees on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600
Australia

Dear Sir/Madam

**Water Services Association of Australia submission for
Environment and Communications Senate Committee
Recent trends in and preparedness for extreme weather events**

Four key areas for the Australian Urban Water Industry in preparing for extreme weather events are:

1. Protection of public health: This is a critical area for consideration in the delivery of essential services.
2. Protection of infrastructure: Water and wastewater infrastructure is usually hard to access (with 240,000 km underground). Any damage to infrastructure resulting from extreme weather events is therefore a typically long and expensive process.
3. Interdependence with other essential services: It is important to identify stakeholders in the essential services area. All essential service providers must work closely during the planning stage and when responding to extreme events.
4. Insurance: Insurance must remain affordable and secure.

The Water Services Association of Australia (WSAA) welcomes the opportunity to provide comment on recent trends and preparedness for extreme weather events on behalf of the urban water industry.

WSAA is an industry body that supports the urban water industry. Our members and associate members provide water and sewerage services to approximately 16 million Australians and to many of our largest industrial and commercial enterprises.

The Association facilitates collaboration, knowledge sharing, networking and cooperation within the urban water industry. We also provide a forum for debate on issues important to the industry and a focal point for communicating the members' views. WSAA has demonstrated success in standardising industry performance monitoring and benchmarking, as well as research outcomes of national significance. The Executive maintain strong

links with policy-makers, regulators and organisations with influence to monitor and issues of importance to the industry. WSAA is regularly consulted and our advice sought by decision-makers when developing strategic directions for the industry.

Our focus is on assisting members in five key areas:

- Planning for healthy liveable communities—climate resilient cities of the future, innovation, planning and development
- Building capacity in technology and people—skills match needs, partnering to trial and implement technology, producing energy and products from sewage
- Value for money for services cost recovery, water efficiency, customer choice
- Industry reform—policy and regulation
- Responding to the Carbon Pricing Mechanism—planning tools, energy generation

The Australian water industry has been one of the first globally to experience the extreme weather events associated with the effects of a changing climate and to develop adaptation strategies. WSAA's occasional paper (27) ***Climate Change Adaptation and the Australian Urban Water Industry*** outlines the risks and key challenges for the urban water industry as well as adaptation actions already initiated.

Attachments:

1. WSAA occasional paper 27 ***Climate Change Adaptation and the Australian Urban Water Industry***
2. ***AdaptWater*** brochure
3. Sydney Water Factsheet ***Benchmarking Resilience***

Yours sincerely

Adam Lovell
Executive Director

Terms of Reference

Specific comments to each of the Terms of Reference received from WSAA members are collated below.

For each item under the terms of reference, we have formatted our response under the three headings listed below. (Note that not all of the headings appear in every section depending on the particular term of reference.)

- Issues
- Recommendations
- Experience

(a) Predicting extreme weather events

Issues

The urban water industry acknowledges the difficulty in predicting extreme weather events. The industry also acknowledges that predicting the scale of these events with any meaningful accuracy is no longer possible with a rapidly changing climate.

Despite these challenges, the water industry has made attempts to understand when extreme events are most likely to happen and how these might impact infrastructure and services. The industry has developed models and planning tools to assess the potential impacts of extreme events under a range of scenarios.

It is key to in any analysis to gain insight into the key vulnerabilities of the water, sewerage and drainage systems, and then act on those insights.

(b) Based on global warming scenarios outlined by the Intergovernmental Panel on Climate Change and the Commonwealth Scientific and Industrial Research Organisation of 1 to 5 degrees by 2070:

(i) projections on the frequency of extreme weather events

See comments in section (a).

(ii) Costs of extreme weather events and impacts on natural ecosystems, social and economic infrastructure and human health

Issues

Predictions of many climate change impacts focus on the state or national levels, but commonly adaptation is needed at the local level. The industry acknowledges there is a high degree of uncertainty in predicting the scale, intensity and impact of extreme events at the local level. Any analysis must include social, economic and environmental costs.

Regulators need to consider the impact of climate change in areas other than just that of Water Supply/Demand. If utilities work with regulators to take a longer-term perspective on future investment for infrastructure adaptation, it will promote more timely and cost-effective infrastructure upgrades.

Recommendations

1. Hold forums that focus on the collective cost of climate change extreme weather events on society to ensure a least cost adaptation response. This is in addition to work by the Federal Attorney General's Department to assess the social/economic impacts of events and critical infrastructure interdependencies.
2. Utility Regulators use longer planning and investment timeframes than currently practiced, when considering the benefits of capital investment. Planning should also include the use of advanced Cost-Benefit Analysis that incorporates analysis of uncertainty in the assessment of financial, social and environmental costs and benefits.

The Sydney Water Experience

Sydney Water's long history and demonstrated experience with extreme natural events has been summarised in the *Learning from Past Events* project report. The report contains a wealth of knowledge and provides some understanding of the costs and impacts associated with extreme events. It also addresses potential future costs of extreme events.

The estimated cost of the 2001-02 Greater Sydney bushfires, for example, was \$3.5M. This included costs associated with property damage, labour, contractors, plant and material loss, and customer rebates. Add to that other cost impacts such as loss of power and telemetry to pumping stations, 4-5 days of power loss at Warragamba sewage treatment plant, and workload increased for many staff.

(iii) Availability and affordability of private insurance....under different global warming scenarios, and regional social and economic impacts

Issues

- **Capacity:** The capacity of the world market for insurance appears to be strong. There is an expectation that the insurers will become more discerning about insuring companies that have documented and communicated key climate change related risks and their responses. While larger water utilities can do this, smaller water service providers such as local governments are often not well resourced.
- **Price:** Property insurance is expected to increase as extreme weather events increase. Our understanding is that bushfires across Australia have caused the most concern for insurers due to the insured value of localised damage.
- Premiums may increase to uneconomic levels for some water utilities, especially where a utility is required to provide infrastructure in a high-risk location. A variety of different insurance policies will be impacted not only property and business interruption, but also on liability, vehicle, health, and life insurance.

Recommendation:

That insurers work with Government to ensure preparedness and the adequacy of resources in the emergency services sector to prevent and respond to extreme weather events.

(c) Preparedness of key sectors for extreme weather events...

Experience

The industry has been proactive in its activities to plan for and respond to protect public health and critical infrastructure in extreme weather events.

Planning and modelling has been carried out with programs such as the Critical Infrastructure for Modelling Analysis (CIPMA). This program has been designed to help strengthen Australia's economic and social resilience by providing 'virtual insight' into disruptions to services whether caused by natural or human disasters. Owners and operators of critical infrastructure can use this information to prepare, prevent, respond to or recover from an adverse event.

CIPMA also helps governments shape their policies on national security and critical infrastructure resilience.

WSAA occasional paper: *Climate Change Adaptation and the Urban water Industry*

The Australian urban water industry has been amongst the first affected by climate change, and amongst the first globally, to develop an adaptation response. The paper provides a discussion of existing and emerging challenges faced by the industry a changing climate and priority actions to address.

The industry is already responding to the challenge of extreme climatic and weather events with activities that have included:

- diversifying water supplies
- reducing water use
- improving the way utilities manage waterways and wetlands
- changing the way decisions are made
- rethinking advice for development in flood prone and vulnerable coastal areas
- planning for risk.

AdaptWater

AdaptWater is a climate change adaptation-planning tool developed for the urban water industry to assist with making decisions in an environment of uncertainty. The tool is designed to capture and quantify the complexity of a utility's economic, social and environmental performance and integrate the effects of evolving direct and indirect climate change hazards.

Climate Institute Report:

Coming Ready or Not: Managing climate risks to Australian infrastructure examined the consequences of climate change and extreme weather risks to infrastructure, the state of preparedness and the steps needed to improve Australia's climate readiness. The review found the water industry's preparation for climate change adaptation relatively advanced.

Sydney Water provided a case study to demonstrate the actions underway. See pages 4 and 42 of the report:

http://www.climateinstitute.org.au/verve/_resources/TCI_ComingReadyorNot_ClimateRiskstoInfrastructure_October2012.pdf

Infrastructure adaptation planning for weather extremes:

The NSW Office of Environment and Heritage recently reviewed current and emerging research in infrastructure adaptation planning for weather extremes. It considered infrastructure across five key sectors: energy, water, telecommunications, transport, and community. The research identified a need for access to climate projection information, such as detailed hazard studies for inundation, flooding, coastal erosion and bushfire.

(d) Assessing the adequacy of resources in the emergency services sector to prevent and respond to extreme weather events

Emergency planning and training

Emergency planning and training has become an essential part of water utility activities, particularly highlighted with the extreme events of the last decade. The water industry recognises the need to both identify and work closely with other essential services in planning and responding to extreme weather events.

Resilience benchmarking:

Sydney Water carried out a Resilience Benchmarking project on extreme weather events (see attached factsheet). The aim was to understand existing organisational, operational and cultural resilience to respond to and deal with the impact of extreme event disruptions i.e. bushfires, storms, floods, heatwaves etc and the ability to 'bounce back'.

Five water utilities participated in the study. According to the project definition of resilience, these utilities are:

- reasonably strong in their ability to *survive a crisis*
- less able in the area of *thriving in a world of uncertainty*
- strong on the emergency side, but business as usual has room for improvement

Sydney Water's strength lies largely in emergency response and planning. The utility has strong emergency and risk management processes in place and staff who respond with a strong 'one-in-all-in' attitude. Debriefing exercises convert learnings into actions.

The study also highlighted Sydney Water's strong network of relationships and good mutual aid arrangements, good processes for designing redundancy into operational and IT assets, high level environmental scanning and gaining a global strategic outlook.

There are concerns around the potential loss of in-depth knowledge of the many long standing with the aging workforce. Measures to manage corporate knowledge are implemented such as the collation of impacts, costs and response information for past extreme weather events.

The Water Corporation experience:

As a 'Critical Infrastructure Owner and Operator', the Water Corporation makes a concerted effort to embed emergency response and prevention throughout the business (via an incident management framework, business continuity management, comprehensive emergency training, resourcing and coordination).

Other activities include:

- Active coordination and planning for emergency prevention and response with government, industry partners and the community
- Chair Lifeline Services Subcommittee of the State Emergency Management Committee (SEMC) and providing assistance as required.

(Note that SEMC is a requirement of the State's Emergency Management Act 2005. Emergency preparedness planning is conducted annually by SEMC, Department of Premier and Cabinet, DFES, Department of Environment and Conservation, the Police Department and local government agencies.)

- Incident and emergency coordination planning with the other water utilities in the State including Aqwest, Busselton Water and Harvey Water
- Seasonal major risk preparedness and contingency planning for climate related incidents (fire, flood and cyclone)
- Capturing of climate change related risks via a corporate risk register (e.g. failure to prepare for bushfires, insufficient water supply capacity to respond to demand). Each corporate risk is rated accordingly with appropriate controls designed and implemented to mitigate impacts.
- Establishment of incident prevention and response benchmarking under the federal Trusted Information Sharing Network (TISN) and the State Critical Infrastructure Guidelines
- Contributor to intra-sector resilience modelling and development of national resilience benchmarking

(e) Roles and responsibilities of different levels of government

Issues

Many local governments across the nation are providers of water services.

Existing State legislation and management guidelines create a mandate for Local Government to identify and manage risks to the community, such as flood mitigation. However, such legislation assumes a stable climate. There is little explicit guidance to Councils regarding how to incorporate climate change into policy.

Local government can struggle to respond to extreme weather events because of a lack of clarity around roles and responsibilities and shortfalls in technical and financial capacity.

There is inconsistency with some State and Federal policies. For example, variations in state and federal information and policy on predicted sea-level rise policy can create confusion for decision-makers.

Messages from state and federal government must be consistent to better assist those involved in planning and decision-making.

(f) Coordinating climate change response and risk management (legislative and regulatory reform, standards and codes, taxation arrangements and economic instruments)

Recommendations:

- **Consider mandatory insurance** for property and business interruption risks – similar to a Compulsory Third Party Motor Vehicle Scheme. This will build a substantial premium pool and spread high risk. This in turn could reduce the social and economic impacts associated with those asset owners opting to take out inadequate insurance or not insure.
- **Mandate risk-reduction strategies be adopted** by asset owners and include business continuity planning for communities and businesses. Consider offering tax incentives.

The Water Corporation experience

Large utilities are heavily regulated through licensing (which requires appropriate asset management planning). Small utilities in WA are being excluded from licensing due to the cost and operational complexity of the regulatory regime.

- **Develop a natural catastrophe risk premium pool**, contributed to by insurers, federal, State, local government and other self-interested financial bodies such as the banking sector – similar to terrorism pool
- **Building codes and regulation of infrastructure** can also help with adaptation with forward thinking and a full life cycle approach based on advanced cost-benefit analysis. Amend the standards in the Building Code of Australia to address adequate asset protection where the benefits outweigh the costs, and not predominantly life safety e.g. sprinkler systems sufficient to minimise property loss not only to allow for safe evacuation.
- **Update standards and codes:** Industry accepted standards and codes need to be developed/ updated to take into account climate projections
- **Provide a forum for critical infrastructure providers:** Expand the current critical infrastructure management processes (CIAC, TISN and SCN) to include

sector climate change risks and to use this process to facilitate cross-sector discussion / support.

(g) Gaps in Australia's Climate Change Adaptation Framework and the steps for national climate change response and risk management

Issues

- National climate change response and risk management mostly focuses on the issues surrounding water supply. Other issues that need to be accounted for in a holistic climate change adaptation plan include damage to infrastructure, loss of power and telecommunication supplies, impacts on customers and the environment, etc.
- There is a lack of appropriate tools/methods/skills to quantify climate change impacts and assess the costs and benefits of adaptation responses. In most cases this quantified assessment is required to justify adaptation action e.g. in a business case.
- There is currently a gap between understanding of science and practical implementation for policy makers. How do results of the research translate into business decisions?
- Need a better communication strategy (to support framework) to educate community and providers on the need to manage climate change and put in the context of managing other risks (e.g. population growth).

Recommendations

- Emergency Management Australia: include extreme weather planning and response within the scope of its centre for excellence Climate Change adaptation (including planning for extreme weather events and response). This could focus on EMA:
 - providing support and assistance to Government and industries on the nature of climate change
 - communicating the significance of the issue to all sectors
 - assisting with the development of assessment tools and planning processes.
- Develop a national level 'knowledge broker' for climate science as highlighted in the recent NCCARF report, *Decision Making under Uncertainty: Bridging the gap between end user needs and climate science capability* (<http://www.nccarf.edu.au/publications/decision-making-under-uncertainty>) to

- provide clear and consistent information and advice
 - provide standardised data sets and/or approaches to using climate projection information
- Continued investment in adaptation is required to ensure capability is sustainable and adaptation measures are implemented. Agencies and research organisations need longevity of funding (e.g. NCCARF, DCCEE) as this is a long-term issue.

(h) related matters.

Other recommendations

1. Continue to invest in science

WSAA's members support CSIRO and BoM as lead providers of climate research and data for Australia

2. Build resilience in the community

All Australians need to be aware of the potential impacts of climate change on their homes and communities. Australia's urban water utilities have successfully worked, and continue to work with their customers to help them reduce their water use in the face of a long term drying trend in southern Australia. Other initiatives like 'HardenUp Queenslanders' encourage Australians to be prepared for extreme weather events, and to accept some responsibility for their lives and property should an extreme weather event occur. The Federal Government has a responsibility to all Australians to assist them in adapting to, and being better prepared for extreme weather events through education.