

Impact of cyclones on customer and service standards



Several cyclones will form in northern Australia each year, however they may not all make landfall (cross the coast) or impact the Cairns area. Active cyclones in the broader region may also bring periods of strong winds, heavy rain and flash flooding to Cairns. The most challenging impact of cyclones for water and wastewater infrastructure is the loss of telecommunications resulting in the inability to remotely control treatment processes. With the impact of climate change, Cairns is predicted to have less frequent but more intense cyclones, and so preparing for cyclones is a core business continuity requirement for the Council.

CLIMATE THEMES ADDRESSED



SERVICE
STANDARDS



BUSINESS
CONTINUITY

Background

The last Category 5 cyclone to impact Cairns was in January 2011 (Cyclone Yasi) with an estimated damage bill of \$35 million. These costs were predominantly for damage to roads, vegetation and above-ground Council assets.

Council is experienced in both planning for and managing cyclones to reduce continuity of service risks. Key risks for the council water business during cyclone (or high intensity storm) events include:

- Damage to infrastructure from falling trees (both tree roots damaging pipes and trees hitting critical infrastructure)
- Loss of power
- Loss of SCADA communications
- Flooding risk, blockage of raw water intake infrastructure
- Flooding impact on raw water quality
- Safety of Copperlode Falls Dam.

During an emergency event, the delivery of water services is integrated with the Local Disaster Management Group. Regular exercises test the readiness of Council and other service providers for major cyclones. Council's Utility Services Branch (responsible for delivery of water and wastewater services) activates its operational Business Continuity Plan to ensure key staff are 'stood up' for the event, roles and responsibilities made clear, and fatigue management considered.

Other key risk mitigation measures include:

- Ensuring critical assets have generators, and a rigorous preventative maintenance program exists for Programmable Logic Controller (PLC) batteries
- Ensuring three days of drinking water storage before events hit
- Construction occurs in accordance with design guidelines that take account of cyclone ratings
- Dedicated operations control centre with additional cyclone safeguards, including cyclone shutters
- Stand-alone radio network
- Good relationship with the power provider to prioritise sites for reconnecting power

Benefits to the utility, and to climate-related outcomes

Like other water utilities, Council has Customer Service Standards relating to the provision of safe and reliable drinking water and effective treatment of wastewater. Considering cyclones and intense storms are a key risk for Cairns, it is appropriate for the Council to invest significantly in managing this risk. Building cyclone resilient infrastructure adds approximately 5% to project costs, which is a significant financial burden.

As part of its preparedness, Council develops Business Continuity Plans for cyclone events, and tests them annually against various scenarios.

According to the Australian Climate Council, an increase is likely in the proportion of the most intense tropical cyclones, those with stronger winds and heavier rainfall such as Yasi, while the total number of tropical cyclones will likely decrease.

Importantly for utilities south of northern Australia, a greater proportion of Tropical Cyclones may reach further south along Australia's east and west coastlines. It is important that other utilities can learn from the experiences of those that have been subject to these risks on an annual basis.