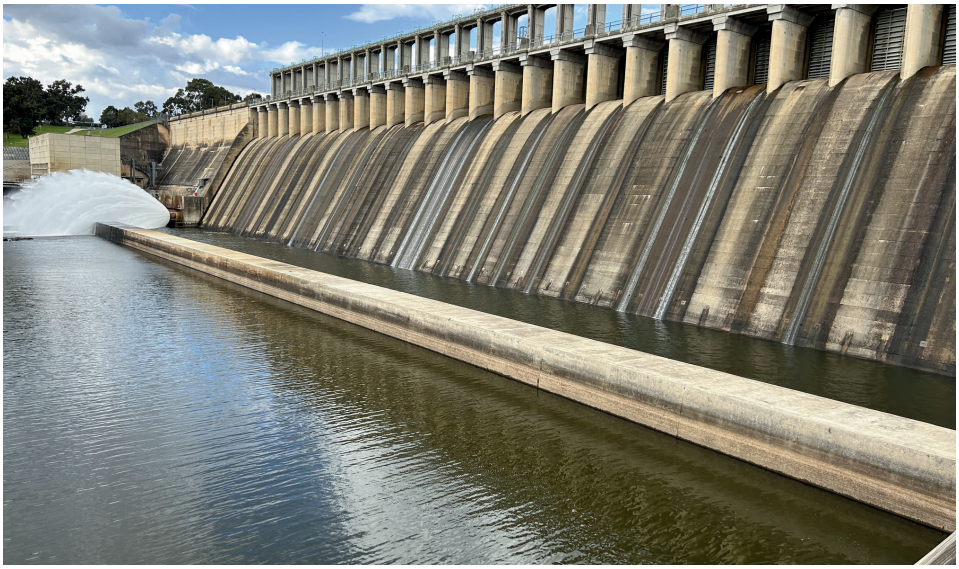
Dams

Factsheet (Secondary Learners)

What is a dam?

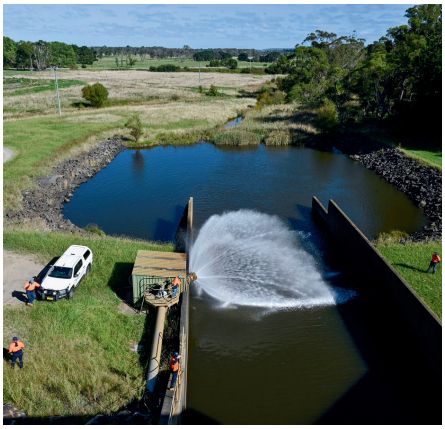
A dam is a wall-like structure that is built across a creek or river to block the flow of water through the landscape. When it rains, water builds up behind the dam, creating an artificial lake or reservoir.



Hume Dam can hold a maximum of 3,005,0156 megalitres (ML)!

Is there a river downstream?

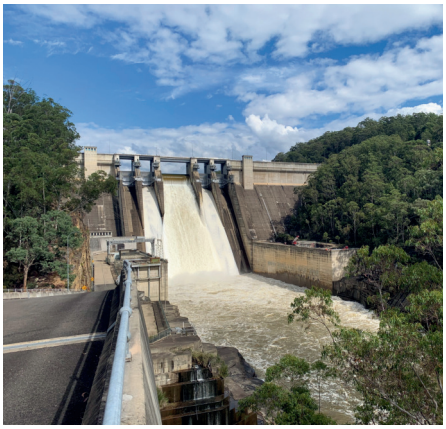
Water that is released from a dam or a weir to maintain downstream river health is called environmental flow (e-flow). E-flows can help protect aquatic life, ecosystems, and the environment, as well as improve river conditions for recreational use.



Wingecarribee e-flow (3ML/day)

Why do dams overflow?

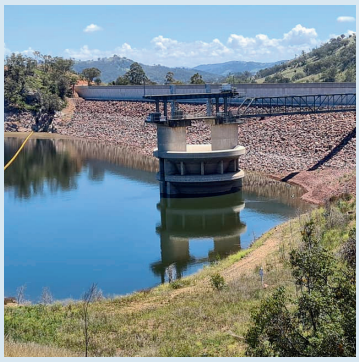
When it rains heavily the quantity of water flowing into the reservoir increases. If the reservoir fills beyond its maximum capacity it overflows. Dams are designed with gates and spillways so that water can overflow and safely escape downstream.



Warragamba Dam spilling

What are dams made of?

Dams can be built from a combination of earthfill, rockfill, concrete, or stone. Dams need to be strong enough to hold back the force of the water that pushes against them.

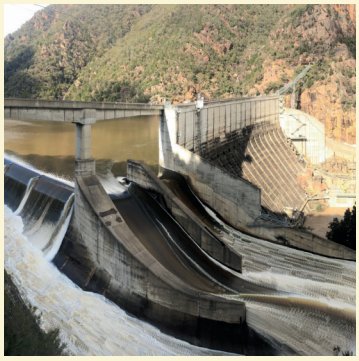


Chaffey Dam is a rockfill dam with a clay core. The rock wall is 443 metres long and 55.8 metres high.

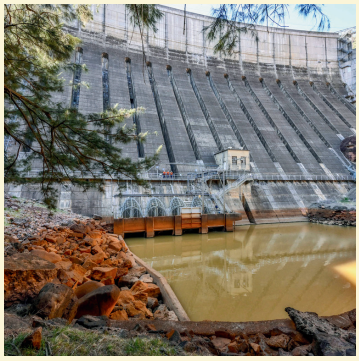
Cordeaux Dam was built with sandstone blocks like the Egyptian Pyramids and finished in 1926. It was modelled on Tutankhamun's Tomb.

Dams' roles

Blowering Dam helps with hydropower, irrigation, drinking water, and recreational activities.



Copeton Dam is popular for water sports.



Burrinjuck Dam was NSW's first major irrigation dam. It helped drive the economic development of the Riverina as a major food-producing region.

Why do we have dams?

We need freshwater to survive. Only 1% of the earth's water is freshwater that we can use and Australia is the driest, permanently-inhabited continent. Dams help to capture and store freshwater (from rainfall) for us to use. WaterNSW's 41 dams contribute to two-thirds of the water supplied across New South Wales in regional and metropolitan areas.

The key purposes of dams are to:

- supply drinking water,
- supply water to irrigators (farmers),
- help minimise the impact of floods,
- help make hydropower, and/or
- create artificial lakes for recreation.

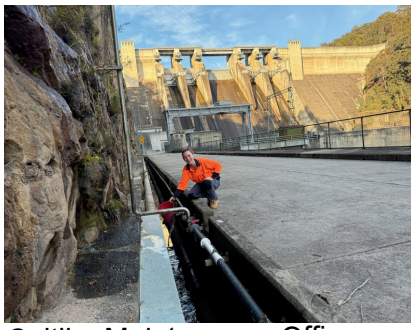
Darlington Point Irrigator

How do we monitor and maintain dams?

All major dams need to comply with state, national, and international dam safety standards to make sure they are safe.

WaterNSW continually monitors and checks its dams. Automatic sensors are used to measure changes in dams. Dam operators complete daily maintenance tasks to manage the dams and ensure the dams operate effectively and efficiently.

For example, the drains on and in concrete dams must be kept clean. Water naturally seeps through the dam foundation which creates uplift pressure on the dam. The water must be able to escape through drains to release the pressure so that it doesn't cause stress on the dam.



Caitlin, Maintenance Officer

Did you know?

World Water Speed Record

Ken Worby set the World Water Speed Record in a wooden speed boat on Blowering Dam in 1978.

Beavers build dams

The biggest beaver-built dam is in Alberta, Canada. It is over 850 metres long!