

The need for dam upgrades

Dam safety in Australia

Australia has a good record in dam safety. However, many of Australia's large dams were built before the 1970's and as with any infrastructure require ongoing maintenance and upgrades to ensure continued safe operation. State Water regularly measures the operation of its dams against international best practice. Ongoing studies have indicated that some dams have spillway capacities that are no longer adequate for the largest possible flood as predicted by modern meteorological studies.

The role of the NSW Dams Safety Committee

The NSW Dams Safety Committee is the independent regulator that ensures that dams in NSW are safe. The committee monitors the safety requirements for all prescribed dams* in NSW by ensuring regular surveillance and the appropriate maintenance and upgrading of structures is carried out by dam owners. The committee regularly reviews and consults with the Australian National Committee on Large Dams (ANCOLD) and periodically sets new requirements for safety in response to industry guidelines.

With improvements to weather forecasting, the Bureau of Meteorology can now more accurately predict maximum rainfall events and consequently, we have a better understanding of possible extreme floods. The effects of major earthquakes on dam structures are also better understood. In response to this improved understanding the NSW Dams Safety Committee set new safety requirements to handle extreme floods and earthquake events.

While the chance of a large to extreme flood or earthquake occurring is very rare, the extent of damage and loss from dam failure would be catastrophic. There is the potential for loss of many lives and for thousands of millions of dollars worth of damage to agriculture, property, infrastructure and the environment. Considering the potentially devastating consequences, it is essential that modern safety requirements be periodically reviewed.

State Water has a portfolio of 21 dams and associated structures, many of which are prescribed structures and therefore must comply with the NSW Dams Safety Committee's new requirements.

** a prescribed dam is a dam that if it fails, could threaten downstream life, cause extensive property or environmental damage, or have a severe impact on the public welfare.*

State Water Dam Safety Compliance Program

State Water continually undertakes investigations to ensure that all of its dams meet the requirements of the NSW Dams Safety Committee. State Water has undertaken a risk assessment of the entire portfolio to determine which dams are compliant and have set a program of upgrading for any dams which may not meet current requirements. All of State Water's dams are safe for day-to-day operation; however, in some cases the dams require modifications to ensure they can safely handle a large to extreme flood that we now know is possible.

Safety upgrades are currently underway at Chaffey, Copeton, Keepit and Split Rock dams in North-West NSW, Burrendong and Wyangala Dams in Central NSW and Blowering Dam in the Murrumbidgee Valley. With ongoing reviews, other structures may be added to the program of upgrading works to ensure the entire portfolio of dams is compliant.

Copeton Dam safety upgrade

Copeton Dam was built in the late 1960s and was finished 1976. When the dam was built, it complied with the engineering standards of the day.

Although Copeton Dam is safe for daily operations, it does not meet modern requirements for very large to extreme floods. Floods of concern are fifteen times that of the largest on record for the Gwydir Valley (1998 flood).

The upgrade solution for each dam is different, depending on the underlying geology, catchment characteristics, environmental considerations, social impacts and flood history, so it is important to develop a good understanding of all options before choosing the most appropriate. Due to technical and geological constraints at Copeton Dam, there is only a limited number of upgrade options that satisfy the NSW Dams Safety Committee's requirements.

The safety upgrade will involve construction of a new fuse-plug spillway in the Diamond Bay area of Copeton Waters State Park.

The current spillway is adequate for normal flood operations and can safely release flood flows into the Gwydir River through the spillway gates.

How can I find out more?

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