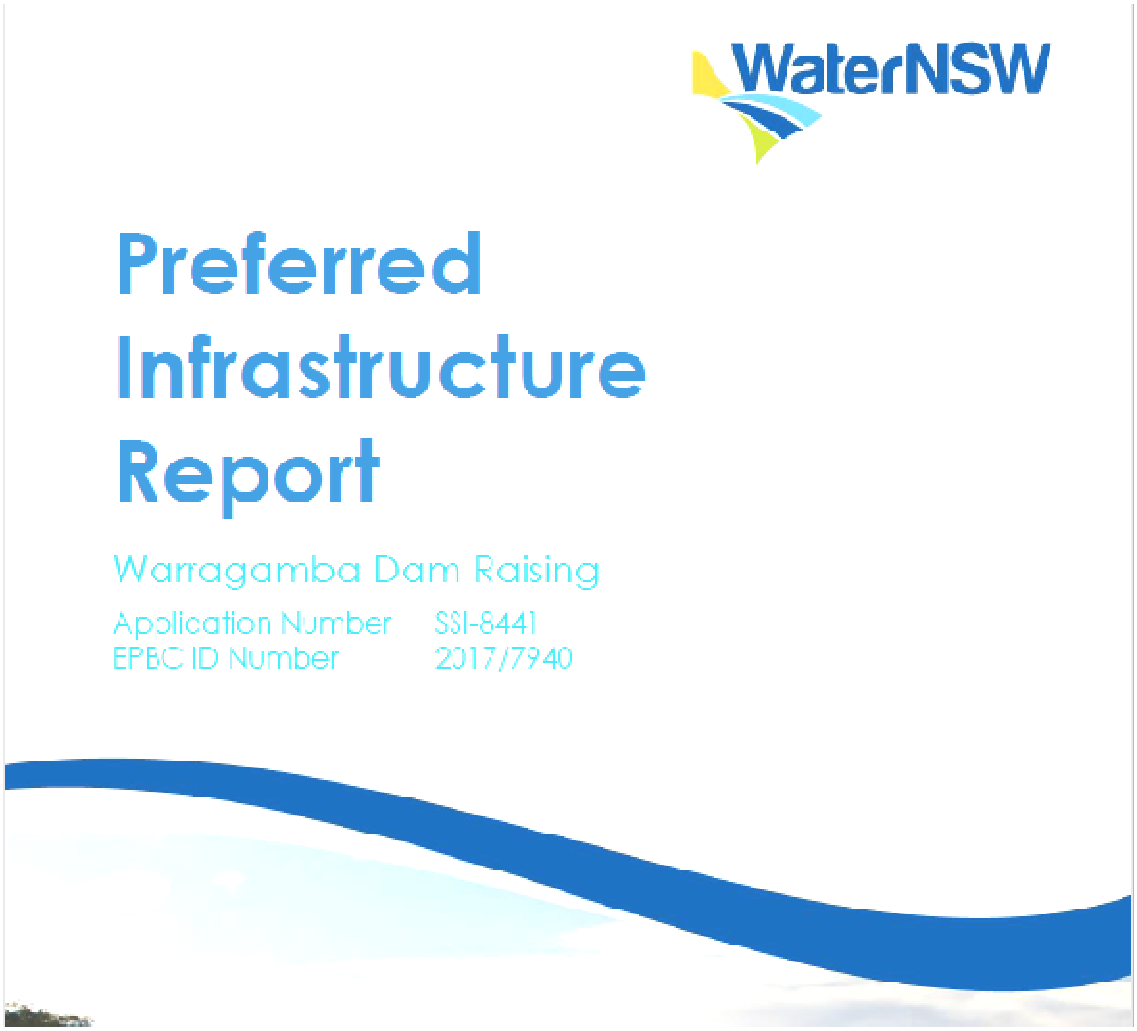

THE WARRAGAMBA DAM PREFERRED INFRASTRUCTURE REPORT

"CREATING EARTH'S WORST DISASTER OF THE 22ND CENTURY"

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The date is 12th March 2108.

With it's raised wall commissioned waaay back in 2036 after a long political battle, Warragamba Dam sits forlorn in the valley at a mere 48% of capacity after a long bout of El Nino dry weather. In the boardroom of EKO Suraty, the private company charged with oversight and maintenance of the dam back in 2082, the news isn't good.

The dam was last filled to its emergency top level back in 2096. Movement reports show that the dam moved a massive 14mm downstream during this event. Several new fissures opened up downstream of the dam where water slowly trickled out. A University study team concluded three years later that the sandstone immediately under the dam was now saturated with water and that some of this was now leaking under the dam and out of the rocks to the Southern edge of the spillway, not far from the huge auxiliary spillway that dated back to the 1990s.

Several solutions had been floated to solve this problem, however everyone agreed that the reason why it had happened was because of the "dam raising project" carried out back in the early 2030's. Engineering of this project had clearly been flawed. Sydney was now stuck with a problem impossible to fix. Over the years since, there had been eight major flood events at the dam, with each one resulting in the "emergency full" capacity being reached and held for several weeks afterwards. One of these floods (in 2057) was so huge that the auxiliary spillway had been activated.

Each time, the dam seemed to move further than it did before the wall had been raised. Particularly concerning was the way in which the base of the dam continued to move downstream, but the top of the dam actually thrust upwards by several millimeters only to settle back down again once the water level was reduced to the normal maximum capacity. The evidence was clear. Each time the dam filled to emergency capacity, it would "tilt slightly upwards" on its back like an upstanding suitcase nudged by a wayward leg at an airport. This movement in turn, let high pressure water in to the original foundations at the face of the dam which dated back to the early 1950s.

The only way the damage could be repaired.. would be to completely empty the dam, re open the Warragamba River diversion tunnel originally dug in the 1950s, and then spend several years underpinning the dam's original foundations. The work was funded to commence in 2102, however the sustained drought at that time led to continued postponement of the work due to "Sydney not being able to afford loss of such a critical water supply at this time".

But now it was too late.

The deluge came without warning. An East Coast low formed and sat just off Newcastle for eighteen hours, dumping 400mm of rain over the Warragamba catchment in barely a day. The water rushed down the valley like a tidal wave, filling the dam beyond full and up to the emergency level again by the end of the following day.

At first it looked like everything would be alright. Then the water spouts downstream from the rock were suddenly noticed around 4pm, close to where the leaks had been detected back in 2096. Within another day, the spouts became a torrent, carrying with them debris and sand from the rocks below. The warnings in the control room beeped as the dam began to move—14mm to the South—in only 4 hours. Warnings sounded out over the Sydney Basin.

The floodgates were fully opened, in a vain attempt to bring the dam level back down before disaster struck but it was too late. The following morning an entire chunk of the "emergency spillway" to the South of the dam had broken away. Water began to gush out at an alarming rate, taking with it half of the mountain side. While Warragamba Dam stood solid and sure right next to it, disaster had struck. The ground below the auxiliary spillway became like sand on a beach.

Sydney's West, already flooded and saturated from the deluge two days beforehand — didn't stand a chance.

They talk of it now as the "World's worst disaster" and "World's biggest loss of life from a single weather event".

More than *200,000 lives lost in the first few hours.* Many of these people literally swept out to sea in the enormous tidal wave of water that cascaded down onto the Sydney basin from Warragamba once the emergency spillway gave way. The entire Hawkesbury region together with most of Penrith and Blacktown and North West Sydney which housed over three million people—totally devastated.

Of those who were left behind, another 200,000 would perish in the following weeks as they helplessly held on to anything above water, awaiting the rescue that could never come. One third of Sydney was devastated with another third directly affected.

And there it stood—Warragamba Dam—still barely moved—whilst right next to it, a gaping hole where the emergency spillway had once swept gingerly down to the Warragamba river.

Forever a monument to the adoption of foolishness and politics over science and engineering.

The world stood up and took notice, determined to learn from the tragedy. Hundreds of dams around the world were inspected, strengthened and their management schemes changed. **All thanks to Sydney's foolishness 100 years ago.**

THE ELEPHANT IN THE ROOM

You'll read through these submissions. There'll be plenty about Aboriginal heritage being placed at risk, plenty of words about "development in the valley". But precious few questions have been asked about whether Warragamba can actually SAFELY BE RAISED without condemning Sydney to a disaster—such as the one we just read.

Don't get me wrong.

This ain't gonna happen in our lifetime. The damage will be done in our Kids' Kids' lifetimes.

The "Preferred Infrastructure report" contains NOTHING about the engineering feasibility of raising the dam. NOTHING about the condition of the original 1950s foundations and the rock that sits under them. NOTHING about how "they" are going to tackle the phenomenon of "Dam Rotation Effect" which happens when a dam wall becomes higher than it's foundations are deep. NOTHING about how water and sandstone can interact when suddenly placed under stress.

Don't be fooled. Warragamba is a GRAVITY DAM. It is held there by the weight of the concrete that forms it.

Concrete that in most calculations weights just about as much as the water it prevents from cascading down the valley. The only reason the dam stays there... is because it has been carefully designed by the original engineers so that net movement will not create cracks in the surrounding rock aside and (especially) under the dam.

The report contains NOTHING about these risks and how they will be mitigated if the wall is raised. That's because they think it can't happen. And lets face it—it can't, can it? Engineers know what they're talking about, don't they?

You cannot change the laws of Physics, Jim.

This ridiculous idea of raising the dam wall : *Stratospheric costs to provide flood protection the experts describe as "dubious at best" considering how much water flows into the Hawkesbury from other sources—and with enormous risks that could see the entire Sydney basin all but wiped out.* Perhaps not tomorrow… but someone, sometime—is going to have to work out a way of dealing with the gargantuan mess our 21st Century "engineers" made.

Let's not give them the chance.