

From: [NSW Government](#)
To: [Flood Inquiry](#)
Subject: Floods Inquiry
Date: Wednesday, 13 April 2022 9:18:10 PM

Your details

Title	Mr
First name	Damion
Last name	Cavanagh
Email	<input type="text"/>
Postcode	2480

Submission details

I am making this submission as	A resident in a flood-affected area
Submission type	I am making a personal submission
Consent to make submission public	I give my consent for this submission to be made public

Share your experience or tell your story

Your story	<p>We live in Northern NSW (family of five, 3 kids in school).</p> <p>We were not directly impacted by floods on our property (apart from minor erosion), but obviously a lot of local flooding occurred. We were involved in the flood recovery in a variety of ways including delivery of goods to shelters,</p>
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clean up, coordination of laundry services for those without washing machines, and temporary housing for affected persons.

I have a high awareness relating to hydrology, flood hydraulics and floodplain management given my career in Environmental Engineering and employment with a well known consultancy in relation to these topics. I have an understanding of local topography, flood responses, available flood warning systems, existing issues, etc given my long tenure in the region and engagement with individuals, organisations and government agencies on these matters.

Terms of Reference (optional)

The Inquiry welcomes submissions that address the particular matters identified in its [Terms of Reference](#)

1.2 Preparation and planning

It was concerning that the BoM warnings were so incorrect for Northern NSW having seen what had happened in SEQ immediately prior. Additionally, flood forecasts for peak water levels in Lismore and downstream towns were also initially dramatically underestimated.

Given the events in SEQ a more conservative approach should have been taken to forecasting rainfall rates/totals and flood levels in the Northern Rivers. This may have resulted in over-estimation of peak flood levels, but this would have likely resulted in evacuation of the township of Lismore (safe than sorry approach). The gross underestimation of the rainfall and runoff within the catchment to Lismore resulted in a peak flood estimation that was nearly 4m too low, i.e. the initial forecast was for the levee to not overtop.

There is a lack of adequate flood warning systems for Lismore. The technology for these systems is currently available in the marketplace and relies on interlinked systems of rainfall and

flood level gauges connected via telemetry or other means to provide constant data to computer systems that can process the data in short time frames (minutes). Using available flood models, observed rates of water level rise can be compared to previously simulated events to forecast downstream conditions.

If such a system were in place, it would have provided extra hours of warning on the rapid rises in tributaries to the Wilson River (for example) which flows to Lismore. It would have likely resulted in a flood evacuating being implemented much earlier provided sufficient time for businesses and residents to evacuate and move belongings.

The costs of these systems would be around \$1M to implement with a minimal ongoing operational cost. The benefit to cost (even excluding social impact costs, e.g. mental health impacts and costs) would be extreme considering the observed loss of life and property.

The flooding of major connector roads to towns such as Lismore is also a major impediment to flood emergency response and recovery. The Bangalow Lismore Road floods in several locations from the Pacific Highway to Lismore and remains flooded for a number of days. Generally the road runs along ridge lines, however, it crosses over Byron Creek and Wilsons River in several locations, the worst locations appear to be near Binna Burra, Booyong, Howards Grass and Chilcotts Grass (although this is not an exhaustive list). It would be possible with investment to increase the flood immunity of these roads with road raising and provision of cross drainage structures. This would increase the opportunity for people to evacuate prior to a flood, for emergency responders to access flooded locations without the need for use of helicopters or boats. It will

speed up the recovery as well as critical supplies such as food and medicine can be readily delivered to Lismore. Obviously there are a number of connection roads between Lismore and adjoining towns, but at least some of these need to be flood free for major events.

In terms of floodplain management, Lismore is a historical shipping town where development around the River happened organically on the floodplains adjoining the River, and residents grew up with small floods as a regular occurrence. Areas of South and North Lismore are subject to flood inundation for relatively frequent events, with some areas protected by a levee which provides about a 10% Annual Exceedence Probability (AEP) protection. Events above this cause inundation of the CBD and North Lismore, and higher floods can begin to enter extended commercial and residential areas beyond this. While the March 2022 flood may be seen to have an AEP of around 0.1% (i.e. rare event), it highlights the extreme sensitivity of Lismore to flood events in terms of flood warning/evacuation, but also the extent of the township which is at risk. Consideration needs to be made to relocating parts of the Lismore CBD that cannot suffer such significant dislocation. My son is in college at Lismore and his school is closed indefinitely due to flooding from twice in a month. My son has faced a number of years of interruption at the back of COVID and being on the autism spectrum, such disruption is difficult for him. Ideally schools would be located at higher levels away from flood risk or designed to handle inundation without significant damage or lengthy restart times. The cost to rebuild the school (financial and emotional costs) combined to disruption to working families (social cost and loss of learning opportunity, and potential mental health concerns) are likely to be immense. So schools of which a number were impacted in Lismore, should be relocated or redesigned as a priority, along with other critical infrastructure

which if damaged due to flooding will cause ripple effects through the community as the loss of the school means disruptions for parents who need to care for kids and then these parents cannot work, so the flow on effects are significant. Other examples would be major shopping centres, such as Lismore Square which was flooded, ALDI, Coles, Bunnings and so on. These shops while deemed 'commercial or industrial' land uses are also critical to the function of a township as they are hubs for food supply. Lismore residents had to go to Goonellabah to access food shops (if they could). Indeed most of the Northern Rivers experienced a food shortage after the flood events which identifies another concern. These are just examples of some of the land use planning challenges within Lismore when it comes to floodplain management. There are a number of good examples in Australia and elsewhere of towns migrating or relocating in part due to environmental issues (e.g. Grantham, South Murwillumbah), etc.

Water supply and wastewater treatment facilities also are critical services and need to be functional during flood events (to the maximum degree possible). A major failure at the East Lismore treatment plant is resulting in lengthy repair times with potential environmental harm due to ongoing sewage discharges to the Wilsons River.

1.3 Response to floods

Supporting documents or images
