

From: [NSW Government](#)
To: [Flood Inquiry](#)
Subject: Floods Inquiry
Date: Friday, 20 May 2022 5:54:03 PM
Attachments: [Submission to the NSW Independent Flood Inquiry GTH.pdf](#)

Your details

Title Mr

First name Gregory

Last name Hall

Email

Postcode 2429

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 As it became clear that the floods were beyond all previously experienced since European settlement, a group of us dropped everything and came to assist. So did many others, and continue to do so. Ours took the form of a convoy of volunteers, setting up the marquee kitchen 'Trees Not Bombs' in the quad car park behind the library.

As there was, and still is not, any other place for the flood-affected to sit, talk, share their stories, have a tea, coffee and a decent meal, our group of volunteers has been feeding hundreds a day. Assistance, or even recognition, by any level of government is non-existent, nor sought. Sausage sizzles, while welcome in the short-term, do not sustain the soul. Take-away meals, when one's water-logged house is the only place to take them, does not make for a rosy outlook.

Trees Not Bombs exists wholly outside of the official flood response and operates solely on donations.

Terms of Reference (optional)

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

1.1 Causes and contributing factors

Extreme events are, by their nature, difficult to predict or analyse. It is however now recognised that 1.47 degrees of global heating has occurred in the area. This has increased the probability and likely intensity of storm events. If these have been modelled, it is not apparent in the flood preparation material publicly available.

Changed patterns of land use is now recognised across Europe and the UK as a major factor in the intensity of runoff and flooding damage. Thousand-year-old villages and bridges have been badly damaged. In response to these damaging events, very successful 're-wilding' programs have already shown very positive results. REF

Recommendations: Review the success of re-wilding programs in UK, Europe and elsewhere. Consider that engineering solutions will benefit only targeted major locations, whereas catchment-wide re-wilding will benefit the many small communities upstream and downstream also.

1.2 Preparation and planning

Adequate preparation relies on timely and realistic information.

Predictions

There is much public confusion on the way that the probability of flooding is expressed. The 'Annual Exceedance Probability' (AEP) is often misreported as 'a one in a hundred years' event, for example. This leads to a dangerous sense of complacency.

Ed Bennett, State Emergency Service flood intelligence officer for the Lismore City unit, has identified a worrying trend. "I calculated that the 2017 flood was the one-in-35 year flood," he said. "But we've had five of those in the last 60 years." Possibly, but unlikely due solely to bad luck.

The 'probability of flooding of a given height' is taken to be a proportion of the 'Probable Maximum Flood' (PMF), which is derived from the 'Probable Maximum Precipitation' (PMP). The method by which this was estimated is the 'Generalised Tropical Storm Model' (GTSM), a method of the 1980's. It is acknowledged by the author that estimates the PMF will increase as the state of knowledge grows, and so it has.

The Engeny study of the 2017 flood estimates that the PMF is now 16.5M, and increase of 0.5M on the previous. Have the estimates of lesser floods been adjusted upwards as a result of this? Has the PMF itself been subject to more recent and sophisticated modelling?

'Engeny Water Management Director and Government Sector Leader Mark Page said the intensity of the recent flooding events highlight the need to take a risk-based approach to management and mitigation, and to recognise that historical data provides a limited benefit in predicting future events under a changing climate.' <https://www.awa.asn.au/resources/latest-news/flood-frontlines-in-lismore-what-needs-to-change>

As the Dapto 1984 storm and others are known to have exceeded the PMP, is this even a realistic measure to persist with?

<http://www.bom.gov.au/water/designRainfalls/document/GSDM.pdf>

Actuality

The Bureau of Meteorology (BoM) conducts flood modelling for a limited number of locations. These, while not transparent to the user, are somewhat informative for those few communities served. The many smaller communities whose flood risk is not modelled by the BoM must make do for themselves. These communities have been accustomed to making their own estimates of local flooding risk.

The previous practice of a local radio station broadcasting rain and river observations called in by members of the community has been replaced by webpages, facebook posts and twitter feeds of the State Emergency Service re-interpretations of the general BoM warnings. These may be helpful to some, but for these smaller communities, it is inadequate and inaccessible to many, especially in times of communications failure and those unfamiliar with Internet technology.

The rainfall and river gauges are operated by a number of agencies. Some are expressed in AHD, others in local datum. Only buried in a download of data from WaterNSW was the relationship between AHD and local datum given. Similarly, WaterNSW seems to be the only service that gives the relationship between gauge height and volumetric flow. This is very important, as an apparently modest increase in height will often correspond to a doubling in volumetric flow. Some gauges display their data in an accessible manner, some make historical observations downloadable, several offer to do so only at a cost to the user. There appears to be no single, accessible repository of this most important information, despite numerous recommendations and attempts.

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https://www.industry.nsw.gov.au/__data/assets/pdf_file/0011/284087/1B_Full-Pinneena-Site-List.PDF. Of the remainder, a number were not functional prior to the event, and those that failed during the event are yet to be made operational again.

"It is simply not good enough that a month after the initial floods, a faulty water level gauge, warning sirens and pumps have not yet been repaired or replaced." <https://www.theguardian.com/australia-news/2022/mar/30/no-one-could-have-predicted-authorities-defend-lismore-flood-response-after-evacuation-order-was-cancelled> Shortage of parts is given as the reason. A stock of spare parts, and indeed whole stations, should be kept in reserve. Remarkably, the Lismore Airport AWS is still not reporting at the time of writing, more than two months after the event.

The BoM applies the Federal Govt cost recovery policy without regard to the community interest. The webpage <http://reg.bom.gov.au/other/charges.shtml> shows the charges levied for data that is gathered at public expense, and when used for private purpose, does not profit the user. Therefore, it should be provided free of charge. Those commercial operators who profit by using BoM data to make forecasts should of course, pay for the service/

Recommendations: The assumptions used in flood modelling must be published and transparent. Models should be constructed for minor catchments, not only major population centres. A return to direct broadcasting of rainfall, river heights, and importantly, volumetric flow. Access to all rainfall,

river height and flow, and other relevant data should be made available for community use at no charge.

One standard on-line repository of rainfall, river height and other observations be established. This should use W3C standards throughout; HTML5 for numerical and graphical display, FTP for download of historical records, RSYNC for those wishing to maintain independent copies of the data, and RSS feeds for those requiring customisable alerts. This in contrast to the recently-implemented changes at the BoM website to disallow third-party use of the displayed information.

Review of the sites from which timely and effective warnings might be informed. Review of the stock of spare parts, and whole stations in reserve. Where automatic gauges are inoperative or unavailable, identify local residents who can provide manual reports when required. Equip these observers with appropriate communications equipment, probably Outpost HF Radio, not reliant on infrastructure.

The concepts of PMF and AEP should be reconsidered. Are they still relevant and not misleading? If so, then the PMF be reconsidered in light of modern forecasting techniques and this then be carried through to AEP levels. The weather-aware community is now well-accustomed to rainfall expressed as probabilities of amounts. Agencies and media should be discouraged from using the vernacular '1 in 100 year event', etc.

1.3 Response to floods

The nature of the warnings given are textual or verbal, with no expression of the probable range. Most of the community is well able to understand a range of probabilities, thanks to decades of global heating reports, sadly unheeded. The SES practice of 'pre-processing' thus suppressing the range of predicted flooding denies the community from making it's own assessment on the local risk and individual circumstances.

It was reported that no audible alarm signal was given as floodwaters rose in Lismore. Yes, general warnings were issued on Twitter, Facebook, radio & TV, but surely a fire truck with siren could be sent through the streets in which flooding was actually occurring before it was too deep for people to walk to safety? We have personal accounts of people waking up to find water in their rooms. (Why they slept in the first place remains a mystery.)

Regarding the 'second flood' and the cancellation by the SES of the evacuation order.

The BoM operates a number of Numerical Weather Prediction (NWP) models, at a range of scales. It is well-understood that fine-scale detail may be lost in the wide-area models (Access-G, 12Km), so higher-resolution modelling is conducted for specific locations of interest, viz the cities (Access-C, 1.5Km), and tropical storm events (Access-TC, ~4Km). It is reported that the Brisbane Access-C model was predicting the persistence of the 'second flood', but as this advanced product is not available as an easy-to-use image, rather as a multi-dimensional data grid, it may be that no-one in SES was using this forecast. The closed, paramilitary nature of SES operations makes it difficult to determine where lies the failure of communication.

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depots of rescue boats are required. Oyster work boats would be very suitable, and are easily available. They are flat-bottomed, so unlikely to be tipped by awkward embarkation, and can be equipped with a lifting jib to assist the infirm. Jet-Skis also came into their own for the more difficult rescues. They should all be equipped with CB and Marine radio to coordinate with the public fleet. These vessels can be deployed in a number of sheds on higher ground around the area of likely flooding.

Recommendations: The local SES knowledge of likely flooding risk be given on the TV, radio and Internet media, rather than from a remote and disconnected head office. Warnings be accompanied by the predicted range of probable events. A detailed map of pedestrian escape routes and cutoff heights be made and distributed. All emergency services to drive with sirens and lights those streets in imminent danger of being cut off from pedestrian egress. The complete range of data available to the emergency services be made available to the public, so that we may make our own estimates of risk.

To strategically pre-deploy a range of rescue vessels around the area.

It is now clear to all that the privatised telecoms companies are little interested in resilient communications systems. Any scenario planning would have foreseen the problems of Telstra and NBN sharing a common fibre hub in flood-prone Woodburn. Clearly, such planning is simply not done. 70,000 people were without communications for up to two weeks as a result.

They take those parts of the robust Internet web protocol that suit, and build a fragile network with multiple points of failure, to better profit their shareholders, as distinct from their customers. The fortnight-long failure to deliver service to up to 1/3 of the NBN SkyMuster users in January, 2022 remains unexplained. As corporations, they are not subject to FoI laws.

Approximately half of these service problems were related to power failures at Telstra and NBN equipment. Since the fires of Summer 2019, the writer has been attempting to negotiate with Telstra a simple access protocol, by which a responsible local, probably the RFS captain, would hold keys to, and instructions for powering the local telephone exchange and mobile phone tower using our own generators.

The recently-rebadged 'Public Safety Network', formerly the 'Government Radio Network', to which no member of the public has access, is operated by a private company in a one-to-one mode. It is well-recognised that the one-to-many mode very often provides access to knowledge that a single conversation is unlikely to. Further, the number of channels that can be used simultaneously is quite limited, to the extent that NSW Police and other emergency services in the region have declined to join this very expensive system.

As the civilian comms are prone to failure, and the public has no access to the billion-dollar 'PSN', we have little alternative but to create our own. The modest Citizens Band Radio Service is the only accessible and affordable mode available. To be effective over more than a few Km, well-placed repeaters are required (The PSN has hundreds, but not accessible to the public). At present, it is interested parties that set up and maintain these few CBRS repeaters, at their own expense. There is no coordination to ensure adequate coverage, nor to assist in the costs.

Recommendations: As communication policy is controlled by the

Commonwealth, any recommendations have a long way to travel. However, encourage multiple connections between telecoms sites, rather than single paths and points of failure. Establish a 'community access and powering' protocol for rural and remote exchanges and phone towers. Establish CBRS repeaters on PSN sites to enable local communities to report conditions and coordinate amongst ourselves.

**1.4
Transition
from
incident
response to
recovery**

The response by all three levels of government was tardy, clumsy and insensitive. Were it not for the speedy response by the all-volunteer groups Resilient Lismore, the Koori Mail and the 'Trees Not Bombs' soup kitchen tent, many more people would have gone hungry, cold or lonely, become so despondent that they left the area.

Those few businesses that attempted to provide food service in the aftermath were met with bureaucratic indifference to the emergency. No flexibility seemed to be allowed, all of the usual petty regulations were to be met. As a result, the CBD of Lismore remained a ghost town for months, and people streamed away to make their lives elsewhere, making a recovery all the more unlikely.

**1.5
Recovery
from floods**

The relocation of people from their neighbourhoods fragments the communities. Rather than row upon row of tiny campervans, with no common convivial areas, surely the thousands of ATCO huts at mining sites across the country could be brought in and put in people's driveways. That way, they can work on their houses, and be with their neighbours.

**1.6 Any
other
matters**

Rebecca Solnit in "A Paradise Built in Hell" argues that in the wake of Hurricane Katrina, grass-roots organizations such as Common Ground and various church groups provided relief more immediately than did official agencies, often mired in red tape. The very day the fire broke out, people in Chico and the surrounding communities began collecting and distributing supplies, organizing shelters, volunteering countless hours, offering evacuees refuge in their homes and donating money.

<https://www.washingtonpost.com/outlook/2018/12/13/teaching-about-catastrophes-while-world-burns-outside/>

"Solnit argues that disasters are opportunities as well as oppressions, each one a summons to rediscover the powerful engagement and joy of genuine altruism, civic life, grassroots community, and meaningful work."

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Supporting documents or images

Attach files

- [Submission to the NSW Independent Flood Inquiry GTH.pdf](#)

1. The Inquiry is to consider and report to the Premier on the following matters:
 - a. the causes of, and factors contributing to, the frequency, intensity, timing and location of floods in NSW in the 2022 catastrophic flood event, including consideration of any role of weather, climate change, and human activity;
 - b. the preparation and planning by agencies, government, other entities and the community for floods in NSW, including the accuracy and timing of weather forecasts, current laws, emergency management plans, practices and mitigation strategies, their application and effect;
 - c. responses to floods, particularly measures to protect life, property and the environment, including:
 - i. immediate management, including the issuing and response to public warnings;
 - ii. resourcing, coordination and deployment, including with respect to the Australian Defence Force; and
 - iii. equipment and communication systems;

Submission to the NSW Independent Flood Inquiry – Northern Rivers

1.a) causes of, and factors contributing to, the frequency, intensity, timing and location of flood. Role of weather, climate change, and human activity

Extreme events are, by their nature, difficult to predict or analyse. It is however now recognised that 1.47 degrees of global heating has occurred in the area. This has increased the probability and likely intensity of storm events. If these have been modelled, it is not apparent in the flood preparation material publicly available.

Changed patterns of land use is now recognised across Europe and the UK as a major factor in the intensity of runoff and flooding damage. Thousand-year-old villages and bridges have been badly damaged. In response to these damaging events, very successful 're-wilding' programs have already shown very positive results. REF

Recommendations: Review the success of re-wilding programs in UK, Europe and elsewhere. Consider that engineering solutions will benefit only targeted major locations, whereas catchment-wide re-wilding will benefit the many small communities upstream and downstream also.

1.b) Preparation and planning by agencies, government, other entities and the community for floods in NSW, including the accuracy and timing of weather forecasts, current laws, emergency management plans, practices and mitigation strategies, their application and effect.

Adequate preparation relies on timely and realistic information.

Predictions

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1.c) responses to floods, particularly measures to protect life, property and the environment, including: i. immediate management, including the issuing and response to public warnings:

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To strategically pre-deploy a range of rescue vessels around the area.

iii. equipment and communication systems:

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d. the transition from incident response to recovery, including the roles, structure and procedures of agencies, government, other entities and the community;

The response by all three levels of government was tardy, clumsy and insensitive. Were it not for the speedy response by the all-volunteer groups Resilient Lismore, the Koori Mail and the 'Trees Not Bombs' soup kitchen tent, many more people would have gone hungry, cold or lonely, become so despondent that they left the area.

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e. recovery from floods, including:

i. immediate housing, clean-up, financial support and community engagement measures

The relocation of people from their neighbourhoods fragments the communities. Rather than row upon row of tiny campervans, with no common convivial areas, surely the thousands of ATCO huts at mining sites across the country could be brought in and put in people's driveways. That way, they can work on their houses, and be with their neighbours.

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