

## **Floods Teach Tough Lessons but are we Learning?**

My heartfelt sympathies go out to all who have been affected by the recent terrible floods. I can only imagine the heartache being felt by those who have lost valuable assets, treasured memories and their only livelihoods, not to mention those who have tragically lost loved ones.

Our teams have seen first hand the devastation caused by flooding and one of the great tragedies in our minds is how many of these losses can be avoided. I am in no way suggesting we can eliminate flood impacts but there is much we can do to mitigate them. These recent floods have lessons to teach us all, governments, businesses and individuals, about how to better adapt to this land of droughts and flooding rains.

### **Acknowledge the Risks**

The first thing we all need to do is acknowledge our flood risks. Not simply acknowledge that it floods in Australia but that it will flood in places we have never seen flood and that floods bigger than those recorded will happen. Most importantly we also need to accept that it can happen to us.

Floods are the most predictable of natural hazards. While we can't know when it will flood until closer to the event, we can be certain where floodwaters will travel and what depths and velocities they can reach. Today we have the tools to model the extent and impacts of flooding for any given rainfall event.

This has been done for hundreds of catchments across the country but the results have been met with mixed responses. Some communities have taken the advice to heart, constructed mitigation works, made emergency plans and implemented appropriate town planning controls. Others are in denial, not believing that such events can happen in their communities.

This denial is often driven by the fact that the consequences are simply too awful to contemplate but more often than not by a fear that publication of flood risks will affect property values. Despite research that suggests property values, particularly in cities, are relatively insensitive to the revelation of such information to the market, politicians, both local and state, kowtow to such fears.

This was well illustrated a few years ago when Blacktown Council in Western Sydney advised all property owners of their flood risks. This precipitated a deluge of calls to talk back radio and an immediate response by the State Planning Minister. He issued a directive that no planning controls were to be placed on residential development above the 1 in 100 flood level. This type of populist policy making on the fly helps no one, least of all those at risk of flooding.

There is a popular misconception that a 1 in 100 flood only occurs once every one hundred years. In reality it has a 1 in 100 chance of occurring each and every year. That sounds like a low probability but in an average Australian's lifetime it has a 50/50 chance of happening. So if you live on a floodplain all your life you can toss a coin to see if you are likely to experience a 1 in 100 flood. You just won't know

whether heads or tails means that you will flood. And if you've experienced one you can still experience another. Kempsey on the NSW North Coast copped a 1 in 100 flood in 1949 and another like it in 1950.

But flooding doesn't magically stop at the 1 in 100 flood level. Much larger floods are possible and we need to understand what they can do. A 1 in 100 chance has been selected to set minimum floor levels in buildings on the basis of a perceived tolerable frequency of water entering them. That number was plucked out of the air by an American engineer several decades ago when many people lived in two bedroom weatherboard homes with polished floorboards and a few sticks of furniture they owned. Floodwaters entering a modern home stuffed full of soft furnishings and high value electrical goods purchased on credit causes considerably more physical, financial and emotional damage.

And it is not just the contents that are more susceptible to flooding. Forty years ago we embraced brick veneer homes with plasterboard wall linings and chipboard kitchens all of which disintegrate when they get splashed. Those homes will have to be completely gutted if they were touched by these recent floods.

If that has not been bad enough, in the last few years we have moved to using composite timber joists and plywood bracing for house frames. CSIRO research shows that these lose considerable strength if they get wet. After a flood these home may still be standing and look fine but they would have to be demolished because they are structurally unsafe.

Having planning controls for development above the 1 in 100 flood level helps ensure that appropriate building materials and building designs are used and people do not suffer such financially crippling losses when a bigger flood comes through.

But it's risks to lives that is of greater concern. While I don't know what the probability was of the flood that claimed so many lives at Grantham, I am sure that it is not the biggest flood which could come down that valley.

In NSW it is mandatory for councils to consider the risk to life from flooding up to the probable maximum flood which is the largest flood which could occur. While that event itself may be highly unlikely, there have been plenty of floods around this country which have been well in excess of the 1 in 100 flood.

A 1 in 500 flood might sound extremely rare but when you consider that in the average Australian's lifetime there is about a 1 in 6 chance of one occurring on any particular river, then it's a roll of a die whether you will experience one if you live your life on a floodplain. Homes built above the 1 in 100 may become death traps in these larger events.

To make matters worse, many older homes have been built much lower than the 1 in 100 level when less was known about flood risks.

In many parts of this country local governments are not willing to acknowledge they have a flood problem let alone investigate the full range of possible impacts on their

communities. Even when they do, many are reluctant to look beyond the 1 in 100 flood for fear of being voted out.

Populist flood policy does no one any good. If you have a potentially life threatening illness you want your doctor to tell you what the problem is and how to prevent it being fatal, not hide the information from you for fear that you won't like her. Yet this is what governments do when they fail to fully investigate and disclose flood risks to communities.

### **Heed the Advice**

People who fail to accept advice on how to manage their flood risks are like those who persist with their life threatening lifestyles despite the warnings. Sadly, as our health statistics show, that behaviour is widespread in our daily personal health management so it is not surprising that people ignore good advice when it comes to managing flood risks.

The ability to warn people of impending flooding varies from place to place and depends on the size and steepness of the catchment, the intensity of the rainfall, the gauges which are installed and many other factors.

If you receive a flood warning be grateful, not everyone can get one. Then act on the warning without delay. Flood forecasting is not an exact science because the Weather Bureau can never know exactly how much rain will fall, where and when, until it has actually fallen. Yet the Bureau has to make its flood forecasts hours in advance to give people enough time to respond. That time is not meant to be time to wait and see but time to act.

People need to prepare the property and, if advised to, evacuate. It is no more a waste of time acting on a flood warning and the flood not reaching the forecast level than it is a waste of time getting a biopsy on what turns out to be a benign lump.

Much can be done to minimise the impacts of a flood on possessions but it is best to be prepared in advance and responding takes time. We have helped the NSW SES and Victoria SES create templates for flood emergency plans which people can download from SES websites and tailor to their own particular circumstances.

It troubles me that when we have surveyed communities about how they would respond to a flood warning, nearly half the people say they will wait until they are convinced that the flood will affect them. By then it is too late to do much. Even more worrying is the 10% of people who say that they would never evacuate under any circumstances. Evacuations are only ordered by emergency services when there is a real risk to life. While the rain may ease and the danger not materialise, such stubbornness potentially places more than their own lives at risk and ties up valuable human resources which can be better spent than coaxing people down from a precarious perch.

The two most common reasons people give for not evacuating or for delaying evacuation are: not believing they will be affected; or wanting to protect possessions. People are usually staying to protect possessions because they are trying to move

them out of reach of the floodwaters (which in many instances they could have done if they responded to the warning earlier) or they say they are protecting them from looters.

Not only are looters rare in Australia but, ironically, insurance policies are more likely to cover possessions that are looted than those which are flooded.

Risking life and limb to save possessions shows poor judgement. Deliberately entering floodwaters simply to get to the other side, or worse still for fun, is plain stupid. More than half the lives lost in Australian floods over the last 50 years have been from people driving, walking or swimming in floodwaters.

And if they don't kill you they can make you extremely sick. Unless absolutely necessary it is best to keep out of them altogether.

### **Learn from Experience**

These recent floods have highlighted how destructive and deadly floods can be. A Judicial Inquiry has been called in Queensland to look into what could have been done better and that is a good first step. But a step change in thinking by governments, businesses and individuals will be needed if we want to avoid a repeat of what we have just experienced.

It may come as a surprise that the 30 plus fatalities over the last couple of months is by no means our mostly deadly flood event. In 1852 a flood destroyed the NSW town of Gundagai and 89 lives were lost. The town was rebuilt on higher ground to avoid the same fate in the future.

Twenty years ago I read about five riverfront houses which were destroyed by the 1974 floods in Ipswich. The owners could not sell the vacant blocks of land because it was obvious the floods had destroyed the houses. Instead, they rebuilt and then sold the new homes to unsuspecting purchasers. I wonder how those homes fared in the recent event.

These recent floods are a wakeup call to avoid the mistakes of the past but can we afford to fix those mistakes? It is estimated that there are more than 170,000 residential properties in Australia built below the 1 in 100 level. That is likely to be an underestimate because flood mapping has not been undertaken in many catchments, particularly in Queensland. There are at least this many again that can be affected by bigger floods but because many councils don't bother mapping above the 1 in 100 it is hard to get an accurate estimate.

It is not practical, affordable nor appropriate to relocate all of these buildings off the floodplain but we can certainly lift our game in terms of floodplain development and flood response.

Firstly we need to stop building on floodplains houses which disintegrate when they come in contact with water. In some places the risk to life is so great that buildings do need to be removed altogether. Elsewhere emergency plans and warning systems are needed to give people plenty of time to get out. In places subject to flash flooding

this will not be practical and so buildings will need to be built to withstand the worst that nature can throw at them and there needs to be a safe refuge for occupants above the reach of floodwaters.

For any of this to work, well designed community education plans are required to ensure people understand their risks and know how best to reduce the loss of life and property. These plans require commitment to their ongoing implementation. It also means that governments, state and local, have to be willing to reveal the truth about flooding and property owners need to accept that it is in everybody's best interests for that information to be publicly available.

What we must not do is brush off these floods as a once in a lifetime experience and return to business as usual. That would simply leave a future generation to suffer a similar tragedy because of our selfishness.

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