

Submission to the Queensland Floods Commission of Inquiry

By

Trevor Grigg

Defining Socially Unacceptable Exposure to Flood Hazard

In an earlier Submission to the Inquiry on the 19th March 2011, I commented on the **importance of reaching consensus on the frequency of flooding in the lower Brisbane River Valley** or in any flood plain for that matter. The integrity of flood zoning schemes, flood proofing measures, and flood warning and evacuation systems depend on it as do risk based flood insurance programs.

There has been a long history of revision of flooding frequency as the length of the historic record of floods increases over time and this is to be expected. Further, there have been the addition of storage reservoirs, channel dredging, urbanisation of the catchment, etc, which create challenges for the task of flood frequency modelling. As well, there are acknowledged uncertainties associated with sampling of rainfall, measurement of runoff and the development of stream flow rating curves.

However, even given these considerations, **it is critical that an outcome of the Inquiry is an agreed stage height probability (frequency) curve for the Brisbane City Gauge and other existing gauging stations.** This may well require additional resources being dedicated to hydrologic and hydraulic modelling within the catchment, but the resulting benefits will far outweigh such an ongoing investment. It is not at all clear that an adequate hydraulic model of the Brisbane River downstream of the Wivenhoe Dam exists at the present time.

As also mentioned in my earlier submission, there is **need for the Inquiry to reach an opinion as to what constitutes a socially acceptable level of exposure to flood hazard** so that the community, by planning, can ensure that no individuals through ignorance are exposed to hazards greater than this limit. At one and the same time, the community also has the right to protect itself from the claims of individuals or flood plain development proponents who know of the flood hazard but still locate there or wish to have approvals granted for building new premises in these areas without proper regard for the hazard to future occupants of these premises.

Without agreement on what is the socially and economically acceptable maximum level of exposure to flood hazard it is not possible to develop and implement sound flood hazard management plans for a community.

Considerations which ought to guide the adoption of an acceptable maximum level of exposure include:

- the residual risk to life
- the emotional hardship associated with flooding of private residences and the potential frequency of that flooding, and
- the magnitude of property loss, including loss of personal effects.

The level of exposure to flood hazard is expressed in terms of the probability in any one year of experiencing a flood of a stated height or greater at a given location. However, it has become common practice to express the exceedance probability in terms such as the "100 year" flood.

This is unfortunate as it has led to much confusion and misunderstanding in the community. The "100 year" flood does not occur at 100 year intervals nor does only one such flood necessarily occur in any 100 year period. Rather there is one chance in 100 (a 1 per cent chance) in any one year that a flood of that magnitude or greater will occur. **The Inquiry is encouraged to recommend that there be a widespread and ongoing public education program aimed at achieving a much greater public appreciation of the likelihood of flooding in the future for a range of flood heights.**

To achieve consensus on a socially acceptable level of exposure to flood hazard, it is suggested that there needs to be a close examination of the risk of flooding. In the table below, the risk that the time intervals between floods of a stated magnitude (that is, probability of being equalled or exceeded) will be equal to or less than the interval stated are detailed. The flood magnitudes chosen to highlight in the table are the one chance in 20 (5% chance) flood, the one chance in 50 (2% chance) flood, the one chance in 75 (1.33% chance) flood, and the one chance in 100 (1% chance) flood. These flood magnitudes correspond roughly with the development regulation line used by many local authorities to define the lower limit of development in many flood plains, the January 1974 flood, the January 2011 flood and the widely adopted design flood for many planning purposes (the "100 year" flood) respectively.

Risk that Intervals between Floods of this Magnitude will be Equal to or less than the Interval Specified

Chance of Flooding	50%	25%	10%	5%
1:20	13 years	6 years	2 years	1 year
1:50	34 years	14 years	5 years	3 years
1:75	52 years	21 years	8 years	4 years
1:100	69 years	29 years	11 years	5 years

The results in this table can be used as a basis for assessing the likely social hardship to be experienced for given magnitude floods and hence provide guidance in selecting the level of socially unacceptable exposure to flood hazard.

The table shows for example, that there is a 10% risk that another flood of magnitude equal or greater than the 2011 flood (a one chance in 75 flood for purposes of this submission) could occur within the next 8 years. For a one chance in 100 flood, there is a 25% risk that such a flood or greater could occur within the next 29 years.

It is recommended that the one chance in 100 flood be adopted as the maximum socially acceptable exposure to flood hazard.

Against this background, there are obviously **cause for concern for the ongoing exposure to flood hazard for many Brisbane residents** (as well as residents in many other cities and towns) located in the flood plain. There is an imperative to seek to correct the locational mistakes of the past and most importantly to ensure that new developments and infill and re-development of existing urban areas do not perpetuate these mistakes.

Courier Mail March 25, 2011 p.37.

Rush to forget flood lessons

I READ with concern your report that the Urban Land Development Authority plans to approve all but one of the State Government's 14 proposed fast-tracked residential developments, many of which are on plots below the one-in-100 year flood level (C-M, March 23).

That such flood-prone developments are under consideration is worrying enough in itself, but for such developments to be approved in the immediate aftermath of major flooding across the state and before the Queensland Floods Commission of Inquiry has even begun its formal hearings and brought down its report raises serious concerns.

It is also reported that the ULDA would approve applications if "flood immunity" conditions set by local councils are met.

A tour of residential and commercial areas inundated by the recent floods would demonstrate

that these conditions have not assisted property owners avoid damage from inundation by floodwaters of a frequency comparable with that which will pertain to the ULDA's approved developments.

Surely it is a matter for the inquiry to determine what is a socially and economically acceptable level of flood risk exposure for future property development in this state. There is no justification for the ULDA to pre-empt the outcome of the inquiry.

Even Brisbane City Council has adjusted upwards its one-in-100 year flood line on an interim basis pending the outcome of the inquiry.

As a statutory authority, the ULDA has a responsibility to demonstrate leadership to the property development community by adopting sound flood hazard management principles in its approval processes, which includes waiting for the outcomes of

the inquiry. If time is of the essence, it should identify other land parcels which are not flood-prone for its developments.

Trevor Grigg, Red Hill

IN THE knowledge of the recent experience of floods, the Government is proposing to build affordable housing on land that is subjected to flooding.

There is not much point shedding tears for the people who were hurt in the last flood and then building houses in locations that are subject to flooding.

What does it take for the Government to learn that if you build in areas that flood, you will get flooded.

At face value, the proposal to build hundreds of affordable homes on flood-prone land in mini-cities planned by the State Government is in the same basket of irresponsibility as was the North Bank proposal.

Ian Fairweather, Bardon

Courier Mail March 23 '11
p13

Flood land build plan

Koren Helbig

HUNDREDS of affordable homes in "mini-cities" planned by the State Government will be built on flood-prone land.

The Government admits more than half the 14 fast-tracked projects are on plots below the one-in-100-year flood level, some of which were hit by flooding this summer.

The Government's Urban Land Development Authority plans to approve all but one of the proposed residential and commercial developments on low-lying land.

The authority said applications would be approved if "flood immunity" conditions set by local councils were met.

The ULDA yesterday vowed to continue progressing developments while waiting for the flood inquiry.

Construction could begin as early as next month on a planned satellite city at Greater Flagstone, west of Jimboomba, despite some land being below the one-in-100-year flood level.

Raising flood level heights could result in higher property prices, says Adam Barclay, the managing director of real estate group Oliver Hume.

He said loss of low-lying land would reduce the number of available blocks.

Mr Barclay said the already slow approval process for subdivisions would grind to a halt and many of the recently approved subdivisions in the Ipswich growth corridor would be on hold pending the inquiry and finalisation of the flood levels.

"There is no question that the flood levels need to be reviewed and raised, but the direct effect of these changes could be quite severe in the short to medium term," Mr Barclay said.

Opposition infrastructure spokesman Lawrence Springborg feared the Government was encouraging development in low-lying areas and failing to learn lessons from recent flooding.

Seven urban development areas will use "flood immunity" conditions, including the contentious 2290ha Caloundra South mega-development, which was among three proposals partly swamped in recent heavy rain.

Sections of the Bowen Hills urban development area also flooded and residences will be banned from the border of Brisbane's Breakfast Creek.

But new industrial and commercial projects will be allowed in the flood-prone area as long as they meet Brisbane City Council conditions.

Development will be completely banned only at Blackwater, in central Queensland.

Chris camped



HELPING HAND: Kallangur's Chris Br

CHRIS Brownjohn spent days sleeping in his car during the floods so that he could be closer to people who needed his help.

He said he felt "helpless" at home watching all the devastation of the floods on television, so he decided to get out and help.

"I heard a man at Goodna was sick and in hospital and desperately needed help, he didn't have a chance to pack up his home before the floods hit," Mr Brownjohn said. "I organised about 12 people and we went there to help. I spent three days camped in my car so I didn't have to come home."

Mr Brownjohn, 30, is one of many