

# Another lesson to forget?

**F**OLLOWING the Brisbane floods in 1974, a protocol emerged from the State Government that saw local governments begin to use what is known as the Q100 or 100-year ARI (average recurrence interval) flood event.

In essence, this means that the 100-year ARI flood is one with a probability of occurring once in every 100 years. The theory behind this is an argument that buildings have a life of around 100 years and thus if built above the 100-year ARI flood level, they would not flood in their life.

So the whole basis of the protocol turns on probabilities. What would happen if you started to examine the floods that had occurred in a particular area, calibrated those floods to the probabilities and you started seeing that you had say four flood events in 25 years, where those events ranged between 1 in 40 and 1 in 88 year events?

This is more or less what had happened in Noosa through the 1960s to the 1980s.

There's something wrong, isn't there. The planners and engineers started to get worried. The probabilities say that the flood frequencies should not be this high.

The simple fact is that our flooding knowledge relies on rainfall knowledge and this is derived from data. We have been collecting rainfall data systematically in Queensland since the major flooding that occurred here in 1893.

That's right -- we have a little over 100 years of rainfall data. Curious isn't it, that with a little over 100 years of rainfall data, we are designing to a flood event that is supposed to occur only once in that period. Any statistician would tell

you that to have a significant level of confidence about the 100-year ARI event, you would want 1000 years of data underpinning it.

Now add to this, the issues of climate change and sea level rise and it is very apparent that some significant caution should be applied when considering whether or not to commit development into floodplains or determining what minimum floor heights should be applied in those areas already committed for development.

In Noosa in the 1990s, the Noosa Shire Council at that time took two decisions:

- First it decided not to commit any further lands in the floodplain for development; and
- Second, implement minimum floor heights across all potentially flood prone urban areas.

In each case, the decision took into account river flooding (where the water comes from a rainfall event in the catchment), storm surge (where a low pressure system sucks up the water on the coast forcing it inland through the river mouth), sea level rise, wind setup (where the wind across a body of water pushes up water on the far side), the effects of wave action (created by boats and 4WDs moving through the floodwaters) and freeboard (a buffer against error or in case of unforeseen circumstances). This gave rise to heights of some 0.5-0.8m above the 100-year ARI flood event.

In 2003, the *State Government implemented State Planning Policy 1/03 Mitigating the Adverse Impacts of Flood, Bushfire & Landslide* and its associated *Guideline*.

This policy relies on an equivalent of the 100-year ARI flood event.

● Continued on Page 8

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**A planner with a reputation for looking after the environment**

## Lesson to learn

### ● From Page 7

There is no allowance for any of the additional factors that were used by Noosa above.

In 2005, the State Government implemented the *South East Queensland Regional Plan*.

This plan saw extensive areas below the 100-year ARI flood event placed in the Urban Footprint across the south east and particularly in areas of the Sunshine Coast and Moreton Bay Regional Council areas.

In 2009, the State Government amended the plan and had the opportunity to correct these mistakes.

It did not do so and in fact in the Moreton Bay Regional Council area the State Government, despite the objection of the council, actually extended the commitments in flood prone areas.

Quite simply, the headlong rush to accommodate population has resulted in appropriate caution being set aside. The lessons from 1974 were quickly forgotten.

One wonders whether those from 2011 will be just as quickly forgotten.