

## Urban Floodplain Land-use on the Gold Coast – Acceptable Risk?

By Allison Godber

Ph.D Candidate

School of Humanities & Human Services

Queensland University of Technology

The recent rainfall event (24<sup>th</sup> February 2004) and subsequent flooding on the Gold Coast has further highlighted the very real conflict between human settlements and the natural function of floodplains and river systems. During the 30 years since the 1974 floods, urban development has occurred at a tremendous rate - on the Gold Coast the number of private dwellings has increased from approximately 14 000 in the 1960s, to just over 187 100 in 2000 (Gold Coast City Council, 2003; ABS, 2001a). Not only has this development increased the number of dwellings potentially 'at-risk' from flooding, it has also attracted a new population of residents (approximately 15 000 per year – Gold Coast City Council, 2003; ABS, 2001b), many of whom have little or no experience with flooding on the Gold Coast or within South-East Queensland.

Recent planning guidelines (for example the Queensland State Planning Policy SPP 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide and Emergency Management Australia's Planning Safer Communities) have recognised the significant role that land-use planning can play in reducing the vulnerability of communities to environmental hazards such as flooding. Unfortunately in many urban areas within South-East Queensland, the 'damage' has already been done, with new developments already going ahead on floodplains. Further to this, while development generally conformed to the most accurate information about flooding available at the time, many areas now lie below today's minimally accepted planning standard - the 1-in-100 year flood. Land-use planners and risk managers consequently face the very real problem of how to address the potential exposure of existing land-use to flood hazard. This raises the issues of funding availability and the balance of flood risk against the day-to-day management responsibilities which Local Government must also address. Communicating and equitably distributing the costs of mitigation across a community largely unaware of the risk to begin with also complicates the risk management process.

A study conducted on the Gold Coast by the author (Godber, unpublished) examined the flood risks considered to be acceptable by the stakeholders: Local Government, the development industry and floodplain residents. The study has raised a number of interesting issues concerning floodplain land-use planning and risk management:

*1. The stakeholders considered risks from different perspectives.*

The floodplain residents considered flooding and acceptable risk in terms of the impacts that are likely to occur to their homes, while the Local Government and the development industry considered flooding and acceptable risk from the perspective of the management responsibility and regulatory and legal obligations for sites.

*2. Current planning standards were misinterpreted by the public and generally considered to be unacceptable.*

The floodplain residents were generally unaware of the land-use planning measures which the Local Government had implemented to address flooding (for example minimum development standards or acceptable risks). The research indicated that the floodplain residents did not believe the Local Government

would permit residential land-use within areas that may be flooded, if only by events greater than the current minimum acceptable standard (the 1-in-100 year flood). When the potential impacts associated with the 1-in-100 year flood were illustrated graphically, the floodplain residents considered the consequences to be unacceptable.

3. *Flood risk could be 'removed' through land-use planning.*

Many floodplain residents and some development industry representatives did not consider land which had been developed, (particularly to heights above previous flood events or the planning standards) to be "floodplain". Further, the planning standards were often seen by the some of the residents and members of the development industry as having removed all flood risk.

4. *Differences exist between actual and perceived responsibilities for education and flood mitigation.*

The floodplain residents considered the Local Government to be responsible for informing the community about flooding and then taking the necessary action to remove risk. The majority of development industry representatives also considered community education to be the responsibility of the Local Government role. The developers did acknowledge the role played by their industry in mitigating flood risks, however, the representatives did suggest that the Local Government needed to ensure that land-owners actually undertook the mitigation required for their sites. The Local Government consider that the entire community should be responsible for education and flood risk mitigation issues.

There are inconsistencies between the risks considered acceptable by the stakeholders and the way floodplain management and standards are interpreted. In order to address and minimise variation, policy makers/ Local Government need to have an effective knowledge of the risks considered to be '*acceptable*' by the community external to the planning process *as well as* the levels of flood awareness, local experience etc. This knowledge then needs to be further incorporated into '*acceptable*' risk standards and floodplain land-use policy. In an ideal scenario, planning schemes would be based on the land-use and hazard risks considered '*acceptable*' by an informed community. However, from the Local Government's '*real-world*' perspective, there are a number of issues which inhibit changes to the planning processes and standard setting, including:

1. Resource availability and prioritisation;
2. A lack of political will;
3. Issues concerning stakeholder identification and consultation;
4. The uncertain and irregular nature of flooding; and
5. Limited guidance from the State Government regarding the communication of flood risk.

It may be possible for Local Governments to undertake engineered structural mitigation (such as raising dam walls or levees) in order to realign existing exposure to the risks considered acceptable by the community. This would require considerable public consultation to ensure that exposure was reduced to levels considered acceptable by the community, rather than simply to the traditionally accepted standards.

Because of development pressure on high-value coastal land, it is impractical to restrict land-use to areas higher than the probable maximum flood (PMF or worst-case

scenario flooding). The current planning levels are based on internationally recognised planning standards, but are the impacts associated with these standards truly acceptable in the eyes of the stakeholders potentially at-risk? The recent rainfall episode in February 2004, has shown the potential disruption that even minor flooding can cause to the day-to-day lives of Gold Coast residents. What will happen during the next big flood? From the perspective of natural hazard impacts, have we really created a sustainable urban environment?

Australian Bureau of Statistics. (2001a). *Census of Population and Housing - Time Series Community Profile (Catalogue No: 2901.0)*. Canberra: ABS.

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