Partnership on Inland Flooding Study

What is the Inland Flooding Study about?

The Inland Flooding Study was undertaken as a partnership between the State Government and the Local Government Association of Queensland (LGAQ) to improve Queensland's resilience to extreme flood events caused by climate change.

Flooding causes significant impacts on Queensland communities and the economy—and with our changing climate, extreme flooding events are likely to become more intense.

Effective land use planning will ensure our communities are ready for the impacts of climate change by ensuring dwellings, critical infrastructure (such as hospitals) and sensitive land uses (such as storage of fuel) are located where there is a lower risk of flooding, or are built to withstand the impacts of extreme flood events.

The Inland Flooding Study recommends options to increase community resilience to extreme flood events by providing:

1. a recommended climate change factor for incorporation into flood studies
2. specific policy options for improved flood risk management in the Gayndah case study area
3. recommendations for the review of State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*.

The Inland Flooding Study produced two companion reports describing the scientific approach recommended and the policy options for the Gayndah case study area. They are available at ‹www.derm.qld.gov.au›.

Key outcomes from the study

1. Climate change factors for flood studies

The study provides Queensland's local governments with a recommended climate change factor for increased rainfall intensity for incorporation into their flood studies. It proposes a 5 per cent increase in rainfall intensity per degree of global warming.

This 5 per cent increase in rainfall intensity per degree of global warming can be incorporated into the 1-in-100, 1-in-200 and 1-in-500 year flood levels for the location and design of new development in the State Planning Policy 1/03. Local governments are advised to use the following temperature increases and planning timeframes: 2°C by 2050; 3°C by 2070; and 4°C by 2100.

This climate change factor is limited to flood risk management for planning purposes as described by the State Planning Policy 1/03 and does not extend to more frequent events such as a 1-in-50 year flood or more extreme events than a 1-in-500 year flood. The climate change factor applies to floods arising from rainfall events of at least one hour or more. This climate change factor will be reviewed and updated when a national position on how to factor climate change into flood studies is finalised. The outcomes of this national review are not expected to be available before 2014.

1 The Annual Exceedence Probability (AEP) refers to the likelihood of occurrence of a flood of a given size or larger in any one year. The 1 per cent AEP flood event is also known as the 1-in-100 year flood, the 0.5 per cent AEP as the 1-in-200 year flood and the 0.2 per cent AEP as the 1-in-500 year flood.

The State Government acknowledges the scientific uncertainty associated with projecting climate change and rainfall intensity. However, for the purpose of incorporating climate change impacts into planning regimes, the study also recognises the need for a clear benchmark to provide local councils with the best estimate within an acceptable range of uncertainty. The climate change factors derived for this study fall within the 3-10 per cent range per degree of global warming recognised in the best available scientific literature.

2. Policy options for Gayndah township case study

The Gayndah township in North Burnett Regional Council was selected as a case study area for the Inland Flooding Study following a request from the LGAQ for a benchmark figure from the State Government for taking climate change into account when assessing inland flooding risk.

Policy option 1 uses new flood maps showing revised extreme event flood levels for 2050, 2070 and 2100 that include the climate change factor. Policy option 2 uses the Council's recent flood study to approximate future extreme event flood levels under climate change. For the Gayndah township, the current 1-in-200 flood level will approximate to the 1-in-100 year flood event by 2050, and the current 1-in-500 year flood level will approximate to the 1-in-100 year flood level by 2100.

The two options recommended apply the same climate change factor, but offer two implementation approaches developed in consultation with the North Burnett Regional Council. While the recommended policy options are specific to the Gayndah township, the policy approach underpinning the code will be of interest to other local governments in Queensland.

3. Recommendations for the State Planning Policy 1/03 review

The Inland Flooding Study makes a number of recommendations that relate to the review of the State Planning Policy 1/03. These include identifying how frequently flood studies should be reviewed and/or updated, and investigating the circumstances in which councils should be able to have a 'Defined Flood Event' that is higher or lower than the 1-in-100 year flood.

What does this mean for local governments?

As a result of this study, local governments are now better equipped with clearer guidance on how to factor climate change into flood studies, and have been provided with practical examples of how the effects of climate change can be incorporated into planning schemes. Further guidance will be provided to local governments resulting from the review of the State Planning Policy 1/03 scheduled for completion in 2013.

What does the study mean for Gayndah residents?

Property owners who are proposing development on their property will refer to the flood constraint maps endorsed by Council to determine if they are in a flood prone area. If the property is in a flood prone area, the development application is assessed against the flood constraint code included in the planning scheme. The North Burnett Regional Council is currently considering the recommended policy options and will decide how it will reflect this advice in its planning scheme.

More information

Background about the partnership on the Inland Flooding Study and companion reports can be found at ‹www.derm.qld.gov.au›.

A joint project of:

Department of Environment and Resource Management

Department of Infrastructure and Planning

Local Government Association of Queensland