



WYONG SHIRE COUNCIL

Draft Climate Change Policy

December 2009

Worked Examples

CLIMATE CHANGE POLICY

Attachment 4

Examples of how the Climate Change Policy would be implemented.

Projected climate change impacts will increase flood levels and flood extents in coastal waterways, with this effect generally diminishing with distance upstream from the coast. Climate change will potentially add both a level for sea level rise as well as increases in flood volume and changes to flood frequency from increased rainfall intensity and changes to rainfall patterns.

Figure 2 below is an extract from State Government's recently released Draft Flood Risk Management Guide: Incorporating sea level rise benchmarks in flood risk assessments. It should be noted that, in addition to the current risk associated with development within the Flood Planning Level (which incorporates the 1 in 100 year ARI flood plain level plus a freeboard of usually 0.5 metres), a new area, termed the "sea level rise planning area" will emerge. Proposed development within this area will also come under this policy.

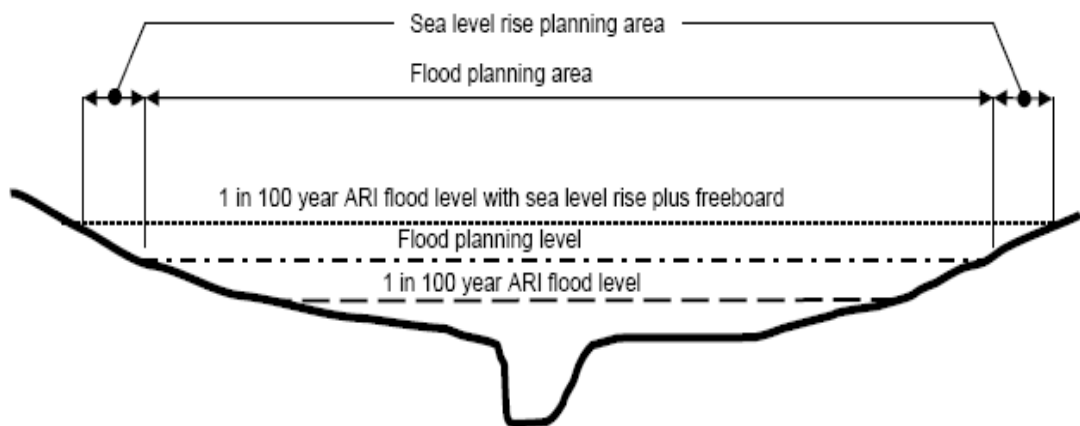


Figure 2 Flood levels and planning areas (cross-section view)

Worked Examples

Planning

Under the Policy, strategies, masterplans and rezonings, etc. are required to use a minimum 100 year time frame when considering the potential impacts of Climate Change. In this instance, any proposed strategy, masterplan or rezoning or part thereof within the "sea level rise planning area" would be affected.

The implication for any new proposals within the "sea level rise planning area" is that an additional Climate Change allowance (CCA) will need to be added to the flood planning level (Section 1.3 and 1.4 of the Policy).

In low lying areas surrounding the lake, such as those areas within the Toukley Strategy, adaptive measures will need to be considered to address future climate change flood planning levels. These measures will include applying alternate land use zones, additional zone objectives, principle development standards (e.g. minimum subdivision size), additional LEP provisions (e.g. use of foreshore building line), specific development provisions within a DCP, public resumption of land or protection options.

Inundation

Example 1

A private commercial or industrial development proposal lodged today that lies within the “sea level rise planning area” around the lake as determined under the risk assessment procedure will require a new flood planning level that includes a CCA to account for sea level rise over time. Note: the sea level rise for the Tuggerah Lakes is considered to be approximately the same as for open seas and will usually remain some 0.2 metres above the mean sea level.

The CCA allowance is determined by assessing the asset period from the approximate cost of the proposal (see Graph 1 Cost vs Asset Period in the **Technical Guidelines**). A \$900 000 proposed development would have a 100 year asset period. This asset period equates to a CCA of 1.04 metres (Graph 2 of the **Technical Guidelines**). Consequently, for the proposed development to address the potential impacts of climate change it would need to be raised to allow for a new Flood Planning Level 1.04 metres above that stipulated for the current 1 in 100 year AEP flood level plus freeboard for the site.

Example 2

A private development proposal for a new dwelling lodged to day that lies within the floodplain of a river and above the influence of sea level rise as determined under the risk assessment procedure will require a new flood planning level that includes a CCA to address the potential increase in flood levels due to increased rainfall intensity over time. Porters Creek catchment would be such an area.

The CCA allowance is determined by assessing the asset period from the approximate cost of the proposal (see Graph 1 Cost vs Asset Period in the **Technical Guidelines**). A \$150 000 proposed dwelling development would have a 60 year asset period. This asset period equates to a CCA of 0.2 metres (Graph 3A of the **Technical Guidelines**). Consequently, for the proposed development to address the potential impacts of climate change the subject land would need to be raised to provide a new Flood Planning Level 0.2 metres above that stipulated for the current 1 in 100 year AEP flood level plus freeboard for the site.

Example 3

Should a risk assessment indicate that the subject land comes within an area vulnerable to both sea level rise and increased flooding from increased rainfall intensity, then the CCA should include an allowance for both sea level rise (as determined from Graph 2 of the **Technical Guidelines**) and increased rainfall intensity (as determined from Graph 3A of the **Technical Guidelines**). For example, development proposals adjacent to both Tuggerah Lake and the Wyong River or Ourimbah Creek would fall into this category.

Coastline

Council’s current DCP 2005 Chapter 77 Coastal Hazards delineates an immediate or very high hazard erosion zone for the dunes, beaches or bluffs where no development or improvements to dwellings can occur. Further west of this line development can occur in the high hazard zone (0-50 years) or the medium hazard zone (50 – 100 years) but is subject to development controls that address the hazard.

The Policy requires that proposed new development, modifications or additions landwards of the current erosion or immediate high hazard line should not be located seawards of a hazard line as determined equivalent to the Asset Period (see Graph 1 Cost vs Asset Period in the **Technical Guidelines**) for that new development, modification or addition, i.e. the new development should be located landwards of the hazard line equivalent to the Asset Period.

In essence, this precludes development commensurate with the current DCP 2005 Chapter 77 but allows development outside the area affected by the current erosion or high hazard lines to be commensurate with the risk posed by climate change over time, i.e. it does not sterilise land before it is necessary should coastal retreat occur as predicted.

For example, a house with an Asset Period of 70 years should be located outside the 70 year hazard line. Similarly, a smaller structure such as a deck, with an Asset Period of 15 years, could be located immediately outside the 15 year hazard line. The 70 and 15 year hazard lines can be interpolated between the current 0, 50 and 100 year hazard lines until additional hazard lines are formulated as part of the CMP process. This has the effect of not sterilising land until it is necessary on the basis of rising sea levels.

Where development is located immediately adjacent or within proximity to a hazard line equivalent to the development's Asset Period then the development could potentially be affected by the impacts of climate change soon after the Asset Period is realised. In such cases, the consent should be time limited to the Asset Period. This is also a departure from current practice.

When the asset period expires the time limited condition should be reassessed. Consent should be extended in time if the rate of coastal retreat due to climate change is less than projected at the time of the original consent. Should the rate of coastal retreat be equal to that predicted then the dwelling should be relocated, repositioned or demolished. In this regard the recently released State Government policies and draft guidelines (as per list under Legislative Requirements) clearly indicate that the responsibility and the cost for activity such as relocation, demolition and abandonment of a property lie clearly with the landholder