

SUBMISSION: REINSURANCE POOL FOR CYCLONES

Submitted by Emeritus Professor Bruce Thom AM FTSE

Background

I welcome the opportunity to provide a submission to the consultation paper on reinsurance pool for cyclones and cyclone-related damage. My experience in this field derives from a background in both coastal physical science and coastal policy/management as an advisor to both state and federal governments. Specific work in disaster-natural hazard related studies commenced in 1976 when I co-convened the *Academy of Science* symposium on this topic following Cyclone Tracy event (see publication by the Academy in 1979—Heathcote and Thom eds.). I have been subsequently involved in submissions or on committees dealing with coastal management from an Australian Government perspective concerning actual or potential impacts of coastal hazards. This includes roles as: Chair of the National SOE Committee 1998-2001; Chair Coast and Climate Change Council 2011-12; advisor to the National Coastal First Pass Risk Assessment 2009-2012; and Chair Shoreline Explorer expert group as part of CoastAdapt, NCCARF 2014-18. Since 1989, I have served the NSW Government on several occasions as Chair of the NSW Coastal Council (currently a member). I have also participated in Productivity Commission inquires and try to maintain an on-going interest in coastal risk matters in Australia and overseas (e.g. in 2013 visited New Jersey to examine impacts of Hurricane Sandy).

Comments on issues raised in consultation paper

In noting the consultation objectives in the paper, I am very conscious of two points: (1) understanding risks across different time horizons, and (2) the need to minimise adverse impacts from having a reinsurance pool. These are areas where my experience may assist the Task Force. In the comments that follow, a brief attempt will be made to indicate where complex issues require additional consideration. If the occasion arises, I would be very willing to provide further information as to what is being required in the establishment of this pool especially as we should factor in a range of potential climate change effects (as outlined in 2009-11 First Pass Assessment reports; NCCARF

CoastAdapt studies; and elsewhere). I will comment on several consultation questions that fall within my level of expertise.

Q1a. This question opens up the physical meaning of “cyclone” and areas of the Australian coast where a “cyclone” may impact. Emphasis in the paper is on “northern Australia” and by inference then to tropical cyclones as per BoM definition. This has several implications for insurance; first such cyclones penetrate to temperate areas in terms of rainfall, flooding and sea conditions; second, they overlap in area with “extra-tropical cyclones” (also termed east coast lows); third where there is geographic overlap the combined seasonal impact can be horrendous in terms of costs/insurance as occurred in 1974 from south Qld to central NSW; and fourth, all these low pressure systems along the coast have similar damaging impacts on property through high winds, floods, storm surges and wave erosion. (Note—tropical cyclones can also penetrate well into temperate latitudes on the west coast). There is also the potential for these two types of atmospheric disturbances to merge into a super cyclone like Hurricane Sandy in the USA (imagine if this happened along the Gold Coast—a reinsurers nightmare!). One way forward is to follow the definition used by the **Australian Building Code Board** (ABCB) on requirements for construction in “cyclone -affected areas” (see ABCB RIS 2010-01. In 2010 the Board proposed shifting the boundary of its “Region C” to extend from lat. 25 degrees south on the Queensland coast to 27 degrees to “include areas just north of Caboolture” (the so-called Caboolture Line). This included the Sunshine Coast but not Brisbane (Note—the transition zone B remained fixed at Corindi in NSW 30 degrees). Therefore an option that I would **recommend** is to geographically limit the pool to only cover an area that would be consistent with that of ABCB. This would have the effect of limiting the likelihood of overlap with extra-tropical cyclones. Such consistency with ABCB definitions would also limit the pool to tropical cyclones as the cover could also factor in wind and related effects not just flooding.

Q1b. I am informed by the approach taken in the USA by FEMA on what should be covered by cyclone-related flooding in the pool. I am familiar with FEMA from my US experience on matters concerning coastal flood risk. I would **recommend** an analysis by the Task Force of how FEMA principles and operations may fit with proposals in the consultation paper. Aspects of relevance are the various flood risk products in coastal areas including tools where the risks from wave heights, severity of flooding and erosion occur. This leads to producing flood maps according to zones of varying risk

(<https://www.fema.gov/flood-maps/coastal>). Years of application by FEMA offer many lessons that could assist the Task Force understand the dynamic nature of interacting coastal forces impacting on coastal lands before, during and following the passage of a tropical cyclone. On our high tidal coasts, we must also factor in the interaction of tidal levels with flooding from the land that elevates waters even after cyclonic wind effects have ceased. Such effects have occurred along flooded valleys and into towns as far south as the Mary River and is well-known to coastal engineers.

Q2. There is no doubt in my view that storm surge be included. So much of the damage in the US east and Gulf coasts is a result of surge flooding. This is well-documented with both Hurricanes Katrina and Sandy. Many coastal areas are exposed to elevated water levels of several metres above high tide on the Qld coast. Townsville in 1971 was “saved” from massive flooding to a degree as the surge effect occurred during a low tide. Surge flooding also leads to inlet and river erosion as surge waters retreat. Accompanying surges are elevated waves that also cause damage (see FEMA diagrams) and fires in buildings. I **recommend** that consideration be given to the combined impacts from these cyclone-related effects similar to how they are applied by FEMA.

Q3. Yes, it would be desirable using standardised definitions.

Q10. As noted by the ACCC there are differences in the way insurers evaluate risks—more information needs to be available to assist the functioning of the pool especially as combined effects of flood, wind, fire, wave, and surge inundation may in all probability occur in the same area; I **recommend** methods of calculation should be compared with those in USA (by states?), UK and France.

Q11. I **recommend** the development of a standard risk-rating system to apply under this reinsurance pool. Again FEMA offers one model through which targeted reductions may apply with its coastal V, A and X zones. This should offer the framework for a further layer that could include property condition as assessed by insurers (linked to construction code see Q 21). Further discussion with insurers is required. In addition, both Qld and NSW have methods of notifying property owners of hazards risk (NSW Planning 10-7 certificates). Under new NSW Coastal Management Act and SEPP (2018) there is emerging more detailed assessment of risk to different present and future coastal hazards.

Q14. Consideration of the appropriate level of participation in the pool could be linked as suggested through the application of “hazard maps”. The Qld Government with local councils is undertaking such mapping. I would **recommend** the process followed by FEMA be evaluated for use with the pool: for instance for properties located in little affected “Zone X” the insurers may not cede to the pool, but in the two FEMA “A zones” they would have to be ceded. Those falling in high coastal inundation hazard area (“Zone V”) would most likely be deemed uninsurable—there are few if any insurers that cover direct impact of the sea on properties and indirect flooding effects due to tidal elevation are contentious—this needs further evaluation.

Q17. Given climate change projections I would be very hesitant about establishing an exit date as planned in the UK with *Flood Re*.

Q19-20-21. Individual mitigation actions can have negative or maladaptive effects. The typical example used in coastal engineering is the so-called “end effect” caused by an isolated seawall. Litigation on this issue abounds under both common law and statute law (see *NSW Coastal Management Act s27*). Discounts that encourage actions to mitigate risk must consider adaptation strategies that recognise both private and public benefits. Here is where regional and local land use planning instruments should be linked to insurance policies. This is complex political space having spent months of my life in court and negotiating policy outcomes with government officials and ministers in NSW. I would **recommend** some way (e.g. guidance principles) of informing insurers of their responsibilities to NOT offer discounts where a mitigation measure is likely to create adverse effects to the environment or other landowners. The pool should NOT have an explicit mandate to encourage mitigation. However, building standards through the work of the ABCB should be adopted for new or modified buildings to which both insurance and mortgage loans would apply. For example it could be the case in areas like those in “Zones A” of the FEMA scheme. I would further **recommend** that the Flood Re 2009 limit NOT be applied in north Qld and coverage be considered for all new and existing (and modified buildings) that meet *Construction Code of Australia* standards where adverse external effects are not applicable (e.g. raising building levels as in a certified way as in New Orleans and Charleston, South Carolina as part of federally supported local resilience projects).