



**Cyclone Testing Station**  
College of Science & Engineering  
James Cook University  
Townsville Qld 4811 Australia

Telephone +61 7 4781 4340  
Email: [cts@jcu.edu.au](mailto:cts@jcu.edu.au)  
[www.jcu.edu.au/cts](http://www.jcu.edu.au/cts)

## List of consultation questions

The Cyclone testing Station at James Cook University (CTS) has provided answers to questions that fall within our area of experience and expertise.

### Reinsurance pool coverage

**1. How should 'cyclone' and 'cyclone-related flooding' be defined for the purposes of defining the reinsurance pool's coverage?**

CTS believes that the industry should agree on a standard definition of 'cyclone' and 'cyclone related flooding' that covers wind, rain, storm surge and flooding that can be used to activate claims from the reinsurance pool. Other definitions will be required to establish the geographic boundaries where cyclones are possible (this may also include Wind Region B) to determine the size of the reinsurance pool. Cyclone-related flooding can affect a much larger geographical area than is affected by severe winds.

CTS could contribute to discussions on these definitions.

**2. Should storm surge be covered by the pool and included in a definition of 'cyclone-related flooding'?**

Yes, storm surge is always a part of tropical cyclones. The extent of damage to properties caused by storm surge is related to the height of the tide at the time a cyclone crosses the coast; some storm surges e.g. during TC Yasi in 2011, caused significant damage to properties from inundation and wave action in Hull Heads and Tully Heads.

Communities are severely affected by damage from storm surge associated with tropical cyclones. Many coastal communities in northern Australia are at risk from storm surge. In coastal areas, runoff, riverine flooding and storm surge can often combine to cause property damage.

**3. Is it desirable for the use of standard definitions of 'cyclone' and 'cyclone-related flooding' to be required in policies covered by the pool?**

Yes. Furthermore, CTS feels there should be industry-wide definitions, not just limited to policies covered by the pool.

**4. Are there any difficulties which may arise from including home building, home contents, or residential strata policies in the reinsurance pool and how should the scope of this coverage be clarified?**

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Content policies in strata are separate, so there needs to be clear definitions of what is covered by each policy, i.e. the property policy and the contents policy. We presume this is no different to current practice.

Perhaps some consideration could be given to the pool only reinsuring the component of the policy that relates to damage to the actual building. Buildings and grounds make up a large component of many claims, e.g., swimming pools that need to be emptied, glass and debris removed, cleaned and refilled; damaged fences etc. Although these items are important, they are not essential to the function of the building.

Furthermore, some building contents, food spoilage, etc could be excluded to encourage individual resilience while minimising the cost of insurance.

**5. Are insurers able to separately price or estimate the value of the property component of business insurance packages?**

Although best answered by insurers, we believe it is essential that the policies are structured to identify the value of the property component separately for mixed-use buildings (combined commercial and residential buildings). Because the landlord is often not the business owner, this may well be the norm.

**6. Are insurers able to separately price or estimate the value of the residential and small business components of mixed-use strata title policies?**

*No Answer Provided*

**7. Are there any difficulties which may arise from including mixed-use strata title policies in the reinsurance pool and how should the scope of this coverage be clarified?**

Most mixed-use strata buildings inspected by the NQ Strata Title Inspection Scheme (refer [www.nqstip.com.au](http://www.nqstip.com.au)) are primarily residential buildings. We feel it is important that the property component of the insurance should cover both the residential and commercial parts of these buildings.

**8. How should 'small business' be defined for the purposes of eligibility?**

*No Answer Provided*

**9. Are there any difficulties which may arise from including small business property insurance policies in the reinsurance pool and how should the scope of this coverage be clarified?**

*No Answer Provided*

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## Reinsurance product design and insurer participation

### **10. What is the current approach used by insurers to assess and measure cyclone, storm surge, and related flood damage risks, to what extent are individual policy level data available, and how are cyclone related risk premiums calculated in insurer pricing models?**

CTS understands (from work with the North Queensland Strata Title Inspection Program and other research projects) that insurers take various approaches to assess and measure cyclone, storm surge, and related flood damage risks. Increasingly, some use an address/postcode specific approach to assess a site/location risk, using of a variety of data sets.

In determining the contribution to the overall risk by the building, they may consider the age, condition, and construction method, along with any mitigation upgrades the building has undergone. Some insurers take evidence of building condition and upgrades “on faith”, whereas others ask for more proof (e.g., receipts for work completed).

In the NQ strata insurance market, several insurers value a report from the NQ Strata Title Inspection Program, which has been developed and is operated by the Cyclone testing Station at JCU (funded by the Federal Government and administered by the Queensland Government <http://www.nqstip.com.au>).

In the Queensland housing market, some insurers request formal evidence of resilience upgrades (such as those participating on the Queensland Household Resilience Program <https://www.qld.gov.au/housing/buying-owning-home/financial-help-concessions/household-resilience-program> ).

### **11. How should the reinsurance pool design a risk rating system for cyclone and related flood damage risks, and what are the trade-offs associated with using risk tiering and with the level of granularity used?**

There needs to be a uniform system of rating a building’s resilience to a target hazard.

CTS believes the only way to reduce risk (and thereby the cost of insurance and reinsurance) for existing properties and new buildings is to mitigate against the hazard. Based on more than 40 years of post-cyclone damage investigations, materials testing and research, the CTS has developed a suite of software tools that estimates the resilience of properties to tropical cyclones. CTS has identified five categories that are used to assess the resilience of a property to cyclone-related damage: grounds, wind, wind-driven rainwater, storm tide, and ancillaries (items attached or associated with the property, including solar photovoltaic panels, communication aerials, and air conditioning units). CTS has developed a system of estimating the resilience to damage from cyclones for residential strata properties. The North Queensland Strata Title Inspection Program ([www.nqstip.com.au](http://www.nqstip.com.au)) uses this technology. The program includes a non-invasive inspection of eligible strata properties by trained inspectors. An assessment “engine” uses evidence-based indicators (around 90 questions) to assess vulnerability and provides targeted suggestions for remediation to minimise potential structural damage, rainwater ingress and damage to ancillary items and storm surge from any future tropical cyclone. The property owner is given a report providing resilience scores in these areas, as well as a list of recommendations to allow the property owners to see how they can reach their achievable scores. Many of these recommendations offer a significant improvement to the property’s resilience.

'Resilience' of a building is related to its functionality, strength, and robustness; resilience is the extent to which a building can remain mostly undamaged and functional during and after a cyclone. Buildings that are resilient will require minimal repairs. CTS believes that the resilience assessment engine it has developed for the NQ Strata Title Inspection could be a model on which to base a resilience assessment tool for use in rating risk levels for the reinsurance pool.

The concept of providing higher discounts for higher risk properties (pg 12 of the Consultation Paper) may work against the aim of encouraging owners of less resilient properties to undertake mitigation recommendations. (Refer to the answer for Q 20.)

The cost of inspection and risk evaluation is a trade-off with accuracy and granularity. There needs to be an accurate measure of risk beyond the simple acknowledgement of characteristics such as location, age, roof type, construction material, and floor elevation.

An important finding from implementing the North Queensland Strata Title Inspection program, the government funded program developed and operated by the Cyclone Testing Station at James Cook University, is that professional indemnity insurance for building inspectors is difficult, if not impossible, to obtain. In order to facilitate a resilience rating system, which would definitely require a professional inspection and assessment, at least for larger buildings, such insurance may also benefit from being included / backed by the pool. For clarity: professional indemnity insurance for qualified persons to undertake resilience inspections and assessments based on an industry accepted resilience inspection and assessment process, is backed by the pool.

**12. How much risk exposure should primary insurers retain?**

*No Answer Provided*

**13. Would implementing a reinsurance pool have any effect on the claims management process, and how could this be addressed in the reinsurance pool's design?**

*No Answer Provided*

**14. What is the appropriate level of participation in the pool, and how should considerations of coverage and the amount of risk to be ceded be addressed?**

[This question is directed more to insurers – pg 13 of Consultation Paper.]

While the pool may make insurance more affordable in the short term, it is imperative that current building resilience levels are not deemed acceptable, in the longer term. The only way to reduce risk of damage to existing buildings is through mitigation and the only way to stop new buildings from similar damage is to ensure the design and build are subject to a resilience rating scheme.

We read that the pool would be intended to provide targeted reinsurance premium reductions at the individual property level based on each property's risk profile, where higher risk properties receive higher discounts, there needs to be an accurate measure of risk beyond the simple acknowledgement of characteristics such as location, age, roof type, construction material, and floor elevation.

CTS has developed a system of estimating the resilience to damage from cyclones for residential strata properties. The North Queensland Strata Title Inspection Program (<http://www.nqstip.com.au>) makes use of this technology. This system can be adapted to residential housing and provide the

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platform for a uniform rating system for a building's resilience, which could provide insurers with an indication of the buildings resilience and provide all stakeholders with mitigation recommendations.

Furthermore, this system could be used to determine the resilience of new builds, by inspecting and assessing the design, material choice, proposed site and construction.

Given that geographic boundaries for cyclone damage are, at best, indeterminate, consideration should be given to have all properties in Australia contribute to the pool by way of a levy on building insurance policies. Perhaps States could redirect stamp duties for this purpose (at least in part).

**15. How should industry transition be managed and what is the best format and timeframe for it to take place?**

[This question is directed more to insurers – pgs 13 &14 of Consultation Paper.]

The issue of ever-increasing insurance premiums is only going to be addressed, in the longer term, if the actual risk is reduced. Given that climatologists predict more frequent and more intense events as the result of climate change, it is, evident the only way to reduce risk is to improve the resilience of buildings.

Underpinning any assessment of a buildings resilience needs to be a uniformly accepted rating system like that developed by the Cyclone Testing Station at James Cook University for the government funded North Queensland Strata Title Inspection Program (<http://www.nqstip.com.au>).

In order for this system to be adapted for residential housing (and other building types, if required), CTS would require resources to implement a pilot program, and work with the industry to map transparent resilience scores to enable and quantify reduced risk and therefore reduced premiums. For this to occur in a reasonable timeframe, there would need to be leadership from government, incentives to all stakeholders and some level of financial resourcing.

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## Reinsurance pool governance and monitoring

### **16. What should be the key goals for a regular review of the reinsurance pool and what would be the optimal timeframe?**

[Key goals for regular review:

- Property owners are purchasing adequate levels of insurance
- Property owners are undertaking mitigation recommendations
- Premiums are 'affordable'
- Inspections are accurate and efficient ...]

The reinsurance pool should be reviewed each time there is a claim, i.e. each time there is an event of sufficient scale to trigger a reinsurance claim against the pool. This would provide the opportunity to assess the (hopefully) improved resilience of the built environment at the time of the event.

While the pool may make insurance more affordable in the short term, it is imperative that current building resilience levels are not deemed acceptable, in the longer term. The only way to reduce risk of damage to existing buildings is through mitigation and the only way to stop new buildings from similar damage is to ensure the land planning, building design, construction and maintenance are subject to a resilience rating scheme.

It is worth noting, that the standards which underpin the building code are concerned with preserving life. Much of the Cyclone Testing Station's work over the past four decades has contributed to the standards, which have achieved improvement to the extent that loss of life from cyclones to occupants of buildings in wind regions C and D is now rare. The building envelope, built to modern standards, should survive. However, the repair to non-life threatening damage is often expensive. Buildings may be structurally sound, but vulnerable to wind driven rain, for example.

A resilience rating system would provide a mechanism to ensure a building's likelihood of survival with no significant damage, thereby giving insurers an opportunity to provide premium discounts for resilient properties. This would have a positive effect on claims and thereby provide less risk to the pool.

It is important that the pool is not just about making more premiums more affordable, but acts in a way to improve resilience, not making current levels of poor resilience seem acceptable. To this end, current buildings need to be mitigated to improve resilience, while new buildings are located, designed, and constructed to a higher standard of resilience.

A yearly review (stocktake?) of mitigation measures undertaken for existing buildings should be undertaken. A resilience rating score for buildings would make this review efficient.

### **17. Should the reinsurance pool have a planned exit date?**

Yes. The reinsurance pool should be seen as "first aid". In order to reduce the actual risk, the only long-term solution is to mitigate existing buildings to be more resilient and to ensure new buildings meet acceptable resilience levels. A time period allows for the resilience improvements to be undertaken by property owners. The program should plan to be self-sustaining by, say, 2035, as many mitigation strategies to improve resilience are known.

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It is worth mentioning that improvements in resilience, underpinned by an industry accepted building resilience rating system will effectively generate a new, 'positive' industry that is based around inspections, assessments and retrofitting of existing buildings as well as the skilled review and rating of new designs and building projects.

The Cyclone Testing Station recognises that regular inspections and maintenance of buildings contributes significantly to their resilience (similar to the need for regular maintenance of vehicles to ensure their roadworthiness and safety). CTS recommends that resilience inspections are undertaken every 5 or so years (for the life of the building) and this could / should be part of the insurance policy renewal process.

**18. Which mechanisms will ensure the pass-through of reinsurance premium savings to insurance policyholders? For example:**

**18.1 Explicit price monitoring of insurance premiums?**

*No Answer Provided*

**18.2 Additional requirements to disclose the cost of reinsurance to policyholders?**

*No Answer Provided*

**18.3 Any additional mechanisms that may be appropriate?**

A mechanism whereby people are rewarded for building or renovating resilient buildings is essential. Only by making the built environment more resilient to the damage caused by cyclones will the community's risk be reduced.



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## Links to risk reduction

### **19. To what extent do insurers price in discounts into insurance premiums for mitigation action undertaken by or affecting policyholders?**

CTS believes that insurers take various approaches to assess and measure cyclone, storm surge, and related flood damage risks. Increasingly, some take an address/postcode specific approach to assess a site/location risk, making use of a variety of data sets.

In determining the contribution to the overall risk by the building, they may consider the age, condition, and construction method, along with any mitigation upgrades the building has undergone. Some insurers take evidence of building condition and upgrades “on faith”, whereas others ask for more evidence.

In the NQ strata insurance market, several insurers value a report from the NQ Strata Title Inspection Program, which has been developed and is operated by the Cyclone testing Station at JCU (funded by the Federal Government and administered by the Queensland Government <http://www.nqstip.com.au>).

In the Queensland housing market, some insurers requested formal evidence of resilience upgrades (such as those participating on the Queensland Household Resilience Program <https://www.qld.gov.au/housing/buying-owning-home/financial-help-concessions/household-resilience-program>).

### **20. How might mitigation be encouraged by the reinsurance pool’s design? For example:**

#### **20.1 Should the pool provide discounts for properties that undertake mitigation?**

Yes. Financial incentives will be needed to help offset the cost of undertaking mitigation to transform a building from a high risk to a lower risk. Premium reductions may not be enough, and some level of subsidy might also need to be provided for more extensive upgrades for some buildings. Perhaps the larger retrofitting/upgrades could be assisted through interest free loans.

If the pool provides discounted premiums for more at-risk properties (pg 12 Consultation Paper), there needs to be an incentive for such buildings to be upgraded to mitigate the risk. There needs to be a universally accepted resilience rating system, whereby all buildings (old, new, and yet to be built) can be assessed to estimate their resilience to damage in future cyclones and related flooding. Vulnerable features on properties need to be clearly identified and ranked so property owners can undertake mitigation strategies that will be most effective at increasing the resilience of their property.

This will require a change in property owner behaviour; a range of different strategies will need to be developed to educate and engage property owners so they understand the benefits, both financial and social, of undertaking mitigation options.

A resilience rating system, similar to that developed by the Cyclone Testing Station for the North Queensland Strata Title Inspection Program ([www.nqstip.com.au](http://www.nqstip.com.au)), would provide a mechanism to estimate a building’s likelihood of survival with no significant damage. This would give insurers an opportunity to provide premium discounts for resilient properties, reduce future claims and thereby provide less risk to the pool.

#### **20.2 Should the pool have an explicit mandate to encourage mitigation?**



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Yes, mitigation is essential, or the pool will be in a perpetual loop of discounting increasing risk. The reinsurance pool would offer a limited-time discount and property owners are encouraged to undertake mitigation recommendations or their insurance premiums will rise. This is an opportunity for government to lead a fundamental shift in the cyclone resilience story.

It is important that the pool is not just about making premiums more affordable. It should improve the resilience of properties, not make current level of poor resilience seemingly acceptable. To this end, current buildings need to be mitigated to improve resilience. New buildings should be located in appropriate areas (not constructed in areas prone to storm tide or flooding), and designed, and constructed to a higher standard of resilience. (Refer to the answer for Q21.)

**21. How should the pool's design seek to discourage any increase in risky behaviour?**

**For example:**

**21.1 Should there be a time-based cut-off to exempt new builds from the pool?**

Not necessarily. It is possible to include new builds in the reinsurance pool by assessing their resilience off the plans, before construction, so that less resilient materials and features can be replaced with more resilient features or materials. (These requirements may be in excess of the requirements in the National Construction Code (NCC), which is concerned primarily with life safety; some materials and features that comply with the NCC may not be the most resilient options for some buildings.)

There could be a requirement that new buildings are constructed to a specified resilience standard in order for them to be included in the pool. By including resilient (lower risk) buildings in the pool, the less resilient/ higher risk buildings can be subsidised.

**21.2 Should the pool only allow new builds that have been built to adequate standards and in suitable locations?**

Yes. As discussed in the answer to 21.1, a resilience rating system could be used to determine the resilience of new builds, by inspecting and assessing the design, material choice, and proposed site. In order for such buildings to be eligible to participate in the pool, they would have to meet an agreed level of resilience. These requirements may be in excess of the requirements in the National Construction Code (NCC), which is concerned primarily with life safety; some materials and features that comply with the NCC may not be the most resilient options for some buildings.

Buildings constructed in storm tide- or flood-prone areas will be at higher risk of damage from future tropical cyclones. Government and developers should be discouraged from approving construction and development in these high-risk areas.

**22. To encourage further action by states and territories on insurance affordability:**

**22.1 What settings could be included in the design of the pool?**

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Given that geographic boundaries for cyclone damage are, at best, indeterminate, consideration should be given to have all properties in Australia contribute to the pool by way of a levy on building insurance policies. Perhaps States could redirect stamp duties for this purpose (at least in part).

## **22.2 Which policy options could be introduced alongside the pool?**

[Not sure that these paras address insurance policy options to encourage further action by states or territories.]

Tropical Cyclone Seroja recently caused damage to Wind Region B properties in Western Australia ([https://www.jcu.edu.au/data/assets/pdf\\_file/0004/1801606/Technical-Report-66-Cyclone-Testing.pdf/noproxycache](https://www.jcu.edu.au/data/assets/pdf_file/0004/1801606/Technical-Report-66-Cyclone-Testing.pdf/noproxycache)). If such an event occurred on the eastern seaboard of Australia the damage to properties in Southeast Queensland would be substantial. The Cyclone Testing Station believes there needs to be changes to the building codes to ensure buildings in Wind Region B are designed and built more appropriately to address the threat of cyclones.

The standards, which underpin the building code, are concerned with preserving life. Much of the Cyclone Testing Station's work over the past four decades has contributed to the standards, which have achieved improvement to the extent that loss of life from cyclones to occupants of buildings in wind regions C and D is now rare. The building envelope, built to modern standards, should survive. However, the repair to non-life-threatening damage is often expensive. Buildings may be structurally sound, but vulnerable to wind driven rain, for example.

### [Interactions with the ARPC's existing functions](#)

## **23. What are the potential interactions between the terrorism reinsurance pool and the new terrorism reinsurance pool and the new cyclone and related flood reinsurance pool?**

The purpose of insurance is to spread the risk, so spreading the risk between several risk categories makes sense. To this end the pool could be combined and the risk shared by all Australians.