

Home ownership exposure to climate risk

developing an understanding
of the implications of climate
change to long-term home
ownership

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**GREEN
CROSS**
Australia



Summary

On 3 May 2018, members of the Built Environment and Infrastructure Sector Adaptation working group held Hypothetical #1: Home ownership exposure to climate risk. Using a hypothetical scenario of an apartment block development, a panel of industry experts explored the issues around housing affordability, insurability, safety and long-term home ownership in Queensland. Panelists included experts from the Queensland Government, the Local Government Association of Queensland, Griffith University, Climate Risk, and Suncorp.

The purpose of the hypothetical was to expose and explore the issues and barriers that will be faced by homeowners who find their properties increasingly compromised by exposure to hazards exacerbated by climate change.

A staged scenario testing approach was undertaken to see if it was possible for the current property public/private market structures to provide viable ways for a hazard exposed property owner to successfully navigate climate change.

The answer was an unequivocal **NO** - Despite the best efforts of council, state, neighbours, insurers, banks and lawyers to act in a way to support their stakeholder, current policy settings, regulatory frameworks and market requirements ultimately led to the almost unavoidable financial stranding of the property owner.

The hypothetical revealed a number of critical challenges that will face homeowners exposed to emerging climate hazards from increasing storm intensity and associated flooding. These challenges included:

- Cost of insurance and ultimately, insurability;
- Financing for repairs
- Access to property adaptation options including:
- Financing property adaptation; and
- Body corporate laws preventing funding of collective adaptation responses off property;
- Asset value loss; and
- Eventual loss of asset.

In the view of most participants, there are a number of financial, policy and regulatory challenges to overcome to avoid the hypothetical's unsatisfactory end point being experienced by actual property owners in the long term.

Key themes:

Insurer

- Unable to share all their risk information with owner or council because data are commercial in confidence
- Unable to provide cover for some of the key hazards e.g. coastal inundation

- Unable to guarantee price reductions for risk mitigation actions
- Unwilling to provide long term price indications in a competitive market
- Eventually likely to be financially incentivised to leave high risk suburbs.

Council

- Cost of hazard modelling prevents regular updating and may be lagging behind current projections
- Has an obligation to ensure the community is aware of its risk exposure
- Risks criticism and anger from affected community members over perceived loss of property values and potential increased insurance premiums
- May have planning decisions overturned by the State or courts
- Limited by budgets for adaptation mitigation measures and must consider interests of the whole community
- Limited by conflicting rate payer interests to implement major works
- Required to comply with and enforce State regulation and policy and Building Code Australia standards which may be inadequate to prevent uninsurable development.
- Have no influence or authority over Building Queensland standards which may be out of step with emerging risks.

Finance sector

- Lenders do not have a full appreciation of their own exposure to climate change and continue to provide finance for properties in high risk areas.
- Rely on the insurance sector to pay out for damages to mortgagees.
- Have significant exposure to properties at risk of inundation through sea-level rise.
- Do not have any products to support increasing resilience of at-risk properties.
- Are likely to cease financing or make major changes to finance rules once they have a full appreciation of the risk to their portfolios.

Queensland State Government planning

- Emergency assistance covers a fraction of actual costs incurred by the owners.
- The state's coastal hazard adaptation plans are completed too late to protect existing development from flood hazard.
- Policies and capital works solutions in coastal hazard adaptation plans are likely to contain cost implications for owners and body corporates.
- The state is unlikely to directly fund or fix a specific unit owner's or development site's coastal hazard problem in isolation and is more likely to focus instead on solutions benefiting the whole neighbourhood or city in partnership with other agencies.





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Disclaimer

The views expressed in this hypothetical are not based on any specific location and/or circumstance. It is a fictitious example and role play for the purposes of education and dialogue. Qld planning laws and examples are referred throughout the hypothetical to explore and respond to the issues identified in Pangea, as it is hoped the findings of the report are useful for Queenslanders.

The views expressed by the players in the hypothetical are of a general nature, do not necessarily reflect the views of their or other organisations, and none of the players or facilitator accept responsibility for any information or advice provided as part of the hypothetical.

This hypothetical is not intended to be personal advice and you should not rely on it as a substitute for any form of professional advice.

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Home ownership exposure to climate risk: developing an understanding of the implications of climate change to long-term home ownership

*Between 35,900 and 56,900 residential homes in Queensland are at risk from a 1.1m sea-level rise
(Department of Climate Change 2009)*

Background

On 3 May 2018, members of the Built Environment and Infrastructure Sector Adaptation Plan working group held Hypothetical #1: Home ownership exposure to climate risk. Using a hypothetical scenario of an apartment block development, a panel of industry experts explored the issues around housing affordability, insurability, safety and long-term home ownership in Queensland. Panelists included experts from the Queensland Government, the Local Government Association of Queensland, Griffith University, Climate Risk, and Suncorp.

The purpose of the hypothetical was to expose and explore the issues and barriers that will be faced by homeowners who find their properties increasingly compromised by exposure to hazards exacerbated by climate change. Pangea is the fictitious state used in this hypothetical to encourage a no blame environment. Qld planning laws and examples are referred throughout the hypothetical to explore and respond to the issues identified in Pangea, as it is hoped the findings of the report are useful for Queenslanders.

The hypothetical was a first step toward identifying adaptation action ideas and opportunities to wherever possible avoid and mitigate these impacts to property owners. In doing so, the hypothetical helped to deliver the following priority actions from the [Built Environment and Infrastructure Sector Adaptation Plan \(BE&I SAP\)](#):

Action 1: Identify incentives to encourage and facilitate the BE&I sector to adapt to climate change and to design and build assets to go beyond minimum standard requirements

Action 5: Engage the financial sector on how to develop financial and insurance mechanisms that incentivise the provision of climate-resilient products and services from the BE&I sector and their demand from consumers.

This report summarises the hypothetical scenarios, panel discussion and the issues revealed. This report is intended to be used as a starting point for the development of responses by the wider Built Environment and Infrastructure sector. The BE&I sector with industry working group and the Department of Environment and Science will be coordinating a number of events to identify options and co-design potential solutions.



Key themes that emerged from the discussion and which need to be explored further to help identify solutions include:

Lack of awareness and knowledge of hazards, flood risk and the influence of climate change on properties

- Properties that were once outside the flood hazard areas could be exposed to floods now and into the future as we face a changing climate with more extreme weather events and with rising sea-levels.
- There is a wealth of publicly available information on hazards and flood risk but the general public do not necessarily understand what data is reputable or how to interpret it.
- Lack of awareness about extreme events and the effects of climate change has reduced homeowner's capacity to make appropriate decisions about reducing their exposure.

Lack of awareness about insurance cover and the value proposition for increased resilience to extreme events and climate change

- Many people do not understand what their properties are actually insured for, and many assume they are insured against damage from the ocean such as from storm surge.
- There is a lack of knowledge and awareness of the benefits of investing in increasing resilience to extreme events and climate change which is leading to poor decision making.
- There is a general lack of awareness of any incentives that support increasing resilience beyond minimum building codes.
- Homeowners lack knowledge about insurance limitations, premium rate risks, insurability of assets and about which areas or assets are uninsurable.
- Value of land could be impacted by future climate risk valuations – Is sufficient information easily available to home owners?
- There is a lack of understanding of the implications of retrofitting for resilience and the costs of adaptation, and there is no available process which recognised good practice and supports reductions in insurance premiums.

Lack of awareness of possible adaptation options and when to implement them

- Unit owners and body corporates lack an awareness of, and in some cases the ability to take, risk mitigation (adaptation) actions.

Lack of appropriate policy, standards and guidance preventing action

- Limitations on Body Corporates to address resilience / adaptation measures – the Body Corporate Management Act prevents funding public infrastructure.
- Standards for new and existing buildings do not reflect the challenges of climate change sufficiently and do not support long-term resilience.

- There is a lack of guidance and information about integrating mitigation and adaptation options in order to reduce maladaptation.
- There is a lack of awareness of the implications of planning policy and urban planning on community resilience in different government departments.

Lack of funds or access to appropriate funding mechanisms

- There is a lack of mechanisms to fund resilience by the public and private sectors.
- There is a lack of clarity about the appropriate sources of funding for coastal protection investments, and in determining who should pay to address coastal impacts.

Introduction

This report provides an outline of the objective of the hypothetical, including the drivers for all the sectors that are represented and responses of each of those sectors to the challenges identified in the hypothetical. By doing this we hope to articulate the very real challenges that face homeowners who need to deal with a variety of different players in different sectors. Feedback from participants on the day of the hypothetical has also been summarised in the report.

On 3rd May 2018 Green Cross Australia, members of the BE&I sector working group and the Queensland Government held a hypothetical event. At the event a panel comprising of the various sectors involved in the property ecosystem worked through a series of climate based challenges over a 25 year timeframe.

The aim was to understand the roles and responsibilities of various actors that influence homeowners' understanding of, and responses to, a changing climate, and identify the relationships between these and uncover potential misunderstandings, challenges and misalignments.

By outlining the implications and issues, we are establishing the basis for further work in which solutions to these issues will be identified and recommended.

Hypothetical Storyline

The hypothetical focused on obtaining input from various actors including:

- Homeowner
- Legal Advisor
- Local Government
- State Government Planner
- Insurance company
- Financier (Bank/lender)

The scenario focuses on a ground floor unit in a strata development and is set over 25 years (the average length of a home loan). Input from each of the actors was obtained following each of four hypothetical scenarios.

For the purposes of the hypothetical, it has been determined to assume the development complies with all State, local planning and building code requirements. The developer & builder actors were acknowledged as not being in attendance as they had completed their work in accordance with requirements. This was to create a blame free environment for all actors.

This report presents an overview of each of the scenarios that were discussed (Episodes), provides an analysis of the discussion, some take away points and issues identified for that Episode. Lastly, the full discussion is analysed and a series of key themes identified.

Full details of the discussion and the points of view of the Actors are presented in Appendix A.

Episode 1

It's 2006, a developer lodges an application with the local government for a medium density residential development on a vacant block zoned for medium density residential.

There is anecdotal information that the site has flooded in the past, however council's flood and coastal hazards mapping at this time (which do not include consideration of climate change) shows the site as being just outside the Q100 flood and coastal hazards zone. Both the Q100 flood modelling and the planning scheme are almost 8 years old.

The application is approved with conditions on the basis that the development application meets current local government planning requirements.

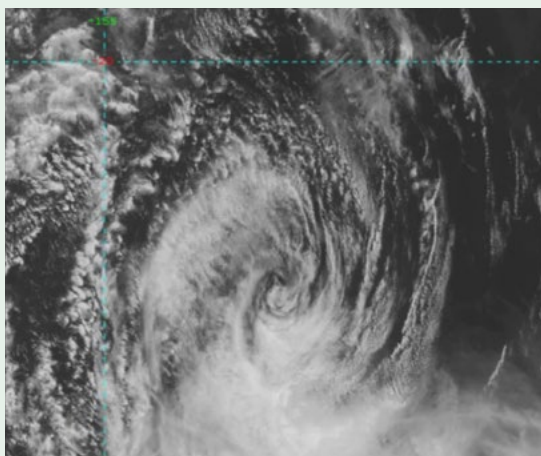
The apartments are built and sold, with residents believing their properties are free from exposure to hazards.

Four years down the track, a Q100 flood hits the area driven by ex-tropical cyclone Diabolical. Inundation is caused both by over-topping of a nearby estuary, flooding from the sea (storm surge) and stormwater drains backing up with water from the estuary.

Ground floor flats are damaged, and residents throughout the building suffer because the electricity connection is in the basement carpark.

It transpires the body corporate had voted against flood insurance because (a) it believed the units were not in a hazard zone, and (b) it would have added hundreds of dollars a year to each owner's strata fees while only benefiting the ground floor owners.

Some ground floor residents had no flood insurance on their contents for similar reasons (considered unnecessary).



Episode 1 - The shot over the bow (Ex TC Diabolical)

Episode 1 - Panel discussion

At the time of purchase, the property owner in this example had access to the best available information through Council's planning documentation. No parties at any level of government, or from insurance and banking were preventing them from accessing any more detailed information. At this stage none of these parties had foreseen the event that occurred, or had any information or flood mapping or these would have been available to the purchaser. However the property is exposed to flooding.

Depending on where they buy or build, property owners can be exposed to climate related risks such as flooding. It is up to the individual to make decisions about purchasing a property, and up to them or their body corporates to make decisions about the type and level of insurance they purchase.

The property owner is fortunate that the State Government has an emergency hardship assistance fund and householders contents grant to provide some financial support after the event. However, this support covers only a fraction of the damage, with the household contents grant assistance limited to property owners without their own contents insurance.

The impact of the event may have flow-on implications for future purchasers and for current owners who hold, or want to take out insurance. Insurance costs may be increased because of the payout for this event, and banks may increase the requirements associated with purchasing in this area in the future, including requiring larger deposits, more insurance etc.

Ultimately the affected property owner is able to repair damage (while incurring costs over and above support from government). Property owners are likely to consider this a very unusual event and will remain in the area. Property prices may drop slightly, but then will rise after a short time. Information about insurance costs for properties will remain difficult to determine before the properties are purchased.

Episode 1 - Key take away points/issues

- Despite the property owner having access to the best available hazard information at time of purchase, a property can still be affected by flooding.
- Lack of insurance cover for the type of event, led to economic hardship.
- Government was able to help with emergency payments and grants which provides limited support.
- Increased exposure through collective decision making. Body corporates could elect to not insure for flood because they believe units were not in a hazard zone, and that adding hundreds of dollars a year to each owner's strata fees while only benefiting the ground floor owners was inequitable.

Episode 2

Residents direct the body corporate to obtain flood cover, but the cost has gone up dramatically.

After investigation, the body corporate finds that during the intervening period, council had updated and adopted the flood and coastal hazard maps incorporating a 5% increase in rainfall intensity and 0.80m sea level rise by 2100 to account for climate change. These maps are publicly available on council's website.

The property now lies just within the 1%AEP (Q100) zone on flood maps and low inundation hazard zone in the coastal hazard map, but maps showing hazards for 2050, 2070 and 2100, show that the estuarine and coastal flooding hazard will increase to 'high' over the next 30 years.

When owners attempt to sell, they find that new buyers are using online climate land and property valuation tools which uses the council's and other maps for its projections. The online tool calculates the cost of insurance over the term of a mortgage and adjusts the value of the property accordingly. It includes a broader range of scenarios e.g. 1.1m by 2100.

Buyers are asking for substantial discounts or walking away.

Episode 2 - Panel discussion

New information is becoming available from different sources around the globe, and these are based on different assumptions, have different levels of certainty and present different flooding zones. This makes it very difficult for the property owners to make sense of what is going on. In addition, the extra information coming into Council and being accessed and used by the insurance companies, is leading to the property owner feeling frustrated and exposed. Buyers are accessing information and using it as a reason not to purchase which is impacting property prices.

Council flooding risk maps are not aligned with state government coastal hazard maps, leading to confusion and reliance on one (flooding risk) without due regard to future climate impacts (coastal maps). There is a significant information disconnect between these two sets of mapping of inundation risk to properties.

Insurance companies are accessing maps and modelling from a range of sources and have access to excellent flood information which they are using to determine their exposure and set pricing, but they are often unable to make the information available to clients.



Episode 2 - Key take away points/issues

- The wealth of information and data which are becoming available is confusing to stakeholders who are unsure of which information is most accurate and relevant to their needs
- Home owners have a poor understanding of how insurers cost risk.
- Insurance companies are not making their mapping available to their clients.
- This includes the climate change projections and time frames.
- Flood and risk mapping should be oriented to the needs of the users, and should be provided together with clear explanations of what uses it is appropriate for and any limitations for decision making.
- If external entities are providing online tools to valuing property with regards to climate risk, it will be increasingly important that there is a consistency of the information.

Episode 3

The body corporate acquires the additional flood insurance despite the cost.

During the course of the next 2 years, the ground floor owners that have chosen to stay, but are looking for contents insurance find it prohibitively expensive and difficult to fund.

After exploring and exhausting the same options as the would-be sellers, they all approach the body corporate to discuss flood resilience measures to:

- A. reduce the building insurance premium; and ensure the ground floor unit owners can insure their contents at a reasonable price

The body corporate finds the onsite resilience measures too expensive and determine to set aside funds each year to invest in measures as soon as possible. Some ground floor unit owners choose to make their apartment more flood resilient hoping this will reduce contents insurance premiums and protect against future risk or at least reduce the damage in another event.

Some insurers are responsive to the resilience measures however, the risk profile of the area has increased as more information has come to light and so these measures do not significantly reduce the premium. The measures at least mitigate premium increases. Others have sold their ground floor units at significantly reduced price to high deposit buyers who are aware of the previous flooding and future hazards and are willing to take the risk due to the lovely location of the units and cheaper prices

The council installs back flow prevention valves on the storm water outflows but is unable to quantify the material benefit to a future Q100 flood as it doesn't currently have the available budget to repeat the modelling.

Episode 3 - Panel discussion

In the example, it was identified that neighbourhood or city-wide policy or works is required to reduce the flood risk in the property substantially and have a range of other benefits for some of the surrounding community. There is strong appeal in the opportunity to take a community driven adaptation approach to address the flooding challenge. There is a need however to consider the views of the entire community and local area, not just the owners of affected properties, but other owners and community members who use the foreshore. An approach must be put into place to take all views into consideration, considers costs and benefits and impacts. Ultimately it is important that any actions are part of a whole of government and community integrated management approach for the area. Establishing how to finance any prioritized work will also be important.

It is important to note that the Body Corporate Management Act prevents the body corporate from investing in public infrastructure, so they cannot get involved in any of the public development options as a collective of landowners.

So while this option is appealing a lot of effort is required to develop an appropriate management plan and to bring the entire community along, enabling the adaptation action to be prioritized and implemented.

Episode 3 - Key take away points/issues

- Individuals or even body corporates cannot take unilateral action to reduce their flood risk. Implementing such an action would need to be driven by council. There is a need to do widespread consultation with all relevant stakeholders to ensure that the views of all users of the area are taken into account, not just those affected by recent events.
- There will be an increasing need to support asset owners to gain knowledge of appropriate resilience options that are relevant to their situations.
- The insurance industry does not help to fund resilience measures to reduce flooding. There is a need for insurance companies to consider approaches and products which reward customers who reduce their exposure. Installation of basement services in buildings (before new Guidelines¹ and Queensland Development Code requirements were introduced in 2012/2013) means there are significant legacy risks in existing buildings.
- The [Queensland Development Code MP 3.5 Construction of buildings in flood hazard areas](#) was published on 12 December 2013², following a revision to reflect the Commission's recommendations with a focus on providing practical flexibility in the application of the code. The code now requires buildings in flood hazard areas to be designed to resist actions that are reasonably expected during a flood. Utilities must also be protected, including electrical switchboards and hot water systems, lift motors and lift motor rooms for emergency lifts, fire indicator panels and backup power supplies for essential services. Customer dedicated substations must also now be protected but this is not retrospective.
- Buildings are also now required to be protected against sewage backflow through the installation of a reflux valve between the building and the sewage connection point. Buildings that use on-site sewage treatment facilities must also have a reflux valve fitted between the building and the plant connection point. Again, these requirements are not retrospective for existing buildings.

1 <https://www.statedevelopment.qld.gov.au/resources/guideline/qra/planning-resilient-electrical-infrastructure.pdf>

2 <http://www.hpw.qld.gov.au/construction/BuildingPlumbing/Building/BuildingLawsCodes/QueenslandDevelopmentCode/Pages/QueenslandDevelopmentCodeCurrentParts.aspx>

Episode 4

The second flood (18 years later...2030)

There has been no flooding in the last 18 years and property prices have been steadily increasing in value. Insurance premiums have remained high and obtaining mortgage finance for low deposit buyers is still a challenge.

Another flood affects the site resulting in estuarine and coastal flooding from storm surge. It appears the stormwater backflow valves have worked as the flooding is lower than 18 years ago, but only by 100 mm. The basement and ground floor flats are flooded again, however electricity services are undamaged.

However, most of the damage was caused by the storm surge this time as the storm came in on a higher tide and as an action-of-the-sea some insurers do not make payments. Some insurers make ex gratia payments, others do not. All insurers announce that the policies are being terminated thereafter unless mitigation is undertaken in the area.

Council is preparing a hazard strategy, but no mitigation plan is in place.

With no insurance available, finance for mortgages cannot be obtained, and the value of the units plunges by over 50% and property owners wishing to sell face massive losses. Some believe the property values will increase again over time, others are nervous that the values may never recover due to the hazard exposure, particularly if another flood occurs in the next few years.

Some property owners can't afford to fix the damage from the flood and are facing the reality of having to walk away with a debt and no home.

The Body Corporate meets and agrees to explore the option of selling the entire unit to a developer for redevelopment. The lot is still zoned as medium density residential, but a number of developers think they can make a sound argument for a relaxation to allow higher densities on the site.

Episode 4 - Panel discussion

Council is undertaking a hazard assessment and will develop a management plan for the area. This may include rezoning, which could enable the unit to be sold, and then redeveloped into something that is more resilient to current and future climate and related effects (flooding and sea-level rise). This would be the best outcome for the owners. If this cannot occur, their property prices will be low, insurance costs will be higher.

There are no easy solutions and all parties are being affected in some way.

- The property owner has lost value on his investment.
- Council is needing to allocate significant expenditure to understand the impacts of present and future climate in the area and plan appropriately.

- The insurance sector will not pay for damages and could suffer reputational damage because of publicity associated for not paying for repairs because of the nature of impact.
- The banks are faced with substantially decreased property values of affected homes in the area. They also face a reduction in demand for new mortgages in the area and higher rates or mortgages that may default.

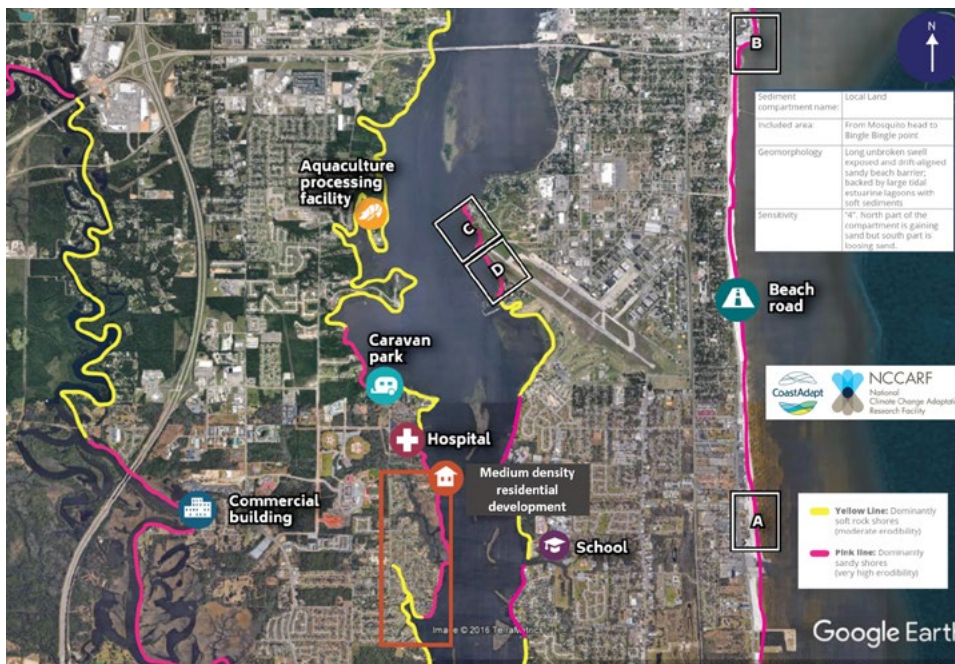
Episode 4 - Key take away points/issues

- Home owners options to pursue a legal remedy against any of the actors are generally limited because - all actors complied with the minimum legal requirements at the time; future predictions of climate change impacts are rarely detailed or reliable enough to give rise to liability based on reasonable foreseeability of harm; it is almost impossible to isolate the extent of damage caused by the actions or in-actions of individual actors; and public authorities enjoy additional statutory protection from civil liability claims. Whilst class actions are increasing in number they must still deal with these same hurdles. A successful class action would take many years to eventuate and would (probably) still leave homeowners considerably short changed on the financial and emotional toll they endured as a result of flood damage to their property.
- Homeowners and many in the real estate business have a general lack of understanding of hazard and risk related to current and future climate. This results in poor decision making about buying and selling properties.
- There is often a lack of willingness by councils to help communities to understand coastal hazards and risks and help to reduce exposure to the effects of climate change.
- Councils have an important role to play in helping to understand coastal hazards and risks. Together with substantial engagement, this can help to drive awareness and change in communities and support changes that help to reduce exposure to the effects of climate change.
- Community and stakeholder engagement is important and should be resourced appropriately and not rushed.
- The increasing exposure of properties to climate related risks challenges the business models of the finance and insurance sectors
- With an adaptation plan now in place, a planning scheme review can choose to adapt or defend the area subject to coastal hazards. Adaptation might allow for site specific retrospective bunding or installation of defences on site. Adaptation might also allow full redevelopment of the site if it could be filled to a new level without effecting neighbours. All apartment owners would need to support potentially costly modifications to or sale of the site.
- Whilst not relevant in this hypothetical, the toughest decisions will come if an adaptation plan recommends that landowners and government retreats from certain coastlines as the risk increases. Legislation allows for land surrender but this is rarely used and solutions would vary from place to place.

Exposure beyond the strata development

While the hypothetical focused on the specific circumstances of a strata development, the postscript made reference to the fact that the development is not immune from now dealing with interdependencies external to the site boundary infrastructure and adjoining properties.

As noted earlier, the Body Corporate is restricted on investing in public infrastructure and therefore limits ability for addressing solutions that involve any public development options.



*Episode 4 - Exposure impact doesn't stop at the development boundary.
Photo courtesy of NCCARF.*

Hypothetical Themes

The key themes arising from the hypothetical include the following:

- Properties that were once considered immune from flooding could be exposed to floods now and into the future as we face a changing climate with more extreme weather events and with increasingly higher sea-levels
- There is a wealth of public available information on hazards and flood risk but the general public do not necessarily understand what data is reputable or how to interpret it.
- Many people do not understand what their properties are actually insured for, and many assume they are insured against damage from the ocean such as from tidal inundation and other acts of the sea.
- Communication and education about extreme events and the effects of climate change are needed for home owners to support them to make appropriate decisions about reducing their exposure.
- Need to support decision-making about investment in resilience, making the benefits of increased clear, and appreciated
- There is a need for access to aligned incentives – what these incentives are and basis of supporting resilience measures beyond the minimum building code. Ensure that these do not foster bad decisions.
- There is a need to be clear about Insurance limitations, premiums rate risk, insurability and what areas or properties are uninsurable
- The insurance sector should consider the role it plays by focussing on access to affordable policies rather than leveraging other systemic benefits they could drive.
- Value of land could be impacted by future climate risk evaluations – Is sufficient information easily available to home owners?
- Risk mitigation considerations of owners / body corporates should be explored and options changed to enable them to take action to reduce risk.
- Limitations on Body Corporates to address resilience / adaptation measures – the Body Corporate Management Act prevents funding public infrastructure
- There is a need to understand the implications of retrofitting for resilience and costs for adaptation and to develop a system which recognises good practice / servicing for resilience measures and leads to reduced premiums
- There is a need to develop and update standards for new & existing buildings to ensure they are more resilient to the effects of a changing climate.
- Mitigation should be integrated into adaptation investments to reduce potential for maladaptation.
- There is a need to develop more mechanisms to fund resilience by the public and private sectors.
- There is a need to consider the appropriate funding for coastal protection investments– with the change in land ownership (as land is retaken by the sea), who pays to address the coastal impacts
- There is a need for the implications of planning policy and urban planning for all government department to be understood.

- It is important to understand the extent of interdependencies and climate related risks faced by infrastructure systems so that resilience and adaptation solutions can be developed and prioritized accordingly.

These themes outline a series of challenges that need to be explored further to seek solutions. These can be explored in future events.

Conclusion

On 3rd May 2018 Green Cross Australia and the Queensland Government held a hypothetical event in which a panel comprising of the various sectors which are involved in the property ecosystem worked through a series of climate based challenges over a 25 year timeframe etc.

The aim was to understand the roles and responsibilities of various actors that influence homeowners' understanding of, and responses to, a changing climate, and identify the relationships between these and uncover potential misunderstandings, challenges and misalignments.

The panel discussion raised a number of important challenges that need to be addressed to support homeowners to understand and deal with the complexity of living in properties that are increasingly exposed to greater risk as a result of a changing climate. Understanding the views of major actors who influence or are influenced by policy and homeowner needs has helped to identify several challenges which need to be addressed.

Pangea is the fictitious state used in this hypothetical to encourage a no blame environment. Qld planning laws and examples are referred throughout the hypothetical to explore and respond to the issues identified in Pangea, as it is hoped the findings of the report are useful for Queenslanders.





Appendix 1

Episode 1

Actor (sector)	Response
Ground floor Resident	Has been affected by flooding. Is frustrated and confused as he has purchased his unit off the plan, was shown the relevant Council approvals during his due diligence, and assumed therefore that all relevant risk analyses had been done. As the unit he owns has a strata title, he assumed he had insurance at the strata level. He only found out he was not insured when he tried to make an insurance claim. He does not feel that he should have to pay for any damages himself and is convinced others should be responsible.
Legal	<p>Local government in a good position if it has been acting reasonably. It does have a duty of care, but there is contradictory case law in different states about what this entails and how it plays out. There is a legal precedent in QLD indicating that if you are relying on information provided by a real estate agent, you cannot go and sue the planning agency if something unforeseen occurs. It is not easy to sue council for something like this as their planning scheme and associated planning documents underpinned council decisions which puts them in good position.</p> <p>There may be a stronger case for the effect of storm water damage, but there is still a need to prove negligence.</p>
Local Government	<p>Council circulated the best available information that was incorporated into planning documents at the time. It is not clear whether any better information was available that could have supported council to make better planning decisions, and no requirement from government for considering climate change.</p> <p>The challenge of storm water was probably not something council would have explored at that time.</p>
Insurance	<p>Flood definitions have been fairly contentious, complex and difficult for lay people to understand and accept. A standard definition of flood has been made for Australia to resolve argument that water overflowing from a water course is a flood. If it comes from a river or a creek or a drain it is a flood. It is not a flood when the water comes from the sea. Acts of the sea are not covered by insurance.</p> <p>Strata insurance should include flood cover – whether from a storm water drain or a water course. The onus was on the body corporate to purchase flood insurance, if they didn't it's their own decision, based on their own due diligence and risk appetite.</p>
Planner	An emergency assistance fund exists for supporting affected by the disaster, but even though this event occurred outside of a designated flood zone, emergency funding is accessible. Impacted property owners are also able to access funds to support infrastructure repair. These funds will only cover a fraction of the damages but will reduce some of the burden on the homeowners. These government support mechanisms cannot and should not be seen as an alternative having an insurance policy.



Banker An important part of the mortgage process is to ensure that the right checks and balances have been taken by the purchaser and the bank. The bank is responsible to its shareholders and due process is an essential consideration of good governance. Banks require insurance in order to finance homes (the exact amount will depend on the risk appetite of the financier) – most banks would require insurance. In this case study, not many risk issues were raised at the time of purchase including about floods.

Now that the event has occurred it is more important to hold insurance. The property price is likely to drop in value. The finance system is likely to take a greater interest in this area in the future because of the implications of this on the risk of their loan portfolios in the area.

Because of this event and the triggering of risk indicators, they will require a greater deposit, more insurance etc. New purchasers will be more affected than existing owner because it will be harder to raise a loan, but there are implications on the salability of assets because of the lack of qualified buyers.

Episode 2

Actor (sector)	Response
Ground Floor Resident	Looking at mitigation options to reduce risks, e.g. levee banks etc. Concerned about how much he might need to pay. Is looking at insurance options that will reduce prices of insurance if he undertakes some adaptation actions that reduce the likelihood of flooding.
Legal	<p>Availability of updated maps or information cannot be used retrospectively. People are unable to sue councils or insurers as a result of new information. The property owner and his legal team would need to find evidence that he was not provided with better flood mapping and information by council. Then we can look at negligence. If this was the case, he would be able to sue for negligence.</p> <p>It is unlikely that the property owner could sue the developer of the units. Because they are covered by contracts and their own insurance. Similarly to Council, If there is evidence that the developer deliberately hid information then there may be an angle to sue. In this case however, there is little evidence that the developer was hiding any available knowledge and did not appear to have done anything unethical or wrong.</p>
Local Government	<p>Releasing maps on Council websites can often be a double-edged sword. Doing so ensures that the community has access to the best available data and information, reducing the potential for Council to be sued. However, communities get upset because better available flood data can lead to increased premiums and decreased property values.</p> <p>There are other challenges including the risk that if councils don't put maps out, the community may access other maps that may be available on-line. Flood maps can be developed using a range of different methods, and with different levels and quality of data, and different levels of certainty. This affects the degree to which the data should be used or trusted. Buyers (data accessors) need to be beware about the data they are accessing. When maps are developed by local government, they are done so using methods that comply with state government requirements.</p> <p>Flood terminology has been a challenge for stakeholders. Many do not understand terms such as a 1:100 yr flood event. A change to AEP (Annual Exceedance Probability) terminology makes a difference and is easier for the community to understand.</p>



Councils can use flood modelling to underpin their development plans. For example, modelling done for time intervals which allow councils to understand the risk trajectory for an area. This enables councils to identify when an area might have to be moved to a higher flood risk category. This gives councils additional options for the land, including that of allowing certain types of development that are time-bound or which have flood prevention focused development requirements. This means that councils need not lock up land and prevent any further development in some areas, giving them access to additional rates and much needed revenue.

Property owners can challenge maps as there are uncertainties and occasionally new developments can change the nature of the area and affect flood behavior. To do this, property owners must pay, and it is expensive.

Councils also need to develop adaptation plans which outline the different climate risks, the potential solutions and the sequences in which solutions should be implemented. In developing these, it is important to consider interdependencies between assets when thinking about the implications of flooding. For example, between water and electricity. The cascading effects from a hazard must be considered by councils undertaking risk assessments and putting strategies in place. This takes time and is expensive. Many councils are challenged by the difficulties in funding the development and implementation of adaptation plans.

Insurance

Flood mapping can be challenging without a single source of proof. They are developed using a lot of different model, underpinned by differing data. When determining their flood risk perspective insurers don't just hang their hat on councils' maps, they develop and use their own as well as sourcing others that may be available. Flood insurers aggregate many models and develop an understanding of maps.

Insurers base a lot of their assessment on the information used or accessed by the broker who sold the insurance. They don't just base the risk on the maps, they use data on previous payouts that have occurred in each area or increasingly about individual properties, and they know that there is no zero risk, and set prices accordingly.

Once a property lies within Q100AEP. Buyers can become aware of new information and can walk away from purchasing the property if they don't want to cover the costs involved in obtaining insurance. Buyers are able to use any information about floods and flooding to try and negotiate house purchasing costs.

The insurance industry has calculated that there is a ratio of 1 dollar spent on resilience to get 6-7 dollars benefit. However, such prevention is not an option for this development because the risk is locked in from previous flood events and will be priced accordingly. Any benefits will be reduced need to claim insurance and thereby preventing further increases to their already high insurance.

As more granular data are available, risk-based pricing means that if likely flood damage is mitigated (e.g. building flood barriers to avoid future flooding could support a reduction of insurance.

Homeowners should shop around. An insurance broker should be approached to help the body corporate find the best insurance for their building and ensure that they get recognition and price discounts for the adaptation they have undertaken.

Planner

The development was approved and constructed before sea level rise was added to the state's erosion prone mapping. New developments are now required to consider sea level rise. Council followed proper process for Karl's development, but if the same decision were made for new developments they would be liable.



Banker The independent evaluation process is really important for banks. Buyers going through the bank must have the independent evaluation. This supports the banks with their due diligence of the property in question. Evaluation shopping is not good because it may end up with buyers making bad decisions and running into difficulties with selling the property at a later stage.

Episode 3

Actor (sector)	Response
Resident	<p>Has looked at the adaptation options available and thinks they are a good idea. With his own funds and with the body corporate funding that is available, he is keen to invest in upgrading. It will mean that he has to access additional funding and increase his mortgage if that is possible.</p> <p>He feels that owners are getting lost in red tape and don't have sufficient information about what the impact is what and what is permitted to be done.</p> <p>A concerned local community from the area and his complex has held a meeting and identified that it would be more cost effective to put a protective landscape feature along the whole river. They have approached council to make the proposal.</p> <p>There is some consternation at council because other community members who were not affected by the flood and projected future changes, but who regularly use the area, don't want the initiative to go ahead because it will disrupt the things they enjoy doing there. Others from further away who use the area for cycling done also don't want this to proceed.</p>
Legal	<p>It is within the law for Government to stop people saving their own properties if it can result in risk for others. For example, if water escapes from your property causing damage to others you can be liable for negligence, although this is difficult to prove.</p>
Local government	<p>Feels that the buck has been passed to local government. The measures being discussed to adapt the building may be flood mitigation measures or coastal adaptation measures. The type of response will be regulated either by state or local government, and a decision must be made about what permitting is required. Flooding is generally the domain of local government, but state government is generally involved in permitting coastal initiatives.</p> <p>The owners must hold the correct permits for the works or the proponents will be in breach.</p> <p>In making decisions about supporting any proposals, Council must consider the local community as whole not just the affected people. Council will need to consider who pays, whether other values are affected. Why should rate payers not affected by the changes and who do not benefit pay? There are options benefitted rates. Land owners pay – council may pay. Benefitted rates allow council to pay and get it paid off over time through higher rates by beneficiaries.</p> <p>Will council allow deliberative democratic approaches to resolve problems.</p>



Insurance

Options are limited in a block of units compared to a stand-alone house structure. The industry is still learning a lot about what can be done to mitigate flood damage. Initiatives such as raising electricity services, wash away flooring are coming onto the market. It is likely that property owners will bring these into play and expect insurers to respond accordingly. There will be pressure on insurance companies for price reductions or clients will go elsewhere.

The insurance sector is interested in the community level adaptation options. The sector has played roles in the past in informing the economic consideration of the initiatives to support decision making. They can contribute by providing information about how costs of insurance can be reduced.

Planner

State funding is provided to local governments to prepare coastal hazard adaptation plans. These plans are prepared across the whole local government area. This approach ensures that mitigating actions do not benefit one land owner to the detriment of others. Mitigation actions are likely to benefit the whole community rather than individual owners.

Adaptation plans will also include actions which are the State's responsibility so the State is apt to prioritise its funding and efforts to protecting essential infrastructure which must continue operating during major disasters such as base hospitals or highways.

A copy of the proposal for a neighborhood scale flood mitigation development would be sent to the minister for consideration. The government is generally interested in value for money propositions and will look at it from that point of view. As some of the proposed development will take place on state government land, there is potential for the state to contribute to the work on their land (for instance, along foreshore parkland). This needs to be fleshed out by gaining a better understanding of the proposed development and identifying any intended and unintended effects (e.g. through flood modelling etc). There is no firm commitment from State government, and the question of who pays is important to address.

When the state is considering investing there is always consideration of value for money and community interest which includes considering all aspects (social, ecological and economic).

Banker

The financiers will have to refinance which means getting valuers in. They will need to look at resilience measures and account for the adaptation that has occurred and assess these in the valuation. Role of valuers is critical, otherwise not much funding available through financiers.



Episode 4

Actor (sector)	Response
Resident	<p>Feeling stuck particularly after all the assurances he has had. He has invested heavily in improvements to his unit and despite this his property value is declining and insurance has increased. His investment is in trouble.</p> <p>He is no longer looking for answers, and is looking for someone to blame!!</p> <p>He is also facing an ethical dilemma. He could sell and recoup some money, but feels its selling a lemon. On the one hand he wants to get out quickly, but feels sorry for anyone who is prepared to buy the property or units.</p>
Legal	<p>Work is being done to take a class action. The lawyers are looking at the banks who they feel knew about climate at the time that the original finance was obtained. They believe that the bank should have told the resident about the risks as part of their fiduciary duties.</p>
LG	<p>Feeling the heat, but are looking at the development of a hazard plan for the area. Rather than make knee jerk responses, Council wants to plan thoroughly and determine what can be done for the whole area and what options are available before making strategic long-term evidence based decisions.</p> <p>Planning schemes require that habitation space must be above the hazard zone. Council shouldn't approve the intensification of the development until the hazard plan has been developed and there is clarity about what measures can be taken and Implemented.</p> <p>Once the studies have been undertaken, council could consider an intensification of the area. It could be a win-win situation as more rate payers would be able to live there, meaning council obtains more money to pay for adaptation measures.</p> <p>If council becomes aware that the land is no longer viable it would be prudent for them to reduce development and change zoning to reduce future flood impacts if possible. Council can only rezone without being liable for compensation to property owners if they follow an exact process outlined by government. Options include; time limited developments, rolling easements, or even acquisition of the land.</p> <p>Many councils try to educate their staff, Councillors and the community about risks associated with climate change and flooding. Internally it is important that councillors and leadership of local government understand climate change and the issues being faced.</p>
Insurance	<p>Insurers will not fund adaptation initiatives. As an industry they are exasperated by the events it's a high risk area and they are aware that insurers are an easy target and people will expect to be able to be insured if the development goes ahead. In coastal flooding situations most damage is done by the sea, how you distinguish between freshwater and ocean derived flooding.</p> <p>Reputation risk is a real challenge for insurers. They feel exposed because of public pressure if they don't pay out to all insured parties after an event, even if the impacted parties are not properly insured.</p> <p>Class actions are going to increase but are expensive to undertake. There is a need to find the right institution to sue, and it for only possible to sue for losses which each institution is responsible for which is very difficult to determine. It is important that all parties recognise that banks have a duty of care to their shareholders not to their lendees. Insurance industry has expertise in risk, and putting a price on risk and can help the debate.</p>

**Planner**

Local government has read the Planning Act and done their background studies. Policy options for councils to consider are retreat, adapt or defend. Adapt has many aspects to it: for instance, Councils could decide to allow redevelopment of flood prone areas whilst reducing risk like requiring land to be filled to above the flood height around the margins of the flood plain. Also, Councils might regulate the need for flood free properties defended by gates and fences which act as levies.

Lots of information is now publicly available and councils are required to take sea-level rise into account in modelling which consequentially should raise a flag with solicitors doing conveyancing once new flood mapping is adopted.

Banker

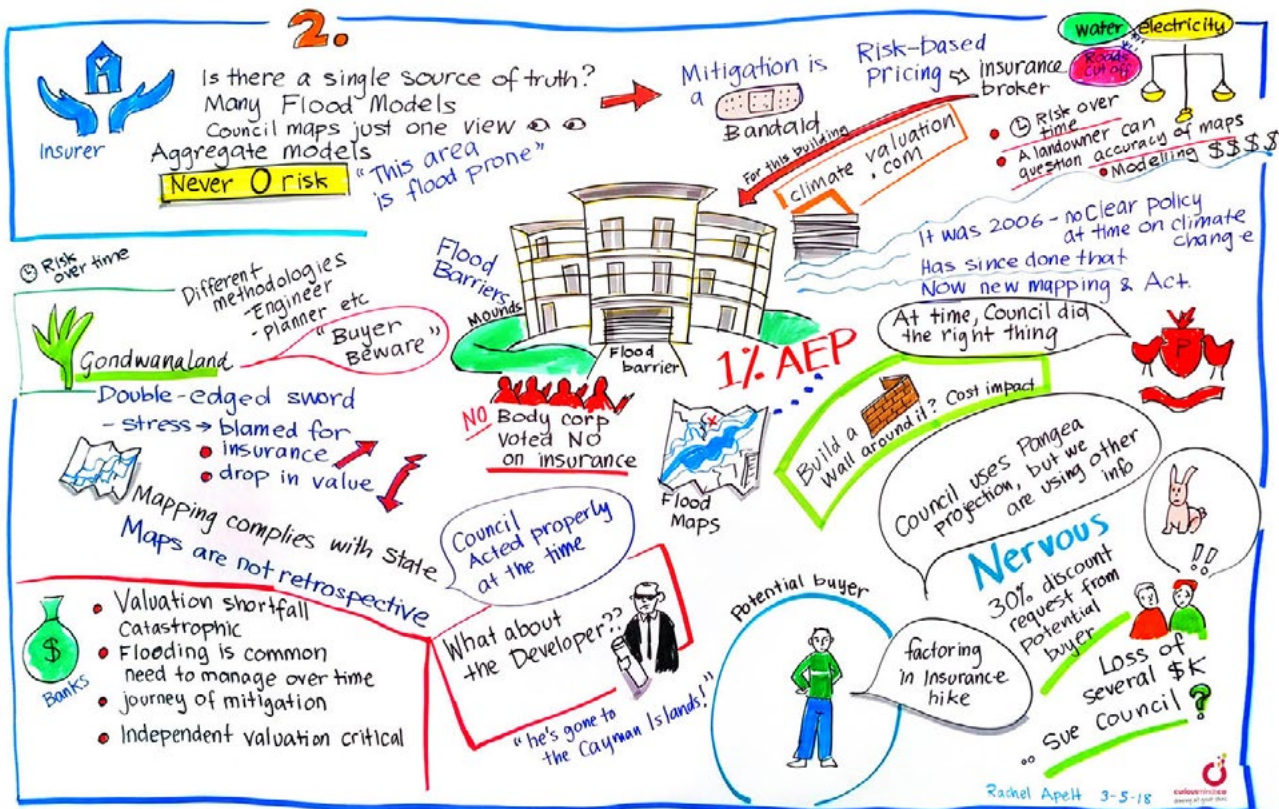
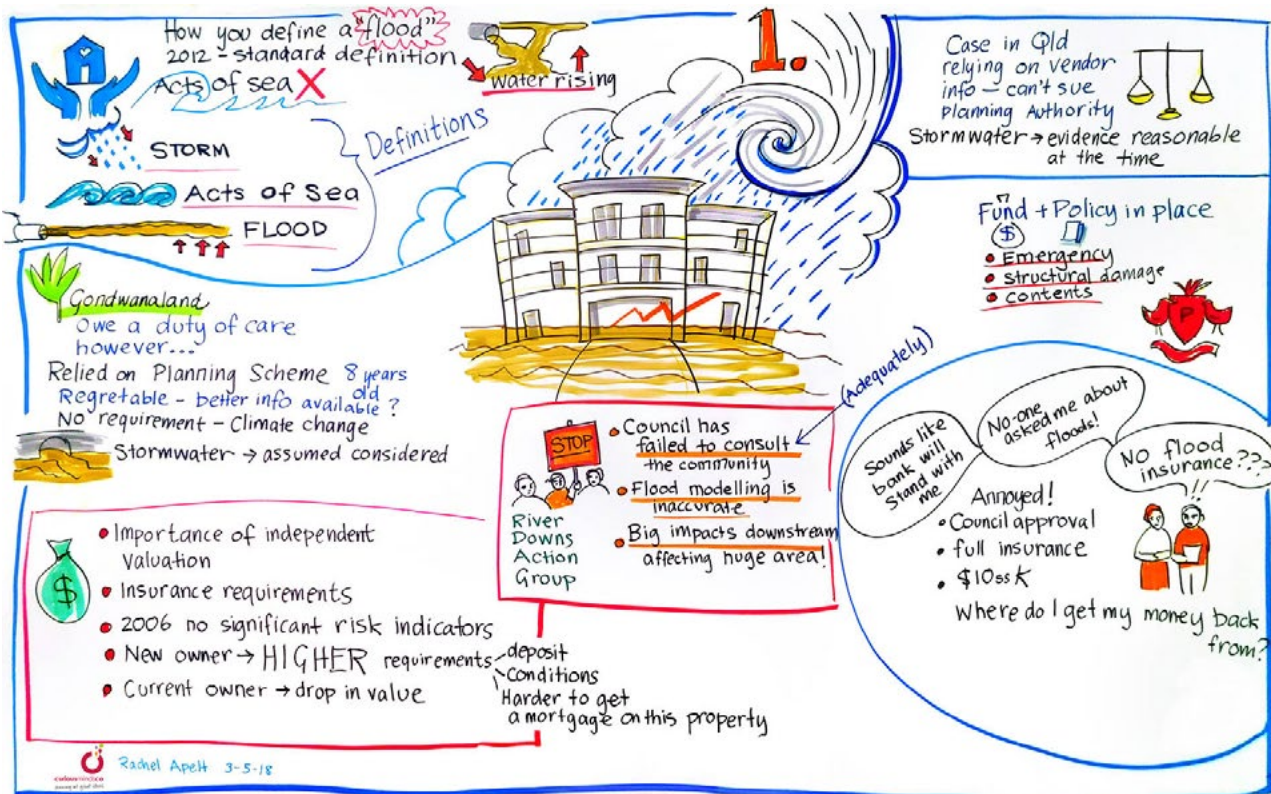
The financiers share the exasperation shown by insurers and property owners about the lack of clarity of risk and the associated responses from key parties. The concept of redevelopment may be viable but the banks and their customers may need to deal with any losses. It is possible that the developer might be able to recover some of their investment and pay back money to banks.

Because of real and meaningful hardship issues for their customers, new repayment strategies are likely required, with banks working closely with their customers to owners may be forced to sell, and the banks have ways in dealing with the owners to work through the repayment challenge and the risk of default.

The banks believe that information should be available to all stakeholders so everyone can make well informed decisions that consider closely the impact on customers/owners.

Appendix 2

Illustrated flow charts.



3.

Insurer

- Still learning mitigation ○○○
- raise power points
- wash away flooring
- smart design - cabinets etc
- Strata managers consider ↑

- Temporary vs Permanent
- Window shutters → rewards
- a degree of trust
- Interested in neighbourhood-wide mitigations
- Can feed in to this conversation

Gondwana Land

- State passing the buck
- Levy + coastal flood mitigation
- Local Govt
- State Govt
- 2 different regulating groups
- Some options for joint funding
- Deliberative democracy option
- Who pays?
- Impacts on other values?
- Rate payer rage
- Have to think about Everyone equally
- Body Corp: Not on our own
- Cheaper to build Neighbourhood Protection
- State interested
- Red tape
- Risking other Properties damaged if we do or don't
- Extend mortgage
- Retrofit apartment
- Some shared + some individual costs
- \$30k others me \$70k
- "I want a dignified exit!"
- Relocate our Hospitals
- Not impacting on Neighbours
- Answer for neighbourhood
- Strong Local Govt Policy Guidelines
- temporary, emergency mitigation vs permanent ones
- Open question regulated in a Planning Scheme
- Flood modelling case by case
- eg Drive Up & over hump to prevent flooding basement

Bank

mitigation techniques → take into consideration

Value for \$ investment supported

Jazz up waterfront Park (state)

Squeaky wheels complaining about amenity Council hams-trung

Rachel Apelt 3-5-18

4.

Insurer

- Reputational damage
- Angry w/ Council & Developer

Not of insurer to fund mitigation

- exasperated 2 major floods in 20 years under pressure, 'easy'
- Act of sea main cause

Gondwana Land

- Council feeling heat
- hazard plan → realistic
- deliver bang for buck
- Redevelop site using current scheme - can sell, build new block out of hazard
- no relaxation of plan until hazard plan done
- Rezone area, intensify density

Backflow

- Prevention Devices lessened flood height
- 2030 Flood
- not viable to defend land?
- amend Planning Scheme
- rolling easement, time acquire land

50% value

Class Action opportunity The BANKS

- Class actions will increase in this area
- long winded, expensive
- Find right person to sue and proportionally
- Duty of care → banks → Shareholders
- Developer + Insurers make a loss too as values go ↓

Education?

- Outstripped on knowledge by all parties Behind
- Educate in a way I understand
- STATE
- Produces info, makes it available
- mapping sea level rise
- flags on conveyancing
- Excited!
- Ethical? Selling a
- Followed all advice Feeling stuck can't retire
- Shovelling out money
- No money for kids
- Negative equity

Exasperated: no risk indicators to Catastrophic

- Valuation reduction
- Hardship issue for owners → forced to sell
- debt agreement
- Info is NOT education make it accessible
- Banks access to data
- privacy + complying with it
- what info should be shared w/ cmty?
- Council needs to understand Climate change & impact on the community
- Rates - info on rates

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