

AUSTRALIAN DISASTER RESILIENCE HANDBOOK COLLECTION

Systemic Disaster Risk: Case Study Profiles

Companion to *Systemic Disaster Risk* (AIDR 2021)

This document complements *Systemic Disaster Risk* (2021) and a series of case study profile videos.

It is available as an online resource on the Australian Disaster Resilience Knowledge Hub: knowledge.aidr.org.au/resources/handbook-disaster-risk

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Introduction

This series of case study profiles complements the principles based guidance in the *Systemic Disaster Risk Handbook* (AIDR 2021). These case studies are based on interviews with leaders and decision-makers from across the disaster risk reduction and resilience landscape in Australia. They provide real life examples and insights into the decision making challenges of today's risk context, embracing active learning opportunities and paying forward the knowledge and expertise gained over many years.

Case study 1: Beck Dawson – Chief Resilience Officer, City of Sydney

"We are at the early stages of learning about climate risk and the disasters that it creates".

Beck Dawson is known as the person 'paid to worry for Sydney'. Connected to the global Resilient Cities Network, Beck is a champion of place-based, systems thinking and using deep community engagement to inform public policy and city-wide action. In this interview Beck shares what she thinks we all need to do to address climate and disaster risks and what she has learnt over the last six years working with the 33 councils that make up metropolitan or Greater Sydney.

Change the risk context

Asked what she thinks is the biggest challenge we face going into an uncertain future, Beck said: "The biggest challenge we face is humility in the face of a world that is rapidly changing. We don't know yet the scale or types of disasters that we will get in what order, but what we do know is that we can understand how our world systems are connected together and be much better networked so we're ready for when they happen".

Beck goes on to explain, "we are at the early stages of learning about climate risk and the disasters that it creates. In a place like Sydney the risks are complex, they are interconnected, and they are systemic". This is especially challenging in a city of 5.5 million people, where there is a real need to better understand how all things are connected. This means understanding how water is connected to power, is connected to transport, is connected to the needs of people. When we understand those layers and how they all fit together we can better predict what will go wrong and for whom.

Embrace uncertainty

"Systems risk can be very complex to understand", but do not be overwhelmed. It is possible to use new technologies and data systems to help map what these systems are and find areas of vulnerability to prioritise how and where to make change. "We have a data platform that covers all 33 local governments of the city" explains Beck. This data platform contains all the information needed, for example energy use, waste transport and increasingly things like how heatwave impacts who and what across the city."

Decision-making is becoming more complex and, as circumstances become more uncertain, "where you get your information from" is critically important. Beck explains, that if you are not engaging widely with the population of your region, for example, then you will not understand where the risks lie – "we have to work together to understand the risks".

Commit to place-based resilience and sustainable outcomes

"We must do place-based resilience thinking in Australia". This is essential for understanding how regional and local activities support peoples lives and economies. It helps us understand what big disasters will have consequences on people, environment and economies.

As a city we currently do a lot of sector-based thinking and economic analysis explains Beck. "There is too much emphasis on sector planning and resilience rather than thinking about how these sectors, working together, contribute to the resilience of a place". In Sydney, several sector-based approaches to risk have been found to exclude or create major structural problems for others. For example, energy systems potentially down

grading substations as part of their asset management, inadvertently impacting the connection to a major water pumping station for the city. If these interconnected risks are not properly understood and managed, sector managers have a major problem on their hands.

Build inclusive governance capacity

"It's totally critical to engage with the communities - in a place - if you're trying to understand risk in that location". In Beck's experience, if we don't engage with and enable the community to make decisions and priorities about resilience, then "actually we are likely to invest in the wrong things".

One of the ways Beck sought to bring people together was creating a network of councils and organisations to understand each other's issues and make collective decisions for a resilient Sydney. "We have established new governance layers over five years to help manage those structural risks at every layer of the city". This governance includes networks for 33 local governments, a range of state government departments and some major businesses, including insurers, consultant teams, engineering, and utilities firms. "They come together to understand all the different types of issues that will arise in the city, and to make interventions", said Beck.

Foster networked systemic risk cultures as a powerful, enabling force.

Guided by leadership from Beck and the Resilient Sydney Office and the Steering Committee, it has taken nearly six years since coming together as a network in 2015, to understand each other's issues, potential risks and work out how to collaborate to make better decisions. "This is a big evolution and cultural shift across the organisations of Sydney." While everyone is not at the same level, some are further ahead than others, everyone is progressively thinking about this concept of systemic disaster risk, our culture and how to better enable action. "As we work together and network and share best practice in place, then we start to see how we can tackle these things in each part, in each sector, and together".

Beck reflects that for Sydney, "we were very fortunate to have already established all of our networks across the councils of the city, but also with our state government departments" when the COVID-19 pandemic came to Australia. Before that, during the summer of bushfires the network gathered to create peer-to-peer

support arrangements to other local governments who were directly affected. Looking at those structural mechanisms and new governance processes to enable connection and support to other, "you have to do it before the disaster emerges".

To make this happen, we worked hard to change rules to enable new structures and approaches - in place - so that when disasters happen, we can work together, solve problems, and support each other - without impediments, Beck explained.

Re-think disaster risk methods

Current risk approaches looking only at single hazards don't account for the wide diversity of different types of consequences that emerge from those hazards. Understanding cascading or clustered risks between different sectors, between people, and businesses and governments, is important so that we can make much better decisions about what matters.

"We absolutely can't do what we've done before to change the outcome for everyone in Australia with the disasters we have coming down the pipeline". Beck passionately explains, we cannot continue to have the lowest common denominator of the people at the bottom of the system hold all the major risks of the city. Therefore, we need to understand how we are creating and transferring the risks between every layer of decision making.

When Beck started the program, she did a technical review of all the systemic risks of metropolitan Sydney. Pandemic was on the list, because of its high consequence. Many people argued about whether that was appropriate because it was so unlikely. As it turns out, understanding a system-based consequence analysis, in place, does provide the information about what the impacts are likely to be. "We can better predict impacts before they happen when we look at the system."

"I'm very grateful that we started our networks and understood that pandemic was a risk well before COVID arrived, and we actually had the systems in place on the day it began - bringing the whole network of the city together. We shared pandemic plans. We understood business continuity arrangements and everyone worked hard."

Recognise values, vulnerability, and social justice.

For Sydney, we look to create a public mandate, explains Beck, so that they can have a say in the decisions that affect them, their responsibilities, and practices. When communities are asked their views, oftentimes the answer is surprising and not what officials may expect or assume.

“When we engage the community in decisions about investment for risk mitigation and resilience, for example, then we offer them an opportunity to make the trade-offs and share some of the responsibility. But this process also ensures that responsibility is put onto the organisations who have the funds and the decision-making power to support the community when it goes wrong.”

As the focus group looking at resilience in Penrith illustrates, many people came together and were able to articulate the challenge of growth and development, with struggling social infrastructure and other risks that were landing on their community. They were able to explain the need for land use planning and investment in social infrastructure and for governments to listen to what communities are saying to mitigate the risks.

“The community absolutely should have a choice about how much risk they are subject to. They should be involved in the decisions about what that means in their place and what they will put up with”, says Beck.

Repositioning current and future leadership

“In the community engagement exercises we did for Sydney it became very clear that people who live in the system, in a place, understand what doesn't work and understand what goes wrong”. These leaders and those people in the community absolutely can help to understand what to do now and how to prioritise change to reduce the risk for everybody.

“The best leaders for resilience and risk are working in a diverse way, ensuring they get a wide range of different views, ideas, and technical expertise to help them make decisions in place”, Beck concludes.

“The Systemic Disaster Risk Handbook will be invaluable as a source for all of us to understand the steps we go through to understand complex systems risk in place.”

(Beck Dawson)

Case study 2: Brendan Moon - Chief Executive Officer, Queensland Reconstruction Authority

"We have learnt that springing into action post event is a poor substitute for preparedness."

As the Queensland Reconstruction Authority (QRA) celebrates its 10th anniversary in 2021, Chief Executive Officer Brendan Moon shares his reflections and insights into a decades-long journey to better position the state to address the impacts of increasing climate and disaster risks.

It is a journey that extends beyond the early days of establishing an institutional capability to support local governments to rebuild infrastructure and services to a more resilient standard. Now, QRA is leading a change of thinking and approaches to resilience decision-making and future investment.

Change the risk context

QRA is Queensland's lead agency responsible for disaster recovery, resilience, and mitigation policy.
www.qra.qld.gov.au

QRA was established in February 2011 after the devastation from Tropical Cyclone Yasi and flooding across south-east Queensland saw every local government area in the state disaster affected.

As Brendan concedes, "Queensland is the most disaster impacted state in Australia". The state has experienced more than eighty natural hazard events in the past ten years. While a devastating statistic, it also means that a lot of experience has been gained. "We know that recovery provides a springboard for resilience – if we aren't reducing disaster risk at the same time as we recover, then we are simply short-changing our communities."

QRA's role is to manage and coordinate the Queensland Government's program of infrastructure renewal and recovery within disaster affected communities. Since it was created, QRA has managed a recovery and reconstruction program worth more than \$16.4 billion. Alongside of this, QRA is responsible for the implementation of mitigation and resilience policy, and provides expertise, capability and capacity to partner organisations.

The *Queensland Strategy for Disaster Resilience*, updated in 2017 to include climate change as a key driver of natural hazard risk sets the Queensland Government's overarching resilience policy framework. It is aligned with international best practice and has a line of sight from local risk reduction priorities, through to reporting on the *Sendai Framework for Disaster Risk Reduction 2015-2030*.

By pursuing the objectives of the strategy, all levels of government, the private sector and community organisations have a guide for factoring in resilience measures and activities as they anticipate, respond and adapt to changing circumstances.

As Brendan explains, current risk management doctrine insists on preventing a threat from occurring in the first place and substantially mitigating the effects if it was unavoidable. "This approach is not fiscally sustainable and also, as witnessed in the last two years, can be rapidly overwhelmed by large scale, cascading events."

The 2018-19 disaster season was a game-changer for Queensland – for the first time, the state was impacted by 12 natural hazard events in 12 months, closely followed by the global COVID-19 pandemic. This lived experience highlighted the need for a more nuanced conversation about a shared vision and the importance of a systems approach.

These events have placed a renewed focus on resilience, risk reduction, and our capacity for recovery and adaptation to ensure survival. This has also triggered broader debate around sustainability and climate change.

Building inclusive governance capacity

The Queensland Government has made a commitment that - by 2022 - every region across the state will be part of a blueprint to strengthen resilience. "So far, a number of strategies have been completed for the most disaster exposed regions and consultation on the remainder is well underway", said Brendan.

"We know one size does not fit all. And that is why it is essential to have a locally led, regionally coordinated and state supported approach to disaster risk reduction." The work of QRA has shown that communities want to contribute to and drive their own recovery and resilience

– they just need access to the governance mechanisms in which to do this.

With this focus, QRA has fostered strong working relationships with all local governments and worked hard to demonstrate it is a trusted partner in getting communities back on their feet. As QRA marks its 10-year anniversary, Brendan emphasises its work with councils, the community and other stakeholders will continue to foster the networked risk cultures needed to support community recovery, build resilience, and reduce disaster risk.

Looking forward “the biggest challenge we face going into an uncertain future is acting right now”. For QRA this means embedding resilience and disaster risk reduction into current and future decision-making and investment. To do this requires not only a change to the traditional role of resilience and recovery practitioners, but also leaders across all sectors to step up and to aim for resilience outcomes when making investment decisions and developing future products and services. “In this space we work collaboratively not only with local government and state agencies but also across the private sector and the academic sector.”

Another big challenge is ensuring responsibility for preparedness and reducing disaster risk is shared throughout all communities. New players are entering the complex space of disaster resilience and risk reduction. As they do, they need to be supported with inclusive governance, leadership and coordination. They will need to be supported with the latest technology, data, and knowledge. They will need the space to think differently about complex problems and learn about taking a systems approach. QRA, along with its partner organisations, will play a lead role in facilitating this.

Re-thinking disaster risk methods

“Over time our disaster risk assessments have become a powerful tool in disaster risk management.” As Brendan explains, the focus has shifted from modelling disaster loss and analysing cost benefits of preparedness, to building resilience, risk reduction and mitigation. By understanding disaster risks and hazards, and the exposure and vulnerabilities of communities and assets to those hazards, government can better quantify the risk and anticipate the potential impacts of hazards. This means “we can support our communities and individuals to make informed prevention decisions”.

As Brendan goes on to explain, core to resilience planning is understanding local capacity and capability. QRA places great emphasis on community engagement,

diversity, strengths and vulnerability, enabling resilience practitioners to share a vision and narrative that everyone understands.

Developing regional resilience strategies through a foundation of co-design is an acknowledgement that communities are best placed to understand and identify their needs to address their own risks. Regional resilience workshops provide opportunities for communities to work together, encouraging conversations around common challenges and developing shared solutions. Multi-disciplinary specialists in disaster management, infrastructure and engineering, economic and community development, land use planning, and environmental management are all active participants in the process. “The benefit of this is that local community needs are well known at all levels of government and can progressively deliver on these needs over time.”

A key measure of success in communicating disaster risk is how Queensland individuals and communities adapt and adopt measures to ensure that they are managing their own disaster risk. Recent research suggest that almost half of Queenslanders do not have an emergency kit, one in three do not have an emergency plan and almost one in five do not have building or contents insurance cover. QRA will continue to build on the message of shared responsibility to drive improvements in preparedness across every community. “These will be essential markers of success for QRA as we communicate to our community the need to take into account the uncertain future that we face”, Brendan concludes.

Practical examples of new approaches, methods, and tools

Betterment funds: This is a great success story for the state. To date, four betterment funds have been jointly funded by the Australian and Queensland governments (50:50) and delivered by local governments. The key principle of betterment is to rebuild infrastructure to a more resilient standard to withstand the impacts of future natural hazard events.

Since 2013 over 370 infrastructure projects have been delivered on the ground. Two-thirds of these projects have been impacted by at least one subsequent event. Of these, 96 per cent were not damaged and avoided the need for any reconstruction costs and importantly, increased functionality for communities immediately following the event.

To learn more: www.qra.qld.gov.au/betterment

Resilient investment: Increasingly, the focus is shifting to valuing and costing resilience investment and improving private sector engagement. QRA is participating in the Australian Business Roundtable for Disaster Resilience - Resilience Valuation Initiative to look at valuing and costing resilience investment. QRA has also produced the *Queensland Disaster Resilience and Mitigation Investment Framework*. This framework provides guidance on effective investment decision-making and prioritisation to support disaster mitigation across Queensland.

To learn more: www.qra.qld.gov.au/resilience/investing-resilience

Using resilient building design can significantly reduce the effort and time to return people to their homes and workplaces following these natural disasters. Resilient design and construction can also reduce long-term costs for home owners associated with disaster damage and insurance premiums. It not only reduces the physical and financial costs, but also the social and emotional impacts of disasters. As a way of guiding investment, QRA has developed several building guidelines for homeowners and industry professionals.

To learn more: www.qra.qld.gov.au/resilient-homes

A good example of the private sector incentivising resilient investment is Suncorp's new build back better insurance policy. Under this policy, if a home is substantially damaged Suncorp will offer up to \$10,000 in additional resilience options to help protect against severe weather. This is an Australian first and something QRA would like to see more of from the insurance industry.

To learn more: www.suncorp.com.au/insurance/home/build-it-back-better.html

Understanding risk: In QRA there is a real focus on using data and information more effectively to inform planning and decision-making. An example is QRA's Repeat Events and Dollar Index (REDI). This web-based interactive mapping application helps councils better understand their risks, their costs and repeat damage from natural hazards. It is free for councils to use to make informed decisions.

To learn more: www.qra.qld.gov.au/REDI

Quantification of disaster risk: This is important to encourage resilience investment – for example, quantifying the potential hazard expected across the lifetime of infrastructure should drive resilient construction and modifications to building codes.

To address a gap in guidance on economic assessment of flood risk management projects, QRA has developed the *Economic Assessment Framework for Flood Management Projects*. This publication recognises that to effectively invest in flood mitigation it is important to be able to quantify all types of damages resulting from floods, and fairly compare a wide range of options to ensure targeted investment provides the greatest return. The resource supports Queensland flood risk management practitioners to undertake a consistent and comparable economic assessment of flood risk mitigation, make informed investment decisions in flood risk management and intervention, and helps build a case for increased investment.

To learn more: www.qra.qld.gov.au/resilience/investing-resilience

Living on a floodplain: QRA's work immediately following the 2011 Brisbane River flood illustrated that people did not understand their risk living on the floodplain. As a result, QRA's flood studies looked at factors that influenced behaviour. The resulting *Strategic Flood Plain Management Plan* (developed in partnership with councils, state agencies and other stakeholders) outlines a shared understanding of both current and future flood risk from the Brisbane River. It identifies a suite of actions that build on existing approaches to strengthen the resilience of communities, settlements, environment and economy to current and future climate and disaster risk.

To learn more: www.qra.qld.gov.au/brcfs

Early warning - flood: Queensland has over 3,200 rainfall and river gauges that inform statewide warnings and forecasts. Flood waters don't respect boundaries, which is why it is important for all stakeholders to work together. QRA is working with key stakeholders and 28 local councils to improve flood warning infrastructure to reduce the impact and cost of future flood events. As part of the \$8 million Flood Warning Infrastructure Network project, flood warning investment plans will be developed from Mackay, west to Diamantina and north to the Gulf of Carpentaria and Cape York.

To learn more: www.qra.qld.gov.au/fwin

Case study 3: Cr Greg Christensen – Mayor, Scenic Rim Council

“Learning agility, I believe, is one of the most critical defining skills of leadership in this modern era.”

Mayor Greg Christensen talks about how his background and leadership roles across many decades has prepared him to lead the Scenic Rim Council and its communities prepare for and recover from times of difficulty and meet the challenges ahead. With a business background involving transformational strategies to help businesses that have lost their way, combined with leadership roles in volunteer emergency response teams, Mayor Christensen has a dual perspective on the importance of providing leadership. “A focus around learning agility, I believe is one of the most critical defining skills of leadership in this modern era”, and to be diligent at properly understanding root cause and problem solving, explains Greg.

Changing risk context

In his role as Mayor, Greg’s first experience of disaster through the lens of local government was the 2017 major flood event – the biggest on record for parts of the region. While there was significant infrastructure damage, there was no loss of life. “What we had coming out of it was the foundations of resilience in the thinking of our community - brought back to life”. The event interrupted a comfortable mindset “that lets us fall into failure very easily” and provided an opportunity to capture the energy that comes out of that, said Greg.

In advance of any event, we activate messaging into the community to take early steps to prepare themselves - to be isolated for some periods of time, to get off the roads 12 hours in advance to avoid being stranded in remote locations, for example.

Embrace uncertainty

“We are at a time in history where the impacts of a changing climate are creating a different pattern of events, at different times”. Greg explains that while climate change creates uncertainty, we are also at a time when we are learning more about how to understand and evaluate certain types of risk. In this context, Greg believes adaptive learners can reduce the degree of

uncertainty by analysing the data and information available to them and focus on those pieces they can do something to control.

While many people are not yet adaptive learners, Greg believes the challenge is to equip people to take better accountability for themselves and take simple steps to manage their own risks. While Council and other services are there to help, “you are accountable for your choices”, said Greg. “So, let’s equip you to make better decisions each day”.

Greg explains - the last few years have made us all in Australia start to realise none of us is immune to the risks that come our way. The choice is do we sit and complain and wait for someone else to do something about it, or do we step up and do it for ourselves? Greg believes it’s about taking more accountability and “doing something for myself rather than relying on the uncertainty that someone else might come down the road to rescue me”.

Inclusive governance

Coming into Council after Queensland had experienced numerous major floods and cyclones, Greg feels fortunate to participate in a very good government structure, from the state body, through district disaster management groups and to local disaster management groups which Greg chairs. These relationships provide structure and clarity of process, roles, and responsibilities – avoiding confusion when it matters most. This structure allows “us to get together early and plan well”, says Greg.

Working within the governance structure, Greg explains Council can have confidence in the role it plays, particularly in recovery and returning to being a Council. The roles of communication with the community, the roles in establishing the connection to place, to establishing refuges where the community can shelter and get access to the information and services they need.

At the local level, preparedness and early response is key, involving the community in these activities and early activation of established groups - planning to recover starts before the rain, fire, or wind hits.

"I believe the most important thing we did was take the learnings from prior events that we experienced elsewhere and prepare early so that we got people away from risk as much as possible".

As Greg explains, Council knew from prior rain events where the risk locations are and started to plan early. "Three days before the rain actually hit, we had started to shut down our road works and prepare our equipment to relocate it so that it was near where some of our employees resided, so we are able to commence recovery as soon as water started to recede".

Treat decision-making as an active learning process

"Without a sustainable community inside and around your businesses, and with a sustainable relationship with the environment, the moment you lose any one of those three legs off the stool, you will tip over". Growing up on a farm, being a leader in business and now Mayor of Scenic Rim Council, Greg has "seen the impacts of bad decisions" and unintentional consequences. From the 2017 floods, the region has seen over 100 new landslips in some steep valleys. He has also seen examples elsewhere of salt pans where grapes used to grow. Both stem from well intended decisions to clear the land 100 years ago and alter the environment.

Council is now working with landowners to replant trees to hold the land together. Learning from the past is an opportunity to do something differently and preserve and restore waterways, bring back vegetation and stop erosion. "Let me tell you, it would be much greater to see them holding our Riparian corridors together so that we don't lose a million tons in a major flood event that destroys Moreton Bay".

Greg explains, there is a need to shift collective thinking to having more accountability as a community and a collective consciousness for the state and the place where people live.

Re-think disaster risk methods

"I've always had a risk hierarchy because you cannot eliminate every risk otherwise, you'd never leave home". For Council the priority is no loss of life. This includes those rescuing others who choose to stay in dangerous places too long. Greg explains, if that means using the levers of government for early intervention because people can't properly assess risk, then those interventions will be activated.

Greg thinks the message about risk tolerance and risk appetite in the community is confused from the national level down. "The more people say they have a zero-risk appetite, then the more they've got to be prepared to pay more if they want government to take charge and solve that". We can rebuild just about anything explains Greg, however there are economic impacts which also must be considered.

"Many of the views of risk that people have is about event-based risk rather than inherent lifestyle risk". A mindset change is needed that focuses on where and how risk is created and managed. When a flood or a fire is happening, it is way too late to do something about it, however, people are looking for someone to blame for not being prepared "saying someone should have seen this and done something about it".

Recognise values, vulnerability, and social justice

For the Scenic Rim Council, planning scheme parameters set by the state government sometimes go too far and sometimes not far enough. This means that decisions need to be made about what to trade-off or adapt to be united as a region. Greg explains, "we put aside some parts of the region that we said we don't think this area can really sustain further growth". This means limiting the ability to expand new blocks to a certain size and to encourage people to join the journey of rehabilitation. With wildlife and environmental covenants in place Council partners with landowners across the region to embrace rehabilitation, while providing good hazard reduction in fire protection corridors.

"I think COVID has done us a favor in Australia". Confronted by being locked down in confined spaces without the ability to freely move about, is a form of shock therapy, suggests Greg. It has made us all rethink attitudes and behaviours and what is valued. 'Toilet paper wars' were a stark example of the mindset of some people who saw the situation as a fight for survival rather than a collective community challenge.

Greg believes we are on the cusp of a very long conversation. It's a conversation that needs to move away from driving drought relief to improving farm resilience, for example. People get locked into short term thinking, and "when you're locked in short term thinking, you will always panic".

Reposition current and emerging leadership

“The most important conversation I have every day apart from saying good morning to my beautiful wife is the conversation in the mirror each day”. Every leader is accountable for bringing the best version of themselves each day and to do what is right, says Greg.

If you're in a leadership position, you're there because there is something in your values and aspirations that has given people the confidence to put you in that role and to follow you. They want to follow you because you do what is right, not necessarily what is popular. “So be clear about doing what is right, because you will never please everyone”. The loudest voices usually come from a small number of people who are fearful of change, who are afraid of having to think differently about the world because it might mean admitting that what they've been doing for a long period of time doesn't fit anymore.

It is important to help them work through this and importantly help most people embrace what's possible and share in a vision of a sustainable, exciting future. “That's how you build resiliency in the community”.

Leadership is inside every one of us, “just that for many of us, we've forgotten that part of making ourselves complete is to give back to community. And that's why I think COVID helped us to realise without community we are nothing”, concludes Mayor Christensen.

Case study 4: Lisa Harrison – CEO Insurance Product & Portfolio, Suncorp

“Suncorp is the nation’s largest insurers and we spend a lot of time being prepared for the inevitable disaster when it strikes”.

In this interview Lisa Harrison shares her reflections on Suncorp’s role as one of Australia’s leading insurers, helping communities be more prepared to withstand the impacts when natural hazards strike. Passionate about helping Australian communities Lisa highlights some of the initiatives Suncorp is pursuing to contribute to the nation’s resilience.

Changing risk context

As Lisa explains, Suncorp continues to invest in better understanding the characteristics of natural hazards and the types of mitigation actions that can be taken by individuals and society, so they don’t become disasters. “We focus on understanding the types of mitigation that can be done and the impacts that mitigation can have to reduce the risk and impacts,” said Lisa.

Embrace uncertainty

As the future risk context becomes increasingly uncertain Lisa’s focus is on the power of mitigation. “Being in the insurance industry for over 20 years, I understand the impacts of uncertainty.” Uncertainty is a key factor for insurers; their role is to be there for when the big moments happen – whether it be hailstones, floods, cyclones, bushfires, or other major events.

As Lisa says, life is unpredictable and disasters do happen, sometimes beyond imagination. To cope, Lisa’s ‘secret ingredient’ is the partnerships that have been formed with a wide range of organisations including government, academia, business, and private companies. These partnerships help her and her team to work through uncertainty and, leveraging global and Australian talent, to understand and mobilise the “roles we can all play to prevent the impacts when disaster strikes.”

Commit to place-based, systemic resilience and sustainable outcomes

One of the areas Suncorp needs help in is, “how do we [help] make this country more resilient to [natural] disasters”? Lisa explains, as a leading insurer we know disasters will continue to happen; what is increasingly difficult to know is when, where and to what extent. “What we do know is actually being prepared and investing in mitigation does pay dividends.”

Suncorp wants to help householders and communities be more resilient and provide incentives for communities and stakeholders to invest in mitigation, making it accessible and affordable to everyday homeowners. An example is Suncorp’s new product feature that helps homeowners to include mitigation features at claims time.

To learn more: www.suncorp.com.au/insurance/home/build-it-back-better.html

One of the things Lisa is incredibly proud of is the ‘One House’ project. Developed in partnership with James Cook University’s Cyclone Testing Station, the CSIRO and Room11 Architects, to show how a house can be resilient to the natural hazards that can strike Australia. “We designed and tested this prototype, and what we demonstrated is we actually can create a house that doesn’t look like a bunker, that looks attractive, but is more resilient to cyclones, floods and bushfires. With some simple measures that is actually affordable for Australians.”

To learn more: onehouse.suncorp.com.au/explore

The ‘One House’ project has demonstrated there are elements that can be used for retrofitting of existing buildings, particularly for cyclones, or included in new builds. In northern Australia Suncorp offers insurance premium reduction based on retrofitting action to increase cyclone resilience. “So, we’ve had the cyclone resilience benefit in place for about five years now, and already over 40,000 homeowners have received premium reductions and importantly, their homes are more resilient to cyclones,” says Lisa.

Inclusive governance

With more than a 100-year history, disaster risk is part of Suncorp's DNA, explains Lisa. The Suncorp team is, "extremely passionate about making sure we invest in mitigation, because when you go around after a disaster you see the horrific impacts on people." While not being able to take away the trauma of disruption and harm, "what we need to do is make sure that when disaster strikes, homes are stronger."

"One of the key learnings for me is many of these things can be prevented. Whilst I can't stop the rain from falling or the winds blowing and the hail falling from the sky we can incentivise and encourage mitigation and the impacts of these things can be far less." This is one of the key learnings Lisa has experienced time and again - not spending enough focus of time, effort, and money on mitigation.

Provide access to and be transparent about decisions

Suncorp and its partners, "are extremely aligned in terms of the activity we are trying to do". Lisa explains, "one is to make a more resilient and safer Australia". This alignment is helpful to processes and transparency at Suncorp. "We deploy a rapid decision-making framework" when working with partners and very clear on who is accountable and responsible for making decisions.

"In the past as a nation we haven't spent enough on mitigation." For well over a decade Lisa has been saying only three cents out of every dollar is spent on mitigation, with the remaining spent on disaster clean up. Pleased that things are changing, Lisa hopes that in the future at least 10 cents in every dollar is being spent on disaster mitigation..

Risk methods

"So, one of the things I absolutely love, is what got you here, won't get you there." Lisa sees there are fantastic opportunities, more data than ever before and technology such as artificial intelligence. This all leads to greater insights and opportunity to think differently to solve the problems of today and the future. "We can make better decisions, and then equally we've got technology, building standards and building materials, improving each and every year."

Take a systems approach

2020 was an unprecedented year. "In fact, it was so unprecedented I've never used the word unprecedented more." Whether it be disasters at the start of the year, followed by the COVID-19 pandemic, what it taught us is the ability for people to change and adapt quickly. This includes the Suncorp workforce. "If I think about March 2020, the fact that on a Sunday night we told our entire workforce, via text message, that tomorrow they were working from home - they were able to respond and work from home beautifully."

This shows our adaptability but equally goes to show the need to be prepared for such uncertainties and be able to quickly respond. "But the reason you can be successful with change is because you anticipate it and you prepare for it."

Select and use the right risk methodology

Current risk assessment processes often break down the risks into small bite sized pieces, however, we know we deal with uncertainty and a plethora of risk, explains Lisa. So as an insurer, Suncorp can't just think about one peril risk, whether it be bushfire or cyclone for instance.

Last year showed we need to think about risks in a systemic way and we need to call on experts in Australia, as well as globally, to help us think about it in a systems way, says Lisa. This is important given climate change is the biggest challenge we face and, "that we are anticipating and preparing for that and preparing our communities to be more resilient."

Repositioning current and future leadership

"Enabling our leaders and future leaders to respond to climate risk is non-negotiable." Lisa is also a massive believer in partnerships and so making sure that in the future there is a good network of partnerships both on a global and a local scale to help us think through some of the challenges.

"Equally, looking at the future and noting climate risk, I would hope that we've made more efforts to invest in mitigation to help this nation be more resilient to [natural] disasters," Lisa concludes.

Case study 5: Marc Salver – Director Development and Regulatory Services, Adelaide Hills Council

“Leadership these days I think is becoming more and more crucial”.

With over thirty years of experience in urban and regional planning across five countries – from Africa to the UK, Canada and Australia - Marc Salver reflects on the challenges of his role in leading and governing “everything from development approvals to our forward planning for the future” for the communities of the Adelaide Hills.

In Marc’s opinion “planners by their very nature are jacks-of-all-trades, master of none”. Planners have significant influence and play a key decision-making role in modifying the landscape, whether looking to the future impacts of climate change, where to locate a new school building or nursing home, or placement of new developments.

Leadership and guidance from the political level through to decision-making by local governments is crucial - establishing a consistent approach and adopting a community mindset rather than a political agenda. “Going forward, I think unfortunately we are going to have difficult years ahead if we don’t have a consistent approach”, says Marc.

Changing risk context

An unprecedented threat, the affects of climate change are being felt, most recently through two significant bushfires – 2016 and 2019, says Marc. Risk mitigation and management has always been something that Council has included in its governance arrangements, however, disaster mitigation is at “the forefront of what we’re doing”.

Think globally, act locally

The Adelaide Hills Council is the second South Australian council to declare a climate emergency (March 2019). In doing so Marc explains this action was taken to reflect Council’s preparedness to provide leadership and establish a mindset throughout the organisation and into the community about how to approach and plan to deal with climate risks - “that goes from the way we

purchase goods right through to the way we plan for future communities and making them resilient to those climate changes”.

Commit to place-based, systemic resilience and sustainable outcomes

Developing resilience strategies and policies provide the foundation to achieving these outcome – each being a building block to the bigger picture. Marc says “we’re not there yet, so we’ve done a number of things in the past and the most recent one being - Where we build. What we build.”. This is an initiative of Resilient Hills and Coasts and jointly funded by the state and federal governments and the Insurance Council of Australia. A collaboration between four councils, the outcomes will enable people to look at how to build back better and make plans for structures to be resilient to intensifying natural hazards. A range of tools and guidance have already been developed.

Marc explains collaboration on this level has led to more robust policy built on common experiences, new information gleaned from a range of people and a better understanding of the risks people are experiencing.

To learn more: www.ahc.sa.gov.au/environment/sustainability/where-we-build-what-we-build#:~:text=One%20of%20the%20goals%20of,flood%2C%20heat%20and%20bushfire%20risks

Build inclusive governance

“It is really hard for a decision-maker to gather all that information to crystallise and then come to know a particular point of view in order to make a decision”. Marc explains it is important to have relevant, up-to-date information before deciding a course of action however, there is a lot of science and information becoming available. “It is so important though, especially when we are involved in decisions for the future, to try and predict the future and then gather the information that is relevant to that particular topic that you’re working on and then make appropriate decisions”. Continuous learning and being prepared is an ongoing and active process for us all, Marc emphasises, “all of us have to keep learning in order to gather appropriate information to make the right decisions”.

When it comes to decision-making Marc reinforces the need to have community views as well as those of elected officials and weave these into the decision-making processes of professional administrators. In preparing Council and the community and involving them in the process, Marc explains that a key element is “for us to take people on the journey”; speaking to people who have experienced disasters, understand what they value, see what could be done better, working through the issues to build a pragmatic and inclusive response that will be adopted.

“If we don't get buy-in, especially at the local government level, it's going to be difficult for communities to be climate resilient in the future, and that in itself will be a disaster”.

Understanding risk is crucial, and a collaborative effort with more heads around the table enables the identification of all appropriate issues, and what can be managed and what can't be managed. Marc explains, “we have no ability to manage weather, but we absolutely have ability to make sure structures can withstand the most severe or extreme circumstances that may arise”.

Reposition current and emerging leadership

“Leadership these days I think is becoming more and more crucial, meaning good leadership”. Marc explains the importance of mentorship and providing opportunities to ‘pay it forward’, developing the skills, confidence, and abilities of those leaders wherever they are or may emerge. Making good decisions, with longer-term thinking and outcomes in mind is a challenge, particularly when politics come into play, says Marc.

“Key for me would be to be prepared. You know, take matters that are serious, seriously”. Be emotionally and physically prepared to tackle those difficult decisions and the things that come at you unexpectedly, “if you're not prepared, it can throw you”, explains Marc. Work on your professional skills, emotional and physical wellbeing to take care of the job at hand – making those difficult decisions.

“I think the whole notion of having a document with input and guidance from a multifaceted decision-making point of view, will lead to robust decision-making by those that apply its principles” Marc Salver on the Systemic Disaster Risk Handbook”.

Case study 6: Neil Savery – CEO, Australian Building Codes Board

"It is only in the last two or three decades that you've had building codes starting to think about and respond to natural hazards. Its only in maybe the last decade and a half that they've started to take into consideration the impacts of climate change."

Neil Savery has spent the better part of his career in town planning, urban design, and ecologically sustainable development. "I've always had an interest in the impact that the built environment has on the environment and vice-versa", says Neil. This interest, and as planning authorities have responsibility for administering building control around the country, led to Neil becoming a member of the Australian Building Codes Board (ABCB) and is now its Chief Executive Officer. Neil talks about the role the ABCB plays in public safety and what effect climate and disaster risk is having on building regulation.

Changing the risk context

"I think for me the really important thing is it's not so much embracing change but facing up to the reality of change." Neil explains, early this century, as we were witnessing the growing effects of climate change, it became increasingly important to have a strategic understanding of how this change was going to affect the operations of cities in the future, and the impacts of natural hazards on existing and future developments.

Nationally consistent building codes have been around since the establishment of the Australian Building Codes Board in the mid-1990s. "It wasn't up until the early 2000s that those codes took into account some of the more significant impacts of natural hazards, irrespective of whether they're being impacted or influenced by climate change", explains Neil.

The building code is "a very diverse instrument in terms of all the subject matter it covers" and avoiding unintended consequences requires a robust evidence-base to give a level of comfort that what is trying to be achieved is not undermined by other parts of the system. "Its very easy to think about the building in isolation of everything that's going on around it". By way of example Neil talks about bushfire and the regulatory controls

that have an interdependence with each other – building construction, landscape modifications and human behaviour all play a role in safety and resilience.

Embrace uncertainty

Neil pointed out there is a critical link between uncertainty and the lag time inherent within building code development. For Neil, uncertainty means continuing to question until reassured the evidence and science is robust and can be relied upon for the ABCB to act. "We are all trying to come to terms with these challenges" and reach consensus among nine governments to a point where decisions can be made.

In the context of 'lag time' there is an urgent problem, and we must act now. For example, it's going to take several years to do the research, to do the analysis, to do the consultation on proposed changes to the code. Further time is needed to develop all the technical provisions, provide training and education, conduct regulatory impact analysis and change the system.

To put this interval into perspective Neil explains "every year we build another 2% of building stock. So, if you say it's going to take you 10 years for the decision-making process to resolve itself (going through our process, the research, developing codes, consulting, impact analysis) and six years have passed, then you've got 12% of new building stock having been built" to potentially a lesser standard.

Think globally, act locally

Two years ago the ABCB took the initiative to join forces with counterparts in America, Canada, and New Zealand. With similar systems, approaches and disaster experiences, learning from each other was seen as an opportunity to not only "benchmark ourselves against each other and actually understand where we are at", said Neil, but to potentially get a "head start on what would otherwise be the case". "It could be that we find someone has already done research we are about to commission".

While not visible to the public there is a lot happening behind the scenes. Neil is the Chair of the international Interjurisdictional Regulators Collaboration Committee, which involves 15 countries across Europe, Asia, America, Australia, and New Zealand. All have performance-based building codes. The purpose of coming together is to share ideas, knowledge and approaches with the current focus on adaptation in the face of climate change. From this international engagement, the experience of others can be applied locally. For example, “as a result of COVID-19 we’re all working ... to respond to the issue of pathogen spread.”

Commit to place-based, systemic resilience and sustainable outcomes

“I would like to absolutely say that from our perspective, resilience is an outcome”. Neil goes on to explain that resilience for buildings is about the ability of a community to rebound from an event and the role the building code can play.

The Bushfire Royal Commission into National Natural Disasters recommended the National Construction Code should give more regard to resilience. The challenge is “we need to start thinking about the types of events that buildings are going to experience in their lifetime”. Neil explains that codes around the world are built on the experiences of the past, with minimum standards built on historic data, historic information and historic events. While there's nothing wrong with that in practice, there is a body of science that's telling us events are all going to get worse, and it's going to exaggerate the problems that society has today. “So suddenly you've got to flip your thinking to being proactive as opposed to reactive and foreshadowing something that may happen, but there is still a possibility it may not”.

Understanding that the benefit is that if those buildings can better withstand future events, better save lives, and enable communities to rebound faster, there is a massive saving down the track. This is where the international partnerships are so important; sharing knowledge and different approaches so that one nation doesn't have to go it alone.

The primary purpose of the national construction code is to ensure the buildings people occupy and visit are safe and will provide a reasonable level of protection to individuals during a natural hazard. That doesn't necessarily mean that post the event the building is capable of being reoccupied.

The exception here is a very specific element built into the bushfire provisions that says buildings should be built to a level that both protects the individual and the building should have a reasonable prospect of still standing after the event.

Neil explains “there is no building code on the planet that can guarantee that a building will save the lives of individuals in the event of a natural hazard”. Nevertheless, the codes perform well in protecting human lives. Compared to other countries Australia doesn't lose a lot of people to natural hazard events, however, there are exceptions - 2009 Black Saturday bushfires in Victoria.

For the ABCB, avoiding loss of life and injury is a priority, however, there is a shift in society's level of tolerance to building damage and the cost of rebuilding following a natural hazard event, to the point where even if the buildings have performed to their intended purpose, this may no longer be enough. “There will be property loss and it's almost like, let's shift our risk appetite and our tolerance of risk to ‘those buildings should be less damaged’. They should be capable of, if you like, walking back in as if the event had never happened”. As Neil says, this represents a real test for a building code that currently prescribes minimum standards, not maximum standards.

Re-think disaster risk methods

Neil suggests the ABCB has a very sophisticated understanding of risk and a sophisticated approach to dealing with risk. This is reflected in how the ABCB operates within and between organisations that have a level of responsibility for the building code.

The ABCB has recently called for public comment on the next edition of the National Construction Code, due to be adopted in 2022. It includes a new definition - complex buildings. Entirely risk-based, this is an illustration of the evolution of risk understanding within the code and the future design of classifications of buildings. Over time, there will be other features incorporated into the National Construction Code that would cause practitioners to look at buildings through a different risk lens.

“I've been talking about the relationship between planning and building and they will continue to be critical”. In the past decisions were made to locate our cities close to water sources, where trade was done through ports, where agriculture was carried out close to the cities. “We don't necessarily have those same critical relationships today, but our cities continue to expand from where they were first built”, said Neil.

The very complex, wicked problems that we have today go well beyond the context of building codes per se. "We are not necessarily just talking about climate change" - population changes, infrastructure development, food, and water supply. For Neil, building codes are part of the system and play a critical role. "For me it's one of the key roles for governments - to bring some level of coordination in all of that and hence why we have things like national disaster resilience plans and those kinds of strategies to enable all the various players across multiple portfolios, across multiple agencies, non-government organisations and the private sector".

Reposition current and emerging leadership

"I think leadership is critical, and the preparedness of people to take on those leadership roles because you can often be exposed to extreme criticism depending on what views or what issues it is that you're trying to promote", said Neil. In his experience, Neil suggests there is a need for others to be willing to listen and not be dismissive of those with different ideas. Simply dismissing or ridiculing the views of others can have the perverse effect of less participation and leadership, "if there's not a willingness to be open to ideas, then we may miss opportunities that would otherwise be there".

One of the things the ABCD has done in the last five years is build education capacity. "You can have the best regulation in the world, but if the people who need to put it into practice don't understand it, it's too complex or where it just simply hasn't been taught to them correctly, you're not going to get the outcomes that you want to achieve", explains Neil. With the support of the Board, the Office of the ABCB has created an education arm and developed a range of online materials (freely available) to support ongoing skills and professional development for practitioners. As the code changes, so too does the need to educate and upskill practitioners and those who teach them, explains Neil.

Case study 7: Tasmania Disaster Risk Assessment – better understanding disasters

“If it is everybody's business, then it's got to be accessible and engaging”.

Led by the Tasmania State Emergency Service (SES), a multi-stakeholder project team is working on better understanding the disaster risks that emerge when natural hazards impact Tasmania. As project lead SES Assistant Director Matthew Brocklehurst explains, the aim is to use this knowledge so that all Tasmanians can be better prepared in the future by making good, risk-informed strategic and operational decisions.

Building on current arrangements and methods, the project is all about “getting people together and combining the expertise and insights and perspectives and skills of a broad range of people so that we could come up with advice and information that is useful to everyone”, says project manager Lynley Hocking.

In addition to subject matter expertise, the project asks people to unpack what a hazard event might be using a series of credible but critical scenarios. Specialist facilitator Dr Christine Owen explains, if we can get the message about interconnected supply chains and critical lifelines across, and for people to be thinking ahead “about what it means for their role within the community, then we would be heading in the right direction”.

Andrew Brown, Emergency Management Coordinator for Clarence City Council agrees, but reflects on the challenges ahead for local government, particularly maintaining the trust of the community and tapping into established networks (for example, community safety and neighbourhood safety programs) and supporting them ‘rather than taking over’.

Change the risk context

Recognising that despite the best evidence and scientific data available, the events occurring around the world (pandemic, heatwaves in north America, major flooding in Europe) and in Australia (pandemic, major bushfires, and flooding) are showing that the disasters that follow are hard to predict, the priorities have changed and new risk assessment approaches are needed to work through the complexities.

“I think it is an incredibly complex, rapidly changing, ambiguous kind of environment that we are working in”. Lynley explains, a key feature of the project is to ‘work outside the box’ and recognise that it is a constant, iterative learning process what we all need to engage in.

With such a rapidly changing risk context, the project uses scenario planning to take people through stress-testing systems and unpacking systemic vulnerabilities when extreme weather events shock the state - such as an east coast low (major storm system). As Christine explains, to help people draw out the scenario, a much broader, diverse conversation is needed. Using a lot of visualisation and imagery of a particular place and the impact of the event, a process called ‘consequence report mapping’ is used to look at the interdependent effects and complexities.

Using this approach several scenario planning exercises have been undertaken over a six month period, revealing that oftentimes the same issues and concerns come up, but also completely different issues that hadn’t been anticipated are surfaced. Helping people imagine what could happen is enabling all sectors across the state to be more proactive and agile, constantly adapting plans to reduce the risks for the kinds of disasters not envisioned before.

Build inclusive governance capacity

Leading a small team focused on cross-agency coordination within Tasmania, Matthew explains the importance of good relationships with all the entities involved in emergency management and the importance of understanding the risks faced. “Like most states, we have our state Emergency Management Committee”, and as a small state Tasmania is well connected across all government departments and local government associations.

Using these connections, the Tasmanian Government produced the *Tasmania Disaster Resilience Strategy* (2020-2025). A key component of this strategy is to revise the State Disaster Risk Assessment which previously just focused on natural hazards. The current work will have a broader remit to include other hazards such as a major transport crash, cyber security, and structural collapse. Fundamentally however, the focus will be on systemic consequence and resilience.

This includes looking at decisions made prior to any event, for example the key issue of land use planning, which is vitally important. Matthew explains there are a lot of people coming to Tasmania and looking to settle down. This creates pressure on land availability and the need for good decisions about where new communities are established or expanded. "If they happen to have a block of land that sits in a flood zone, then that's perhaps not the best place to build a new home" suggests Matthew.

Helping local government, the private sector and individuals make good decisions requires access to latest knowledge and advice. "Well, yes, it might not have been flooded for 100 years, but if it does flood, there's going to be significant damage and ruin a lot of peoples livelihoods". But its not just about flood risk explains Matt, there are a whole range of other scenarios and factors at play.

People want to make an informed decision, so its not just about doing a risk assessment, it is about helping decision-makers understand those risks and what can be done to protect themselves and the community, "good land use planning is certainly a key component to that" says Matt.

With the Tasmania Risk Assessment project, a conscious effort has been made to engage people outside of the traditional emergency response sector. This includes people in the not-for-profit sector, business owners, local government, leaders in the community. Around 350 people have participated in several workshops enabling a rich discussion and greater understanding of what needs to be done.

Various mechanisms have been established to connect with the community and create networks to "take the objectives of the Resilience Strategy out there". Matthew explains that while there is not a whole lot of new funding, aligning projects with initiatives already underway can help merge different pathways.

Reflecting on the workshops Matthew is reminded of the sense of 'village' as a powerful culture. The ability for people to have a sense of connection to and come back to their place, be it a village, suburb, town, is one of the strengths that need to be fostered and built on – everything starting and ending locally around that 'village' is just so important.

At local government level, Andrew agrees "it's a very high priority if we don't have the right people at the table, then we will lose [community] trust. Getting two-way communications is hard "if you don't get those community leaders, the ones that the community already has established trust".

Re-think disaster risk methods

Disaster risk management is "very much a team sport" says Lynley. People are so willing to be engaged and recognise that this is an incredibly complex area; no-one has all the answers, and we can't just keep doing what we've always been doing. "Risk assessment and management is not like cooking a chocolate cake where you read a set of instructions, throw in the ingredients, put it in the oven and out comes a risk assessment". It is much, much more.

People find the more traditional approaches to risk assessment overwhelming and assume that it was the responsibility of someone else to do the work. Today's thinking recognises that disaster risk and resilience is everybody's business - "if it is everybody's business, then it's got to be accessible and engaging". This means focusing much more on the narrative, images and diagrams, painting a picture of what disaster might look like and society working together.

The risk assessment process broadly aligns with and extends the National Emergency Risk Assessment Guidelines (NERAG) and the workshops use the five areas of consequence to structure discussions. The aim of the project however is to better incorporate a three-dimensional view looking at interconnected systemic vulnerabilities – it is not just about the hazard, which is one-dimensional, explains Lynley.

To help people see the unimaginable, Christine explains the process has evolved as more is learnt along the way. This includes everyone involved so far including academics, emergency management practitioners, and business and community leaders alike. Starting from the perspective of why Tasmania is so special and what is it that is valued – 'what if we lost it'?

While challenging for some, direct engagement and providing a safe space for people to express their views, allows for individual voices to come through rather than the most dominant, and a storyline to emerge that people can connect to. "It is really important to have a consultative and inclusive approach", said Christine. As exemplified in this project by Lynley, thinking ahead of time of who is in the room, how they are grouped, what the conversation is going to be about is really critical. "We would not be getting the results that we are getting if that hadn't happened", Christine notes.

The new disaster risk assessment work is due for completion in early 2022.



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