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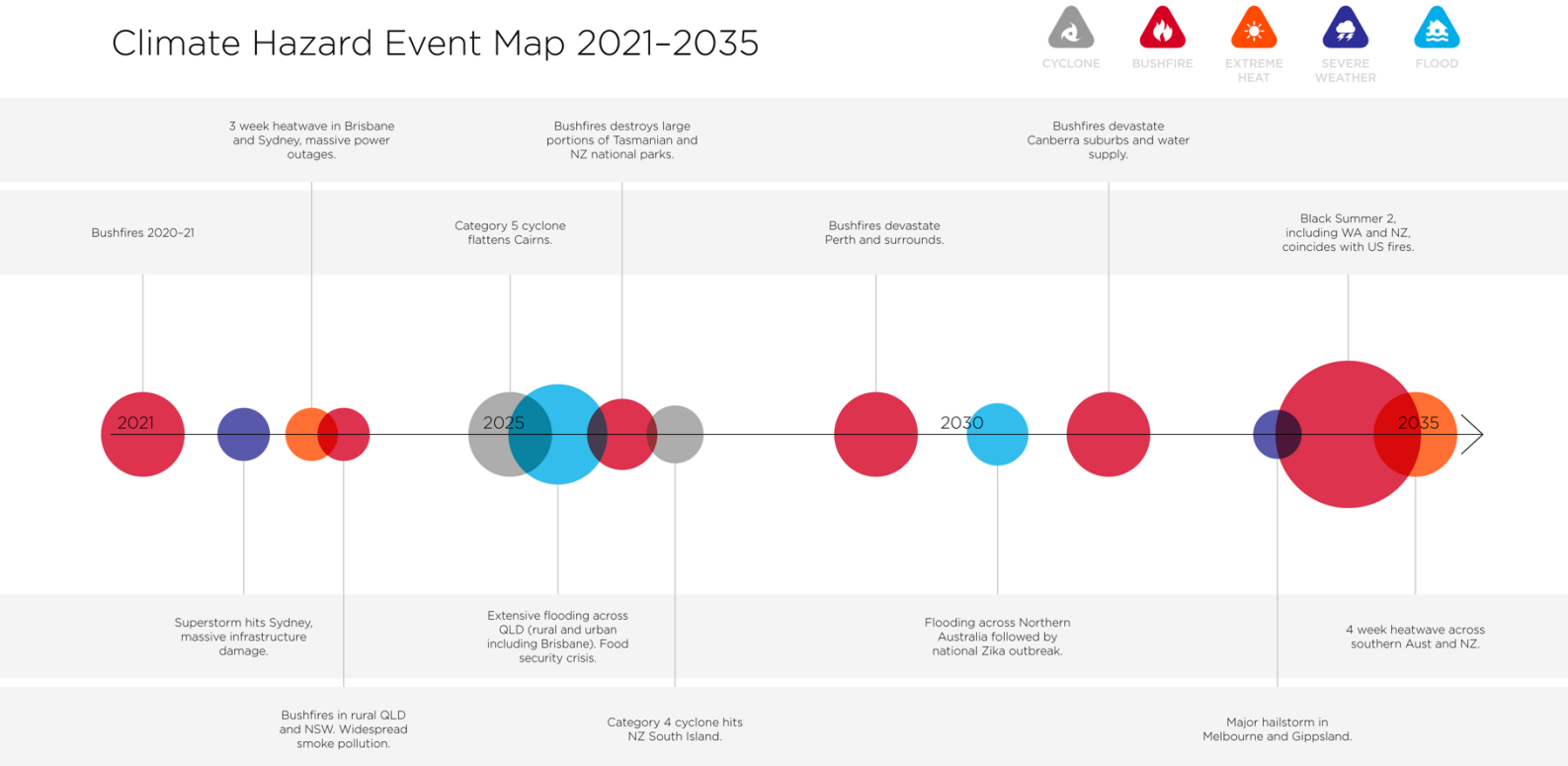
TRANSFORMATIVE SCENARIOS IN A CLIMATE-CHALLENGED WORLD

Research methodology for scenario development

Reos Partners

Climate Hazard Event Map 2021–2035



ReosPartners

RMIT UNIVERSITY

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CONTEXT AND PURPOSE

During 2020 and 2021, under the stewardship of BNHCRC and AFAC and led by Reos Partners and RMIT University, a select group of leaders and professionals from across the Australia and New Zealand emergency management sector (EMS) and related organisations worked together to better understand the driving forces in the world that interact to shape the future in unpredictable and volatile ways; ways that humans cannot reliably forecast or predict.

Using these driving forces, the team constructed a set of plausible futures that invite the EMS and the organisations within it to examine their current thinking about the future and challenge their existing assumptions. These scenarios explore what might happen over 2021-2035 in a climate-challenged world and how these futures might plausibly come about.

This document presents the research methodology behind the development of the scenarios.

It is designed to be read in conjunction with the other documents in the *Transformative scenarios in a climate-challenged world: workbook* and the *Transformative scenarios in a climate-challenged world: research and methodology* pack, which includes:

- *An introduction to alternative futures (2021-2035) for planning and decision making in the emergency management sector*
- *Emergency management sector case studies as worked examples*
- *Preparing emergency services for operations in a climate-challenged world: summary report*
- *Implications of climate change for emergency services operations: insights from the literature*
- *Research methodology for scenario development*

All of these documents can be found at www.bnhcrc.com.au/research/climatescenarios.

METHODOLOGY SNAPSHOT

If we could fly above the research project and look down at the overall shape of the methodology over time, we would see a series of pictures like the ones below. Scrolling down through the page below recreates the journey that our Scenario Team (and the various sub working groups and writing teams) followed from start to finish. *The text in the left column relates to the picture on the right.*

The various research project reports and outputs provide a deeper description of what we did and how we did it.

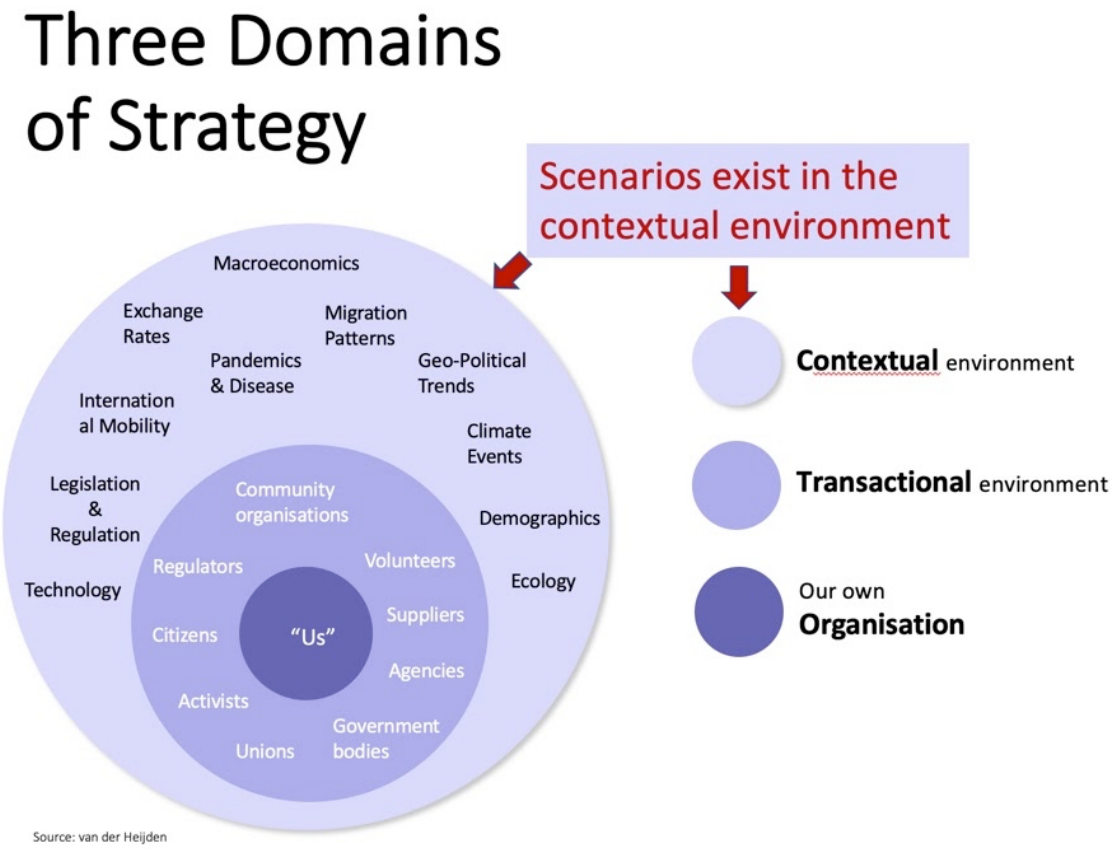
The project Scenario Team worked together, online, over a period of 9 months. During the final workshop, Darrin Woods (Fire & Emergency NZ) offered the Māori Whakataukī (or proverb) that epitomises the way this team worked together:

> *Ko tō koutou rourou, ko tōku rourou, ka ora tātou katoa*
>
> With your basket of knowledge and my basket of knowledge (shared) we will all prosper.

THREE DOMAINS OF STRATEGY

In workshops 1 and 2, the purple concentric circle model (right) is one of the first things we invited the scenario team to explore.

The team began to understand that scenarios are **not** about what the sector, or the organisations within it, might do. And that scenarios exist **outside the sector** in the contextual environment. That is, the large, light purple domain consisting of driving forces (social, technological, economic, environmental and political trends) that influence what happens in the sector itself.



Key

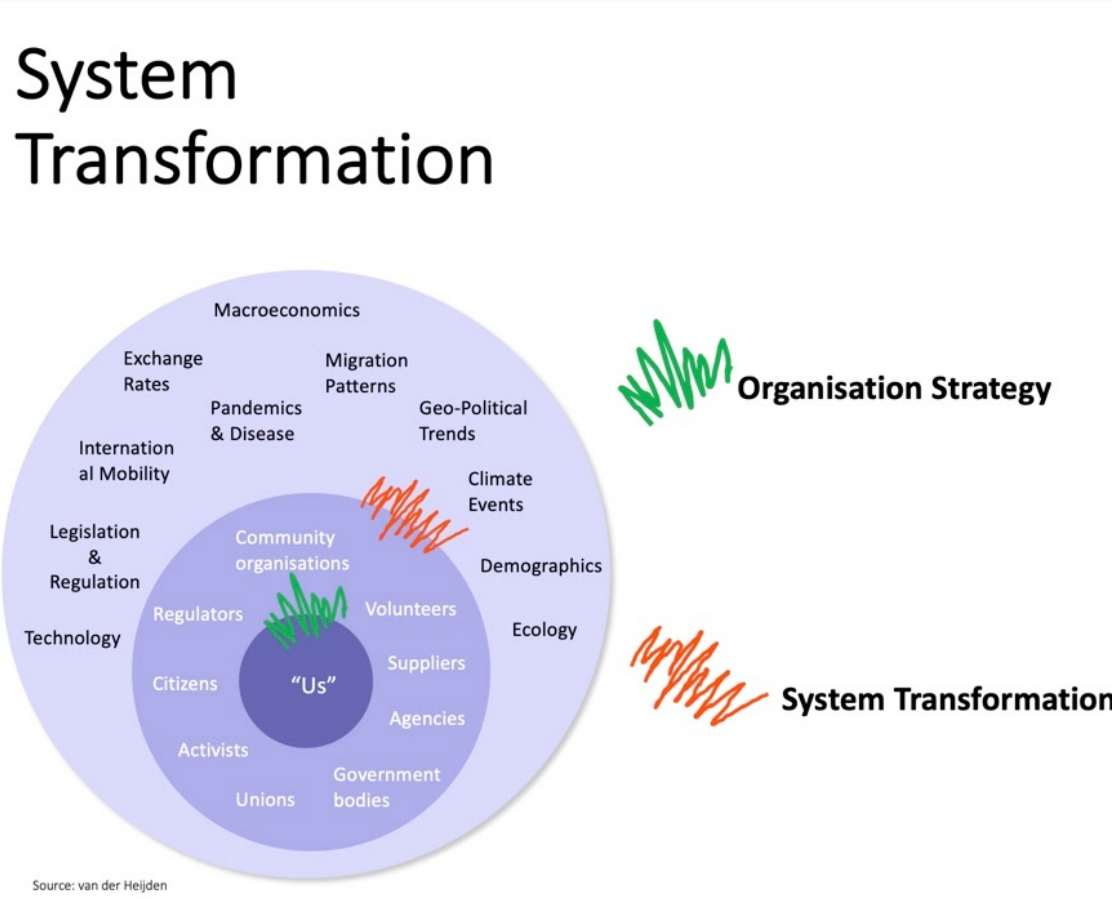
- The **Contextual environment** is composed of general 'factors' and driving forces outside of the sector - its the domain of appreciation.
- The **Transactional environment** contains the EMS and related actors – it's the domain of *influence*
- **Our own organisation** is a single 'actor' – the domain of *control*

Where do scenarios wield power in their use?

The other important feature of this model to emphasise in the early workshops relates to the two interfaces between the domains. It is at these interfaces that scenarios are most powerful in their use.

While organisational strategy and planning primarily relates to the organisation and how it chooses to act and interface in the sector, ***it is often at the interface of the sector and the contextual environment that higher leverage system for transformation can take place***.

Our scenario team members told us that their interest in contributing to this project is fueled by a desire to bring about real change in systems and in the way EMS decision-makers think and act in climate challenged world.



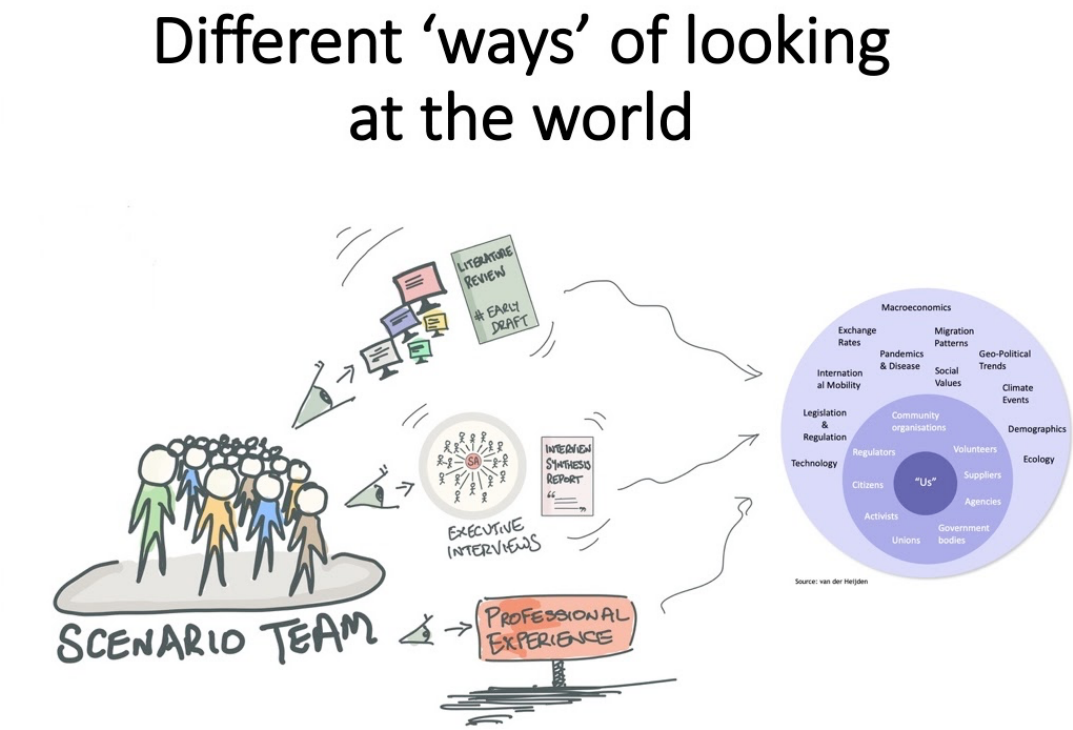
Picture 1: By [Simon Kneebone]

DIFFERENT 'WAYS' OF LOOKING AT THE WORLD

At workshops 1 & 2 the scenario team was also invited to see the world through perspectives other than their own. Their **own perspectives and experience** constituted the first important lens through which they explored the world.

We also shared **executive-level insights (via a Synthesis Report)** with the scenario team. The primary purpose of this was to help 'see' the diverse perspectives and views shared by a select group of twelve key leaders and thinkers connected to EMS sector. We invited the scenario team to re-explore the familiar terrain of the EMS sector using fresh eyes, and to open up to learning something new.

Insights from the Literature: The third lens to help look at the world was provided by the RMIT research team. Prior to the workshop #2, an early draft of the Literature Review was written to assist the Scenario Team to identify, and then prioritise, the driving forces in the contextual environment.



IDENTIFYING DRIVING FORCES

At Workshop 1, the scenario team chose to create scenarios that look ahead fifteen years – long enough that significant change can take place, yet close enough to be tangible and meaningful.

To understanding what futures might plausibly emerge, the team explored the contextual environment to better understand what is certain and uncertain about the future. In particular, they focused on identifying and categorising a wide range of Driving Forces, outside of the EMS, that could have the most substantive impact on the sector itself. It is these Driving Forces (also referred to as key uncertainties) that lay out the structural framework for the possible future scenarios.

After an initial vote on which Driving Forces are most uncertain and most impactful, a working group formed and participated in an additional session outside of the main scenario team workshops. They assisted the Reos Partners and RMIT team to improve on the list of driving forces and began to help us understand how climate change, as a driver, should be treated in the scenario process.

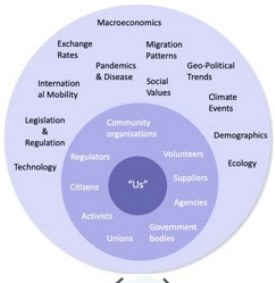
When the wider scenario team reconvened, the new and improved set of Driving Forces were presented. **Three main Driving Forces** (also referred to as uncertainties) **were selected to carry forward and use to develop scenario candidates**.

It was also clear, at this early stage of the scenario development process, that 'smaller' working groups would be required to do extra work between the 6 scheduled 'whole team' workshops.

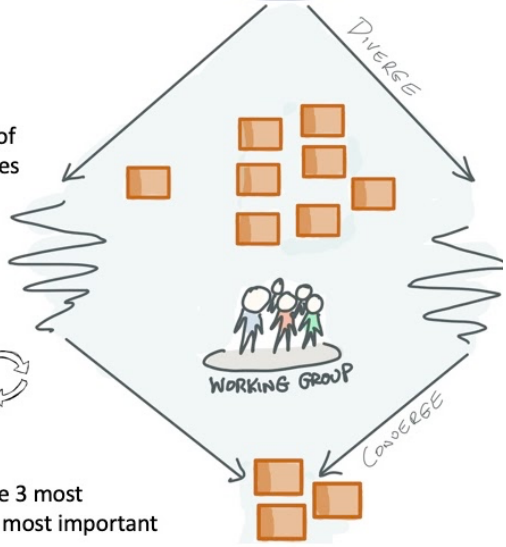
Identifying Driving Forces

(Scenario building blocks)

We explored the contextual environment …



Identified a wide range of Driving Forces



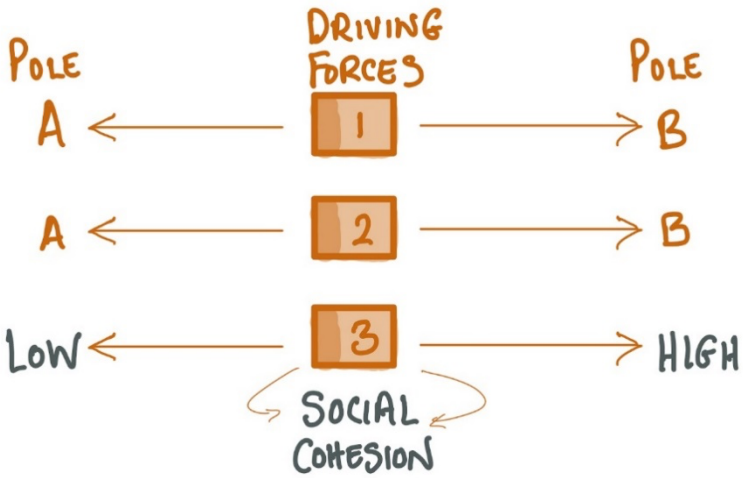
Working Group feedback

Voted on the 3 most uncertain & most important

SCENARIO CANDIDATES

EXPLORING THE POLES OF EACH DRIVING FORCE

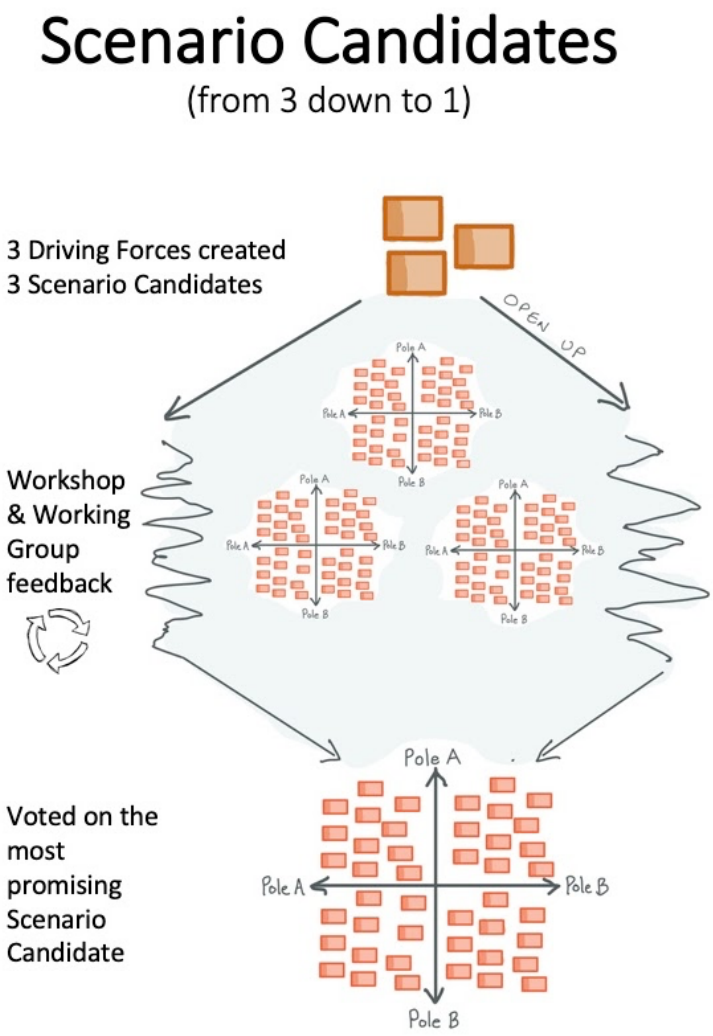
Coming into Workshop 3 the team had the three Driving Forces (that are most important and most uncertain) to work with. They then described what the possible outcomes could be for each of these - the extreme, plausible outcomes that could happen at each pole of the Driving Forces. The scenario team were also reminded that these outcomes or events are not about EMS, they are outcome description in the wider contextual environment without referring to EMS at all.



CREATING SCENARIO CANDIDATES

Again, at Workshop 3, the scenario team then started testing the three different combinations of Driving Forces together by using the outcome descriptions at each pole. In this step, three different working groups (one per scenario candidate) started to pull together the building blocks that would eventually lead to the EMS narratives being written.

Within each scenario quadrant, working groups members defined the features of each of the four scenarios given the inter-relationship of the two axes. As an example: a reactive government whilst having a high degree of social cohesion.



DECIDING ON THE MOST PROMISING SCENARIO CANDIDATE

The participatory nature of the process saw a lot of going back and forth - it was messy! The poles of the different Driving Forces underwent changes as the scenario teams continued to define the key features of each scenario. Eventually, a scenario candidate was selected by the team as the most promising one to take forward. This decision was based on a set of criteria that the Reos Partners facilitators continually reminded the team to apply at every stage of the scenario process. Scenarios would only be useful to leaders and decisions makers across the EMS if they are:

- **relevant** - *they attend to strategic imperatives of decision makers in EMS across Australia and New Zealand;*
- **plausible** - *they believably "could" happen – because they are based in seeds of the present;*

- **challenging** - *they stretch and challenge thinking and mental models; and*
- **clear** - *they are understandable and provide a way to make sense of much complexitys.*

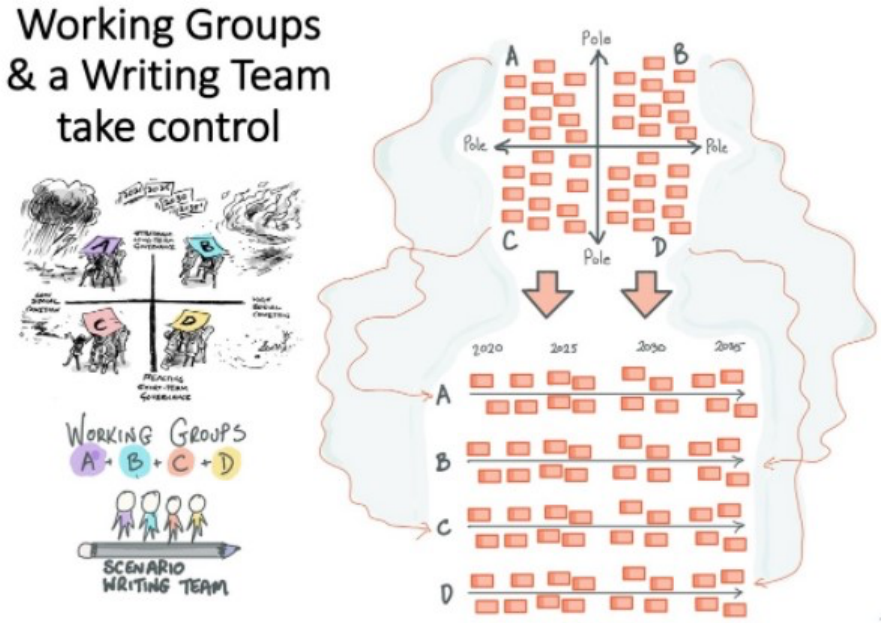
CO-WRITING AND CO-CREATION

Coming into Workshop 4, the scenario team had a candidate scenario to start developing. The Vertical Axis for this scenario was *strategic, long term governance* at one end and *reactionary, short-term governance* at the other. The Horizontal Axis was *low levels of social cohesion* at one end and *high levels of social cohesion* at the other. Overlaid, these axes combine to create 4 possible futures.

FOUR SCENARIO WORKING GROUPS (A, B, C, D)

The scenario working groups got started on a scenario timeline for their particular scenario. This process started to provide a rationale as to why the scenario would develop from the present (2021) to the future descriptions and end state of the scenario (2035). Again, the 4 criteria of relevance, plausibility, challenge and clarity were key to producing believable narratives that EMS leaders would say, "Hey! That could actually happen!"

After numerous working group meetings and lots of work between the main workshop, the scenario timelines and the narratives had progressed far enough. At this point, a team of four brave and courageous volunteers put their hands up to take control of the scenarios and write them!



ONE SCENARIO WRITING TEAM

Over the course of many weeks (late April to early June, 2021), our Scenario Writing team took the lead on where the stories went. The Reos Partners and RMIT team worked to support their writing and organised multiple meetings to help them test, refine and iterate. In writing the final scenarios, the Writing Team were standing on the shoulders of the whole scenario team and built on the

foundations that had been created in earlier workshops. It was a whole-of-team effort!

WHERE DOES CLIMATE FIT IN?

CLIMATE TURBULENCE IS ALREADY HERE

The insights from the literature (undertaken by RMIT), show that no matter what we as a human race now do to avert climate impacts, the planet is already on a fixed trajectory of changing weather and climate. Across all scenarios from 2021-2035 the following will occur:

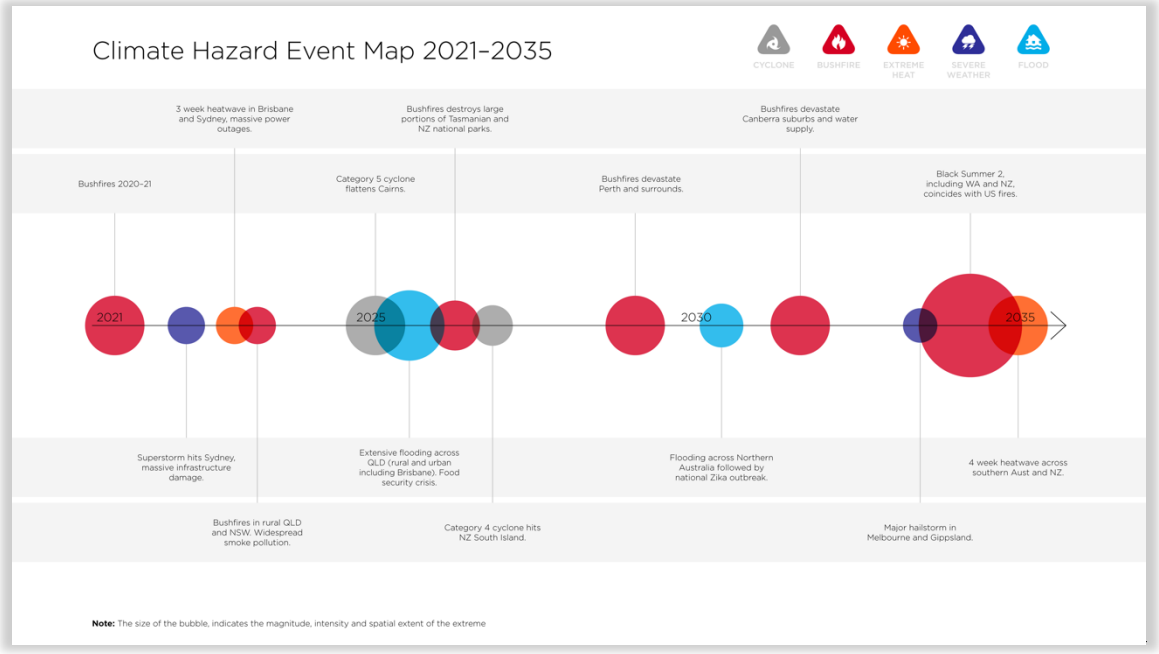
- **Continuation of existing climate trends:** Increasing average temperatures and heat; increasing drought/decreasing rainfall (overall); and increasing sea level rises and ocean acidification.
- **Continuation of increasing volatility, frequency and magnitude of weather extremes:** Longer fire seasons and more severe fire weather; more frequent and intense heatwaves; and more intense storms and flash floods.

However, by their very nature, increasing volatility, frequency and magnitude of weather extremes cannot be reliably predicted. As such, the following page outlines an indicative "hazard event map" depicting a range of possible hazards over the fifteen-year timeline of the scenarios.

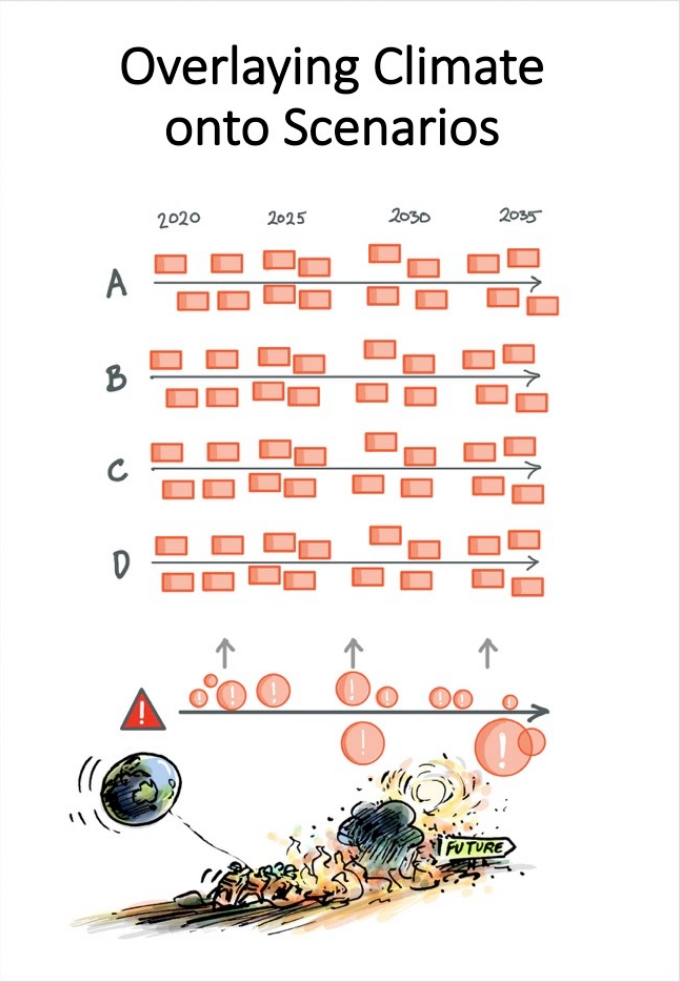
The hazard events on this map:

1. Extend across the geographies of Australia and New Zealand
2. Apply to different aspects of the EMS: urban operations, rural operations, land management and SES
3. Represent a range of hazard types that vary in volatility, frequency and magnitude.

It is proposed that the hazard event map is an "overlay" to all scenarios. In this way it is possible to explore the same hazard events in different scenarios. In doing so, it will highlight the different extent of risk and degree of impact that these same hazard events pose in the different scenarios that might emerge.



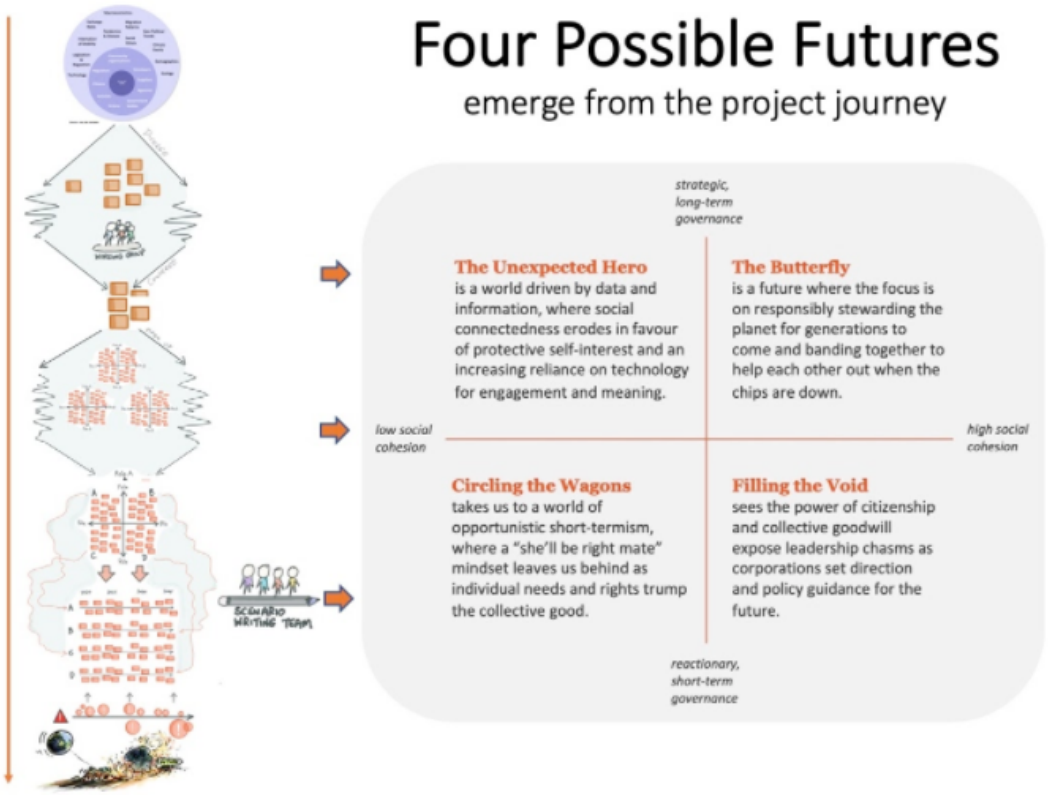
Picture 2: By Simon Kneebone



FOUR POSSIBLE FUTURES

From the scenario methodology and associated scenario team workshops, working group meetings and research, **four distinct yet, plausible scenarios emerged:**

1. **The Unexpected Hero**
2. **The Butterfly**
3. **Circling the Wagons**
4. **Filling the Void**



Each scenario unfolds in a different way that leads to a different future.

Each scenario has distinct and profound implications for the EMS across Australia and New Zealand.

To read the full scenarios, visit www.bnhcrc.com.au/research/climatescenarios.