




Australian Institute for  
Disaster Resilience 

## New guidance for better decisions in complex times:

### Guidance for Strategic Decisions on Climate and Disaster Risk

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Talking Points (developed by Russ Wise, CSIRO)

- This talk is about introducing the Guidance for Strategic Decisions on Climate and Disaster Risk.
- The National Resilience Taskforce developed these guidance materials to support the implementation of the National Disaster Risk Reduction Framework.
  - Acknowledge all those that helped inform the development of the Guidance – The Taskforce VAP, CSIRO and all the stakeholders we engaged with.
- It helps enable decision makers to act in ways that contribute to achieving the Framework outcomes.
- These were informed by the Profiling Australia’s Vulnerability report and by many stakeholders engaged over the year.

RESOURCES:

- <https://knowledge.aidr.org.au/collections/disaster-risk-reduction/>
- <https://knowledge.aidr.org.au/resources/national-disaster-risk-reduction-framework/>
- <https://knowledge.aidr.org.au/resources/profiling-australias-vulnerability/>
- <https://knowledge.aidr.org.au/resources/strategic-disaster-risk-assessment->

guidance/

Other related reports:

- Technical report support the development of the profile
  - <https://publications.csiro.au/rpr/download?pid=csiro:EP187363&dsid=DS16>
- Deconstructing Disaster: the strategic case for developing an Australian Vulnerability Profile to enhance national preparedness:
  - [https://knowledge.aidr.org.au/media/6689/avp\\_nrt\\_report\\_deconstructing-disaster\\_march-2017.pdf](https://knowledge.aidr.org.au/media/6689/avp_nrt_report_deconstructing-disaster_march-2017.pdf)

## The context



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I'll start by briefly touching on aspects of the context that provide the motivation or justification for why we, as a society, need to modify the predominant ways we currently think about, assess and manage risks.

- Firstly, many of the causes of disaster risk are systemic. Monica highlighted the highly and increasingly interconnected nature of our systems and the growing dependence and expectations of our society on these. These trends will increase (as will the vulnerabilities to disruption), because of the many interacting rules (i.e. standards, markets, policies) that are out there, that promote decisions in pursuit of the values of efficiency, optimality, productivity, convenience and profitability, almost at the expense a lot of the time of the values of resilience, redundancy and robustness.
- Secondly, we have substantial numbers of people, assets and economic activities in highly exposed areas to natural hazards. These are largely because of the legacy effects of historical decisions. Yet the exposure and vulnerabilities in these areas is growing because of a two-fold combination:
  1. The positive feedbacks OR self-reinforcing forces associated with developed areas.
    1. Once urban areas are developed, there is path dependency there.

Jobs and services will continuously attract more people and investments in infra assets.

2. Decision making processes can be slow to pick up and reflect the changing nature of hazards.
  1. Think about how long it takes for building codes to change. Currently, existing land-use planning and other decision-making processes to adequately can't adequately account for the uncertain and dynamic nature of natural hazards under climate change. So vulnerabilities will grow.
- Thirdly, is the systemic cause of climate change itself.
  - We know it's changing the existing hazard profiles. Climate change is also introducing new risks.
  - Climate change is a driver or cause of emerging, slow-burn, chronic, insidious risks. These are taking the form of shifts in natural environments, agricultural zones and coastal processes. These environments are shifting and transforming in response to changing climate and weather variables depending on the magnitude of change (increasing erosion, increasing threats of inundation).
  - They increasingly challenge the ongoing sustainability of existing agricultural, resource-based lifestyles, livelihoods and economic activities that we have grown accustomed to – the way these things have evolved or currently are.
  - This will create new tensions and potential conflicts between various stakeholders as many of the things we currently value and take for granted will become increasingly threatened, degraded or lost.
  - We might have to think about some of the values we'll have to let go. It will require difficult conversations – at scales we are not used to making decisions about.

It really does require a more collective, coordinated way of understanding and emphasising what values are really important at the community level.

- If we build walls to protect private assets, we will lose our beaches and coastal ecosystems in those locations.
- This might be appropriate in some circumstances, but it needs to be informed by a strategic decision – and not just an ad hoc response.

So to summarise,

- These disaster risks are deeply uncertain because of their complexity and because they are novel and unprecedented.
- We don't know how our natural /agricultural and coastal systems will change and cannot predict this.
- We don't have tried-and-tested responses we can pull off the shelf.
- We don't have the institutional arrangement in place to enable novel contested responses such as retreat.

And although this all seems a bit overwhelming, the following two videos give me motivation because there are smart, motivated and influential people out there that are already starting to do something about this.

**Ramana James and Georgine Roodenrys:** [bit.ly/DisasterRiskVideos](https://bit.ly/DisasterRiskVideos)

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## The guidance



<https://knowledge.aidr.org.au/resources/strategic-disaster-risk-assessment-guidance/>

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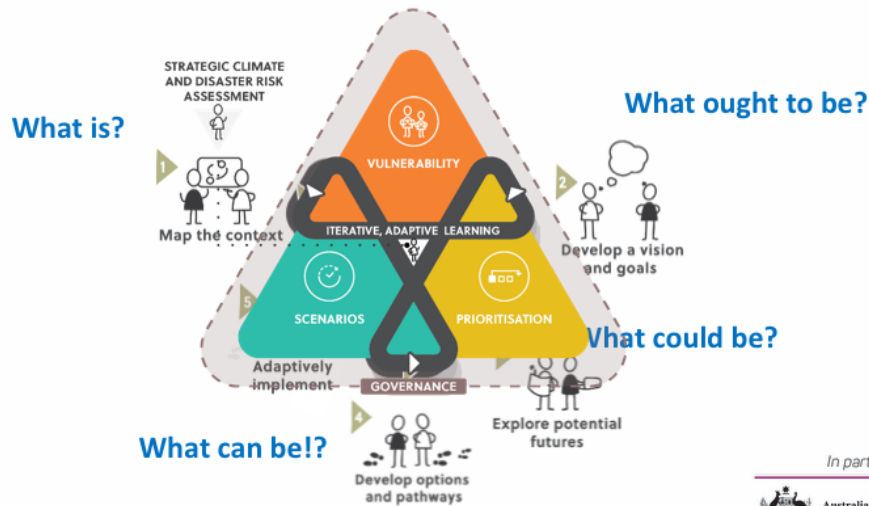
- I'll give you a brief overview of the guidance; which is illustrated by this figure or diagram.
- It's focussed on **strategic longer-term decisions**.
- All of the elements covered in the guidance might not be relevant to you, but hopefully you'll find it interesting and I'd encourage you to download the suite, and have a closer look if this sparks your interest.
- **There are 4 main components to the guidance underpinned by an iterative, adaptive learning approach to decision making. Like systemic risk, the guidance is interconnected.** This is the symbol we use to represent the guidance and its various components:
  - Governance (systemic risks are challenging existing governance)
  - Vulnerability (assessing systemic causes of vulnerability)
  - Scenarios (applying different scenarios for different purposes)
  - Prioritisation (how you identify and evaluate options when the purpose is to reduce vulnerability as well as create economic impact – emphasise qualitative and quantitative dimensions)
- In the context of climate and disaster risks, where the drivers are systemic and consequences uncertain and dynamic, we need to explicitly set out to learn how

systems are changing and how effective our novel responses are in dealing with that.

- The guidance tries to help people bring this culture into decisions and into an organisation.



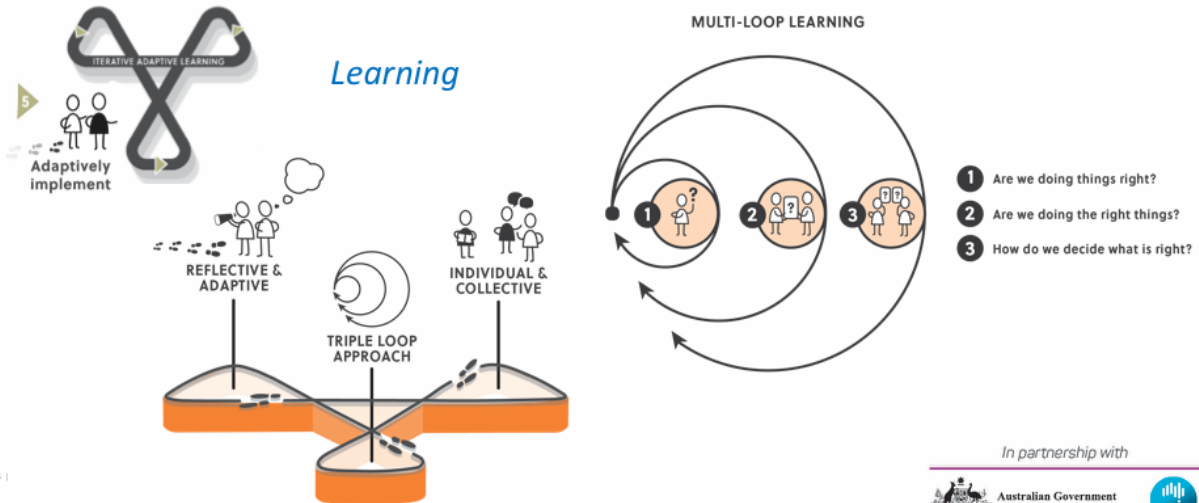
## Adaptive decision making and learning



- The principles and processes of iterative and adaptive learning and decision making, have informed how the guidance needs to be used and applied.
- This process of adaptive decision making and learning involves several important steps or stages [...click button and briefly describe them].
  1. Answering the **'what is'** – in relation to the current context, systems perspective of context.
  2. **"what ought to be"** in the context of large change. Because our goals need to be climate change compatible. We can't keep planning for a future without recognising or accepting it is in the context of large, systemic change
  3. Exploring the **'what could be'** – acknowledging that we don't know what's going to happen. We can't say there is an expected future and optimise around that anymore. There could be a diverse range of possibilities, and we need to plan for that.
  4. Exploring if that's the case, then how do we make decisions today. The **'what can be'**. Making sure don't lock into something, then realise the future is different. It's about minimising regret.
- These stages or steps are generally not easy to adopt or undertake in sequence and are quite messy in practice.

- It is often the case that you will need to repeatedly iterate between steps in order to gradually build the necessary understanding of the system and values in order to answer the questions at each step.
- It can therefore help those involved for leaders within organisations to provide the mandate or licence for employees to have the space and time to do this, and that the enabling organisational processes and cultures are Supported from the top down.
- The fifth step is adaptively implement, and I'll focus more on this step next.

## Adaptive decision making and learning

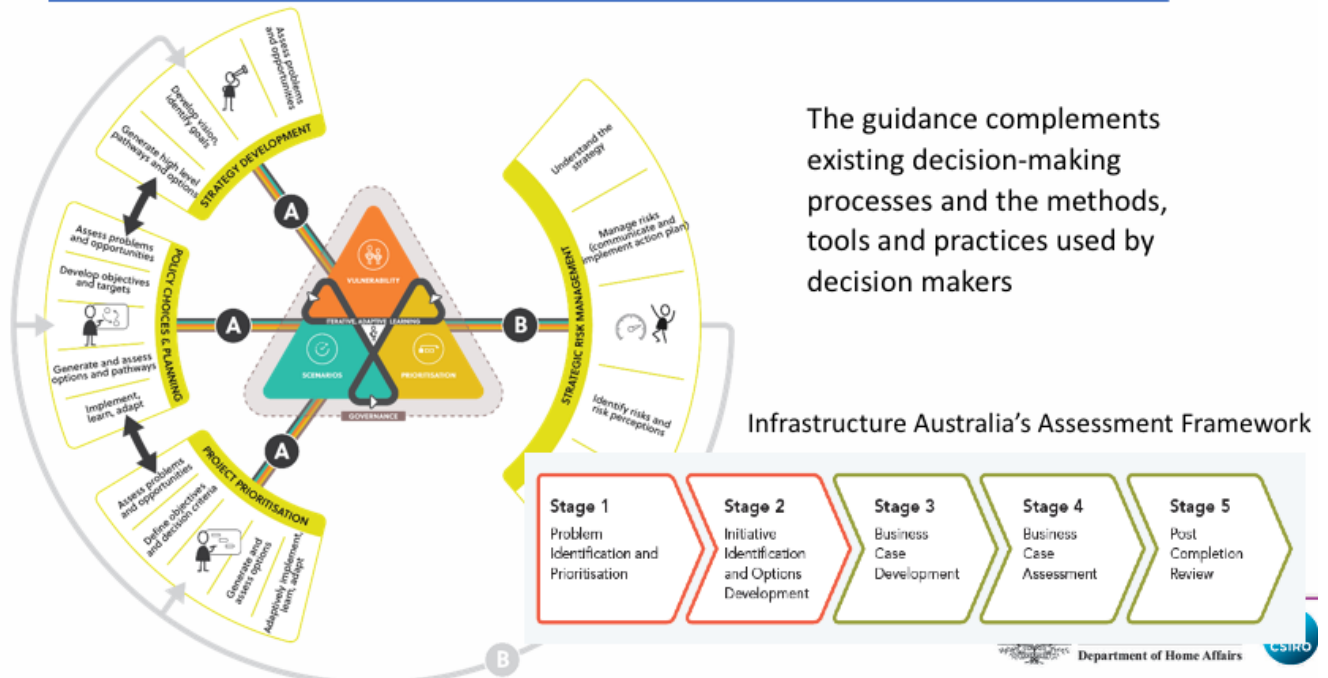


The guidance supports decision makers understand and begin to think about the three elements of learning, and to adopt these practices in their decision processes – especially in being better able to learn about the novel changes and systemic causes of risks and how to iteratively develop novel and adaptive responses.

1. Help people reflect and understand what’s involved in being adaptive
2. To understand the differences in individual learning vs collective learning
3. Introduces the idea of triple loop or multi loop learning approach that I’ll expand on.
  1. The first loop we usually do quite well. **Are we doing things right?** It’s almost like the accountability loop in reporting to make sure we are doing things right. It takes for given the objective is what we said we’d do, and asks can we be held accountable for that?
  2. The problem is that the objective could be fundamentally wrong
  3. So the second loop is **‘Are we doing the right things?’**. The guidance provides the incentive to organisations to start thinking about the second loop.
  4. The third is **‘How do we decide what is right?’**. This is where we come to think about the values at stake, who’s values matter, how do we decide that and talk about that.

This guidance continually prompts asking the additional questions 2 and 3, instead of limiting learning to question 1

## Framing and scope of the Guidance



The guidance complements existing decision-making processes and the methods, tools and practices used by decision makers

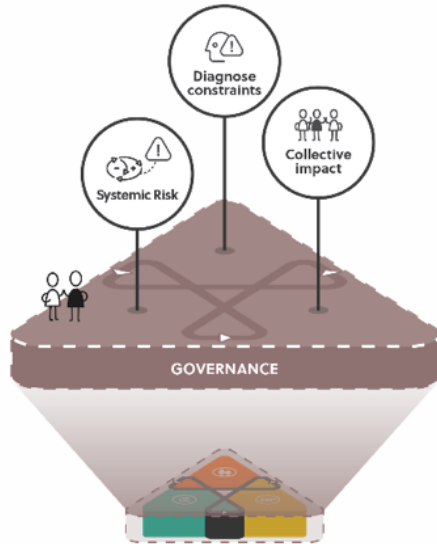
Infrastructure Australia's Assessment Framework

- Some of the feedback we received is that organisations already have their existing approaches and processes for decision (strategy development, planning, project prioritisation or risk assessment). And that in many instances these are highly regulated. This doesn't replace any of that. The guidance has been developed to align with and complement these existing decision processes. It helps organisations that are becoming aware of this to build their understanding to consider climate and disaster risks in their decision processes.
- It is very much focused on the early stages of strategic long-term decision process. Two pathways are identified to help bring this into decision making processes.
  - **Pathway A applies** when using the guidance to inform the development of the strategy of the organisation, policy choices & planning or project prioritisation (i.e. to make sure objectives consider and are compatible with systemic risks).
  - **Pathway B applies** where this has already been done and a **strategic or enterprise risk assessment** is being undertaken in order to assess whether an organisations strategy is able to cope with a systemic risk like climate and disaster risk.
  - **The preferred pathway to using or applying the guidance is Pathway A,**
- Example: Consider IA's assessment framework namely: problem framing and options identification and prioritisation, specifically, iteratively framing the problem, understanding what the options are, and making sure there is a broad suite of options. Although the IA example is provided, this applies to any specific examples of these generic decision processes including: NERAG, the ATAP framework, etc.

[Each component of the Guidance follows].



## Guidance on Systemic Risk Governance



### Systemic risks

Systemic risks are risks that could trigger severe instability or collapse of an organisation, industry, economy or system.

These are often referred to as 'strategic risks' to highlight their relevance to the strategic direction of an organisation, sector or region.

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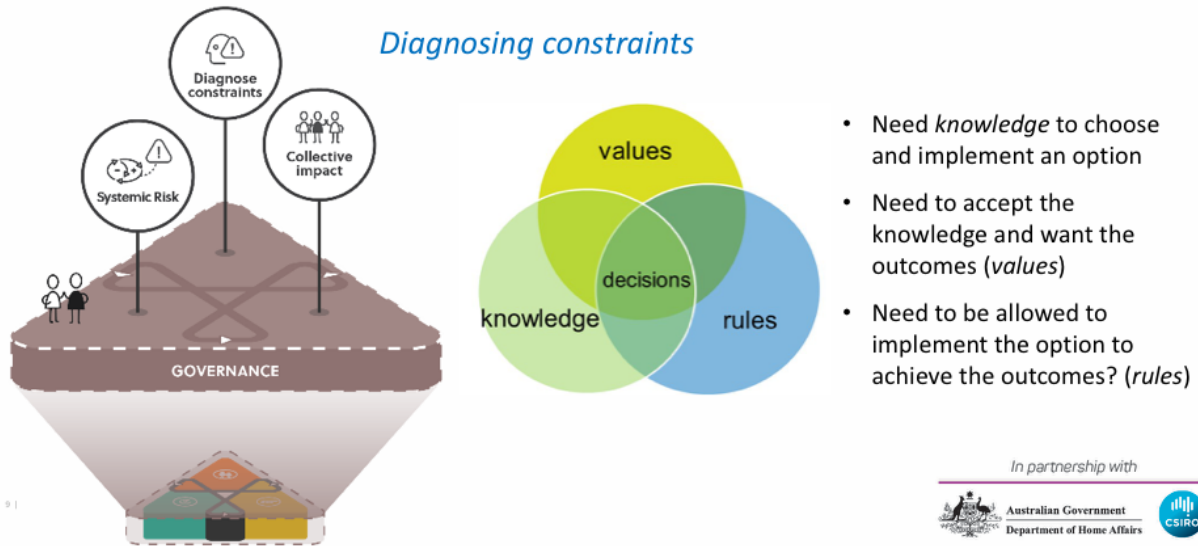
The Guidance on Governance has three main focal points, indicated by the lollipops:

- Systemic risk
- Diagnosing constraints
- Collective impact.

### Systemic risks

- Systemic risks are explained, as well as the difference between systemic risks and 'tame' risks.
- It points out that these risks fundamentally challenge our existing governance, in the way we think about, assess and manage risk

## Guidance on Systemic Risk Governance



### Diagnosing constraints

- The way governance constrains what you can and can't do is explained.
- Guidance is provided in how to diagnose these constraints
- It also provides a framework for how to think and talk about these governance challenges, and a process for collaboratively diagnosing the systemic causes and effects of these governance barriers.
- This is called the VRK (Values, Rules, Knowledge) perspective or lens of the decision context.
- It emphasises that for a decision maker to make legal, legitimate and credible decisions the VALUES, RULES and KNOWLEDGE need to be in alignment:
  - Need knowledge to choose and implement an option
  - Need to accept the knowledge and want the outcomes
  - Need to be allowed to implement the options to achieve the outcome
- If new knowledge comes in, and if people don't accept that knowledge - you won't be able to act on that information
- If there is a new response to deal with a novel risk (e.g. like coastal retreat) and we don't have the rules in place to enable that, and we don't understand the

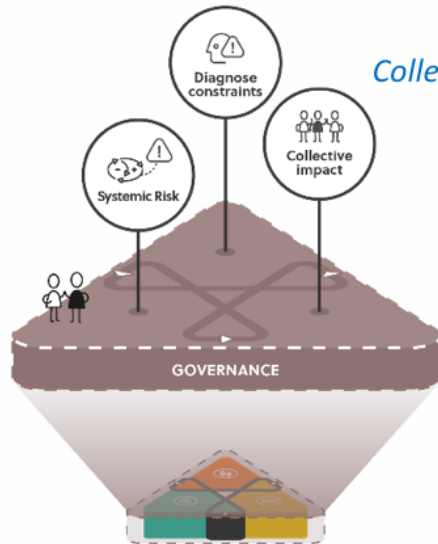
values that are at stake around that - we won't be able to act on that.

- So it points to some of those dimensions about why we can't necessarily act on the information that we know about those risks.
- It also can inform what might be needed to overcome barriers. Do we need to better express values? Do we need to adjust the rules? Do we need to seek new or different forms of knowledge?
- The guidance provides steps to diagnose and overcome them, as a collective. Because you can't do this as an individual.





## Guidance on Systemic Risk Governance



### Collective impact initiatives:

1. Setting a common vision and agenda
2. Working out how to realise this:
  - mutually reinforcing activities
  - shared measurement system, and
  - continual communication
3. Identifying boundary-spanning organisations and networks

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### Collective Impact Initiatives

- As Ramana and Georgia highlighted in the videos earlier - the only way to effectively diagnose and overcome systemic risks is to do so collectively with relevant stakeholders in a coordinated way.
- The guidance explains collective impact initiatives as one method of working together better.
- The work of the NRTF and EMA / NAP can be seen as (or used as) an example of a *collective impact initiative* in practice (how effective it is, is yet to be seen).
  - This has involved:
    1. 'setting the common vision and agenda'. Which is the National Disaster Risk Reduction Framework. It was developed very inclusively across a whole lot of different stakeholders from private sectors, communities, governments.
    2. Beginning to work with relevant stakeholders [as mentioned] to:
      - identify mutually reinforcing activities,
      - develop a shared measurement system and
      - engage in continual communication.

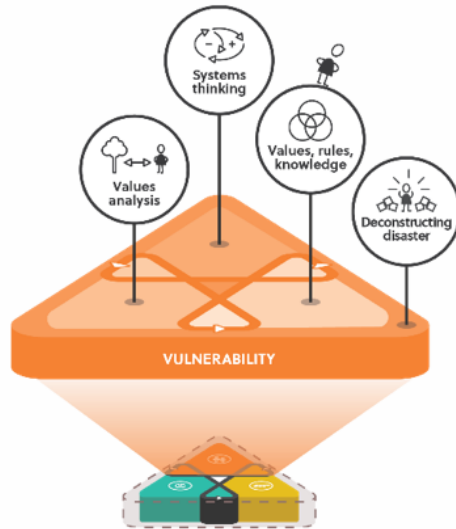
Now this isn't easy to do, and co-ordination and communication is not free, it has

high transaction costs. Coordination is often expected but not resourced - which is the importance of the third point, that Georgia also emphasised:

3. Identifying, developing and utilising boundary spanning networks, organisations and mechanisms.

- This is about brokering knowledge, mobilising knowledge and knowledge translation – diverse types and forms of knowledge
- Making sure we break down the silos, within and across agencies and sectors.
- communication amongst many stakeholders.

## Guidance on assessing vulnerability



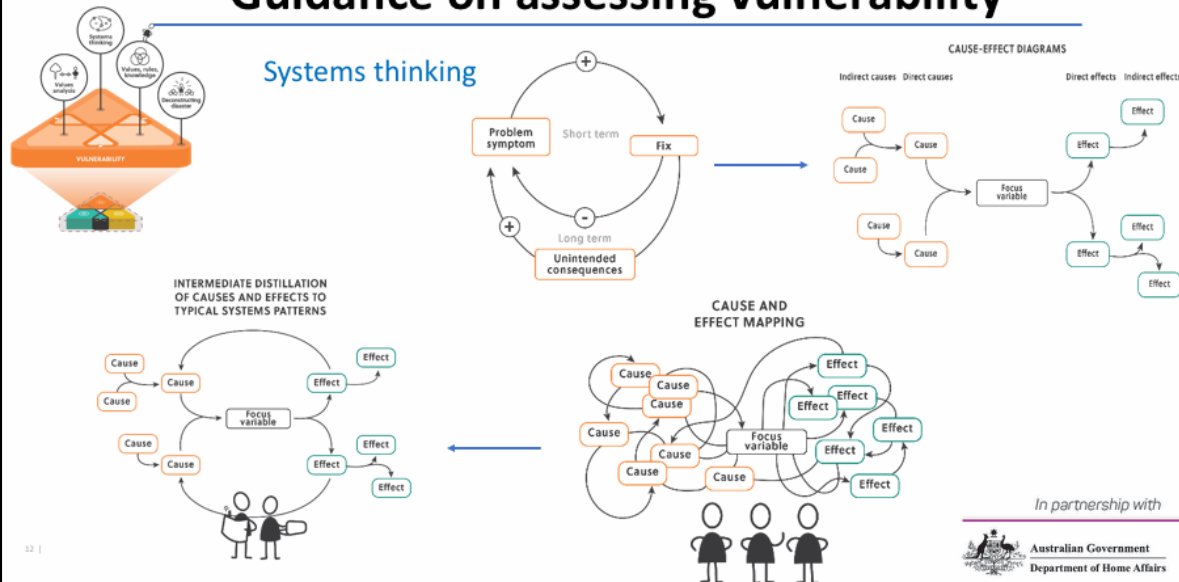
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The main elements in the Guidance on Vulnerability include:

- **Values analysis** – to get better at analysing and understanding values and having conversations about values.
- **Systems thinking** – to get better at understanding the causes of disaster or systemic risks, and mapping systems
- The **values, rules, knowledge** framework – to provide a lens for navigating decisions
- About **Deconstructing disaster** – an inclusive engagement process that packages all this up. We applied this during the workshops.

This guidance focuses on making people aware of, and to help them build their capabilities in 'systems thinking', 'value analysis' and inclusive engagement processes, which we have called the deconstructing disaster approach.

## Guidance on assessing vulnerability



Systems thinking: The guidance highlights the distinction between ‘**complex**’ and ‘**simple**’ systems, and the importance of understanding **what scale** and **what variable** to focus the thinking and analysis on.

- Most of the time, **we identify a problem (or a symptom of a problem) and we try to fix it.**
  - Often, the scale of analysis is the individual person, asset, or organisation and how it’s being affected by change.
- For example: [coastal erosion]
  - If there is no coordinated process that enables a **strategic managed response** to coastal inundation it is likely there will be many desperate reactive individual responses.
  - Along the coast, a home owner might be threatened by increasing coastal erosion, and will take it upon themselves to individually or in small groups protect their homes with sandbags and rocks.
  - It alleviates that problem or **direct risk** in the short term, but it creates unintended consequences for others that were not considered in the initial analysis – the energy is redirected – which can enhance erosion on neighbouring properties or surrounding areas.

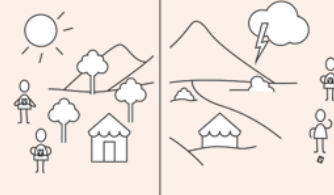
- Further, a problem with building defences is that you start to lose the beach, lose that ecosystem.
  - And over time, this will lead to the loss of public values, and has no guarantee of success.
  - Instead, a **proactive approach informed by a systems analysis of the causes and effects at the appropriate scale** can help inform more coordinated, strategic and collective actions.
  - The risks can be appropriately managed in ways that ensures fairer outcomes where everyone comes out better off than under an uncoordinated approach.
  - The idea is to get outcomes and options that are informed by community values.
  - The conversation might be: **What proportion of our coastline do we need to protect, making sure we have the balance of values important in the regions?**
  - We currently don't know the solutions to these problems, but they will emerge when the right people are in the room.
- So the idea of **systems thinking** is trying to promote, and ask, **'what is the focal variable that we need to make decisions around?'**
    - Then identifying all the various causes and effects of that.
    - The idea is to continually ask 'why' in a sense to tease out what the root causes might be (the underlying causes).
    - In fact, asking why – five times is recommended – to be able to get to the heart of the matter.
    - It gets messy, and not helpful (we had about 80 of these messy diagrams emerging from the AVP workshops),
    - But we can distil this into something we can communicate – and guidance is provided on this.
      - The Profiling Australia's Vulnerability report shares some of the stories we distilled from the diagrams created during the workshop.
      - All diagrams are provided in the technical report.

# Guidance on assessing vulnerability

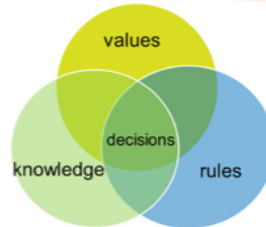


## Values analysis

People value things differently in stable times versus times of disruption



Value relationships and tensions

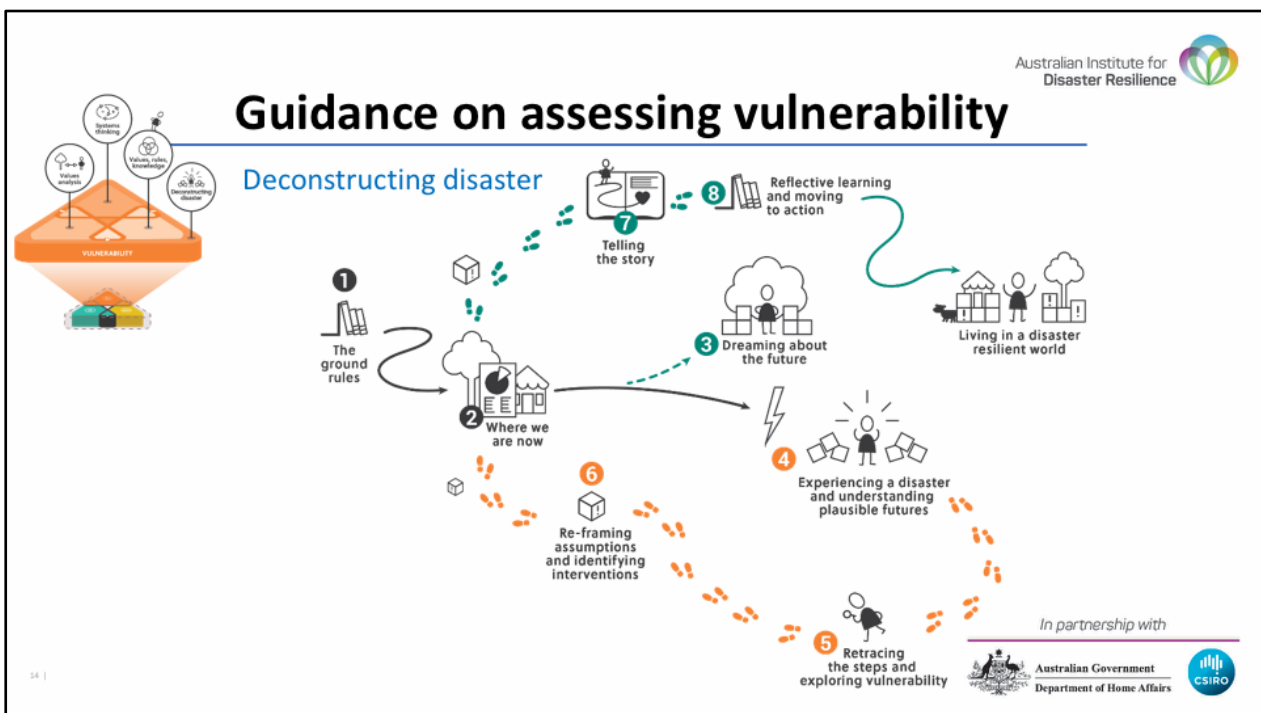


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### Values analysis

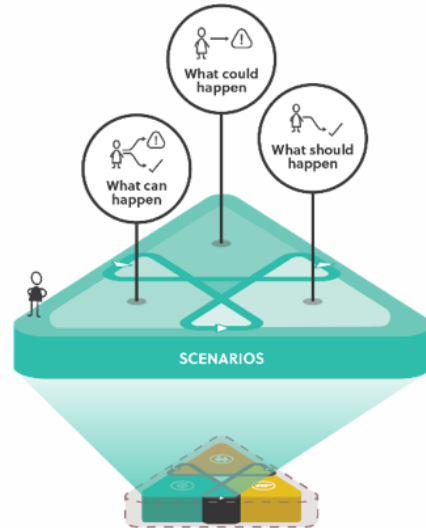
- Values are not independent of context.
- It's the relationship we have with other people, things and processes
- Most people have different values for the same things, or for the different attributes of the same thing
- So there are always tensions between values
- The guidance provides ideas, for how as a group, they can start to be unpacked.
- It emphasizes that people value things differently in stable times vs times of disruption



### Deconstructing disaster

- This is a **structured process** for bringing the kinds of tools I just mentioned into a workshop setting with stakeholders.
- Everyone goes through the process of doing values analysis, systems analysis, option identification and communicating complexity through story telling.
- The workshop process will raise issue that are contested, it will raise emotions, it is confronting, it is scary stuff, it can make people quite anxious.
- The first step in the workshop is **‘establishing the ground rules’**
  - There is advice on how to make sure the environment in which people have come into is safe, allows them to be open, and comfortable to talk about it.
- It provides a structured approach to talk about where we are now (2), where we want to go (3), what will happen if we experience disaster or different futures (4), and what does that mean for what we need to do – in terms of exploring vulnerability and identifying interventions (5,6).
- It gives a basis for going out to tell the stories, to have the narratives to build understanding and support, for what’s being proposed to deal with that (7).
- Stories are a great way to communicate complexity.

## Guidance on scenarios



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Future climate and disaster risks are highly uncertain because they depend on the decisions that society will make about:

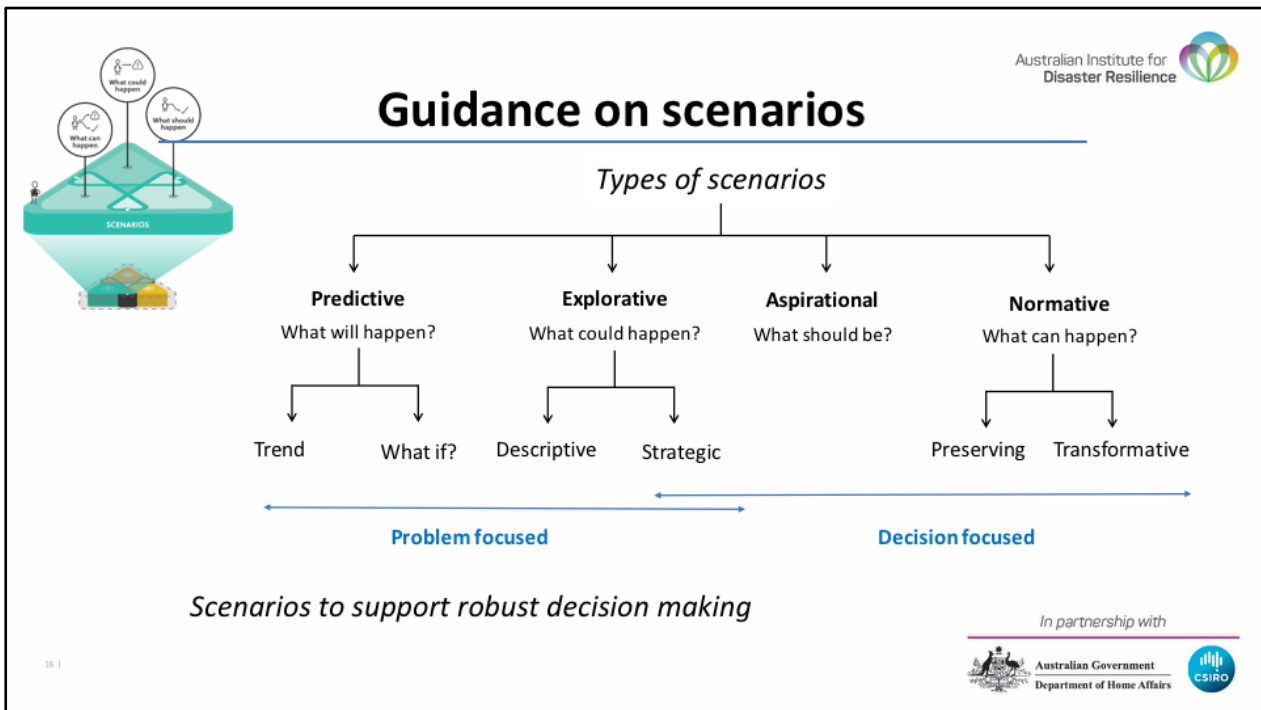
- how we develop,
- where and how we locate people in landscapes, and
- how the complex phenomena of climate and natural hazards will change over time.

There will always be uncertainty and we have to help people make decisions in spite of that.

Applying scenarios can help explore and understand:

- **What can happen**
- **What could happen**
- **What should happen**





This is a chart of different types of scenarios

We haven't given guidance on predictive scenarios – **what will happen**. We already do that pretty well. It's what we've always done. **The problem** is that we start to apply these same techniques to problems with high uncertainty.

What we need to do is to draw on different scenario techniques.

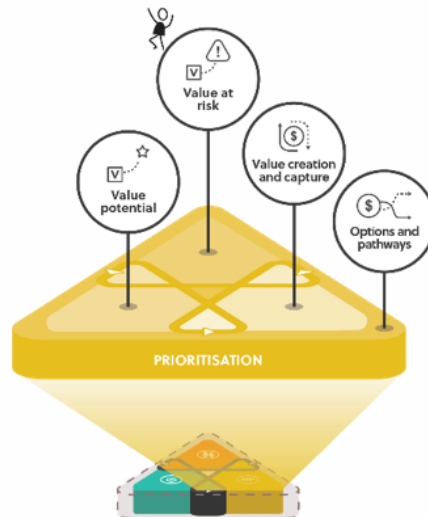
- Different techniques to explore **what could happen**, '**what should be**', and '**what can be**' / **can happen** in the context of exploring options to either **preserve the status quo** or in trying to **transform and shift** the system
- The Guidance also provides information on how to support robust decision making – about finding the options that perform well or satisfactorily across a range of possible futures to essentially minimise regret.
- To avoid making highly regrettable decisions, if the future we expect - doesn't happen.

A shift from

- **“agree-on-assumptions”** approaches to assessing and ranking options contingent on these assumptions to **“agree-on-decisions”** approaches that defer agreement

on assumptions until options have been analysed under many alternative sets of assumptions, expectations & values

## Guidance on Prioritisation



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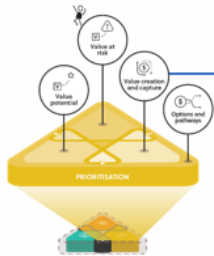


The prioritisation guidance provides:

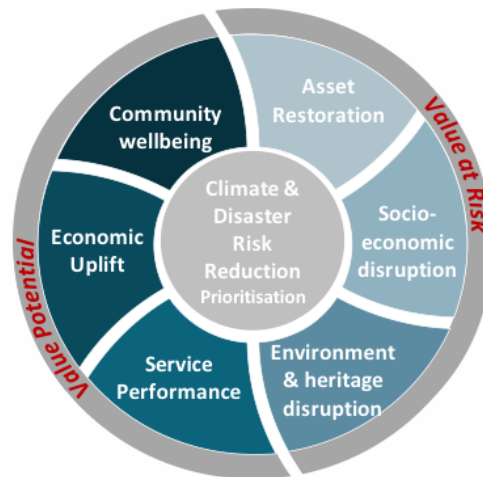
- Justification or explanation of the need for a shift in existing prioritisation approaches to more explicitly account for:
  - impacts on vulnerability as well as economic impacts;
  - the large and irreducible uncertainties around likelihoods and consequences of events and of the effectiveness of interventions; and
  - the necessity of explicitly considering the qualitative nature of most measures of vulnerability
- a Prioritisation Framework for guiding rapid assessments of **options / pathways** for reducing climate and disaster risks or building climate resilience based on assessments of the performance of options at reducing vulnerability and creating positive economic impacts.
- **value at risk** and the **value potential** to focus subsequent more detailed and costly business case assessments;
- A rapid assessment approach to identifying and evaluating opportunities to **create and capture value** from investments in DRR or climate resilience
- Explanations of the limitations of existing predominant or prevailing practices around the use of risk matrices and the use of benefit-cost ratios for basing investment decisions on. Modifications or alternatives to these approaches are provided.

## Guidance on Prioritisation

### The prioritisation framework



**Value potential:**  
- The latent potential for increased value from DRR and climate resilience investments



**Value at risk:**  
- The product of exposure to an event and vulnerability to impact

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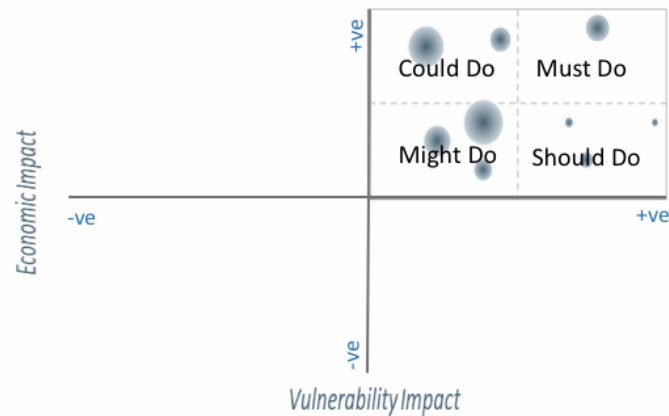


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- It does this by proposing a prioritisation framework.
- This framework (is in a spreadsheet format) to allow rapid assessment of options under different assumptions and scenarios.
- It's a structured approach for users to undertake a high-level prioritisation of options and pathways – at the early stages of options identification and assessment....before undertaking the detailed assessments required of a Business case assessment, for example.
- It explicitly takes account of trade offs between **economic returns** and **reductions in vulnerability** measured in terms of the 'value at risk' (or costs) and the 'value potential' (or benefits).
- It is scenario-based. Users can calibrate the framework to explore various possible combinations of future hazards, exposure, vulnerability and intervention options. They can also test the sensitivity of the performance of options to changes in assumptions (about likelihood, frequency, impact, effectiveness, distribution, etc.).
- It also emphasises the need for qualitative information on the criteria that represent the diverse things and attributes considered important or of value - not just quantitative information (i.e., price and economic values are not the only, or necessary good, measures of value).

## Guidance on Prioritisation

*Mapping outcomes from the prioritisation framework*



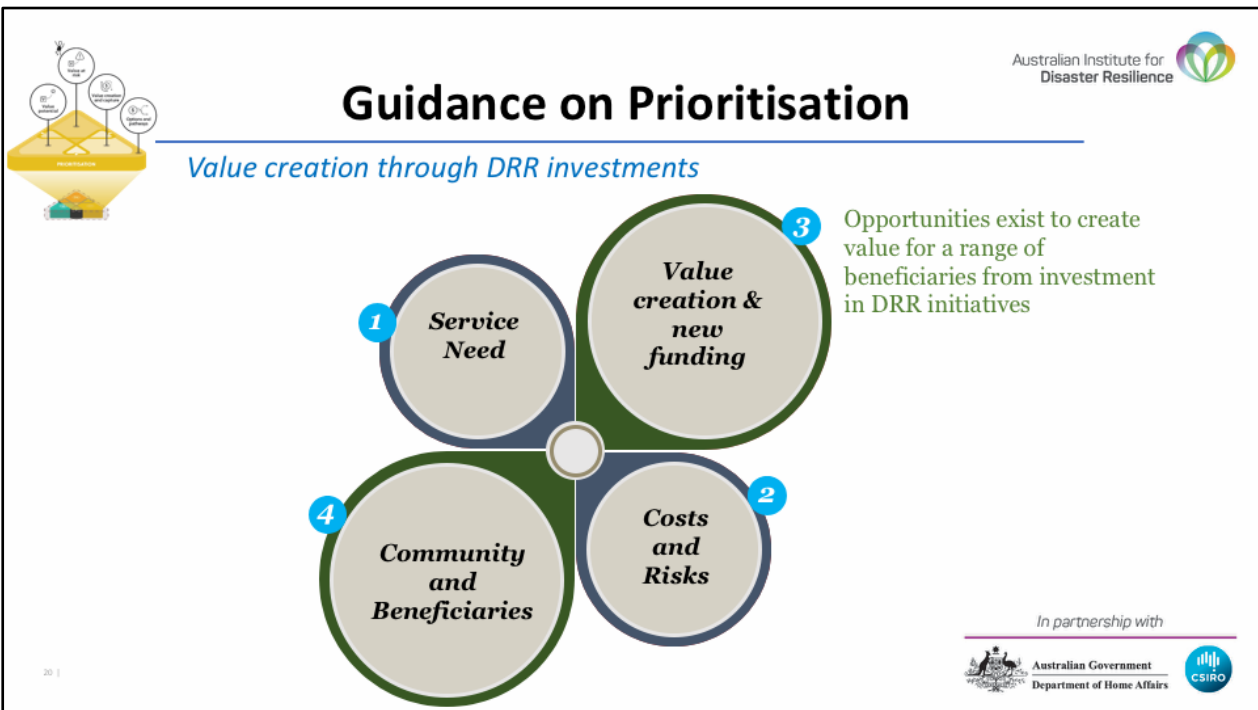
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- Applying this framework allows users or interested and affected stakeholders to map the relative performance of the options (in terms of how they **realise reductions in vulnerability and improvements in economic impact**) as: must do, could do, should do and might do.
- Criteria for assessing where an option falls are provided in the guidance.
- This initial mapping can then be used within participatory deliberative processes to decide on which option(s) need further detailed analysis or modification to improve their relative performance.
- Such an approach is helpful for avoiding the potentially substantial costs involved in undertaking detailed assessments of options and can facilitate learning about novel options required to tackle novel or unprecedented problems.



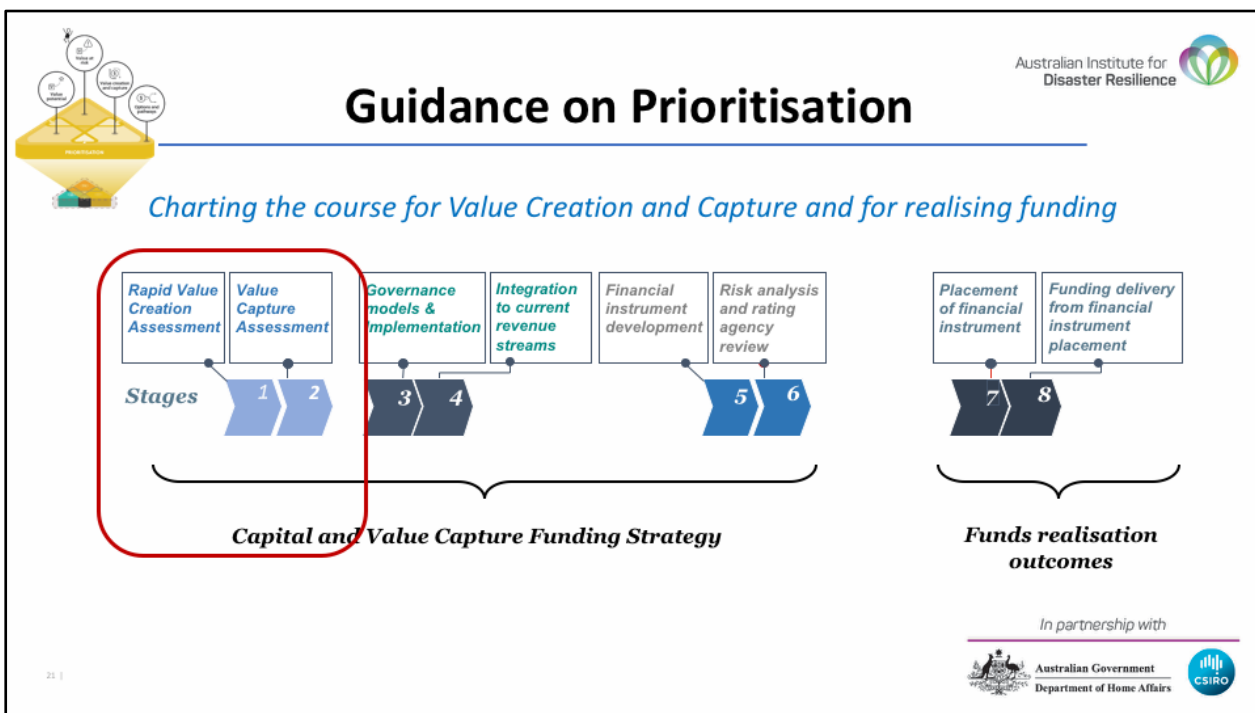
The performance or priority of an option to provide or meet the ‘service need’ of DRR or climate resilience depends on both:

1. its potential to generate/**create value** or benefits AND
2. whether some portion of this additional value created can be quantified and **‘returned to’ or ‘captured by’** those who took the risk and invested in the option (i.e., incurred the costs)

Therefore, the Prioritisation guidance includes guidance on how stakeholders (investors, government and community) can collaboratively and rapidly assess the opportunities for value creation and capture.

Important elements of the value creation and capture approach are illustrated in this figure – which highlights the importance of identifying and all stakeholders understanding:

- who the beneficiaries are,
- what types of benefits they experience,
- whether these can be quantified, and
- finally whether the beneficiaries are willing to pay a portion of the benefits they experience.



Following from the previous slide...

Again, it is emphasised that this guidance is to support the early, high-level, rapid assessment to give a relative indication of the potential to create and capture additional value – before committing to spending too much on a detailed assessment.

The outcome of the rapid assessment “is not something that you can take to the bank, but gives you an idea of the possibilities”.

There are numerous subsequent stages to translating the possible into ‘realisation of funding’, as illustrated in this figure.

The red box highlights the stages of the ‘value creation capture’ process which are covered in the guidance. These first two stages give the rapid assessment of the possibilities. However, need to emphasise this rapid assessment is way short in terms of identifying options that are bankable and what the appropriate governance or business models need to be.

## Take home messages

The drivers of climate and disaster risks (C&DR) are systemic – we need to change how we think about, assess and manage these risks

This means we need to shift from:

- *'learning to do BAU better'* to *'collectively learning to do differently'*
- seeing C&DRs as environmental or EM issues to treating them as central
- delaying decisions due to uncertainty or contestation to building our capacities in systems thinking, values literacy & using scenarios so we can make decisions in spite of this

Acknowledging we are all vulnerable to systemic risks we can begin to act on our immense capacities to collectively overcome these challenges

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### RESOURCES:

- <https://knowledge.aidr.org.au/collections/disaster-risk-reduction/>
- <https://knowledge.aidr.org.au/resources/national-disaster-risk-reduction-framework/>
- <https://knowledge.aidr.org.au/resources/profiling-australias-vulnerability/>
- <https://knowledge.aidr.org.au/resources/strategic-disaster-risk-assessment-guidance/>

### Other related reports:

- Technical report support the development of the profile
  - <https://publications.csiro.au/rpr/download?pid=csiro:EP187363&dsid=DS16>
- Deconstructing Disaster: the strategic case for developing an Australian Vulnerability Profile to enhance national preparedness:
  - [https://knowledge.aidr.org.au/media/6689/avp\\_nrt\\_report\\_deconstructing-disaster\\_march-2017.pdf](https://knowledge.aidr.org.au/media/6689/avp_nrt_report_deconstructing-disaster_march-2017.pdf)