



## Climate Adaptation Research

Science and solutions for Australia and the global community

### Advances in guidance standards for adaptation planning

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(& Chair, Future Earth Science Committee)

Adaptation Futures, Rotterdam, 10<sup>th</sup> May 2016

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## Re-framing our adaptation message

### *From:*

- Disempoweringly complex, all-encompassing, problematic, uncertain and distant

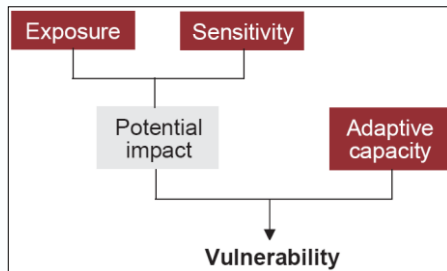
### *To:*

1. **Solutions/decisions**, *not problem-oriented*
2. Decisions **today**, *not in 2070*
3. **Risk management**, *not uncertainty*
4. **Values and institutions**, *not only technical constraints*
5. **Social and economic** implications, *not (only) environmental*
6. **Emergent** challenges, *not (only) local responses*

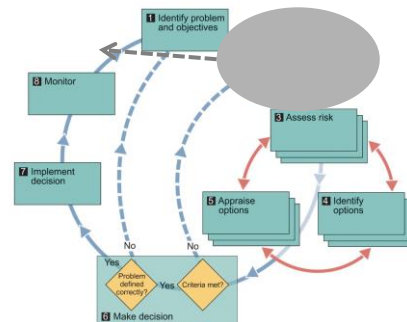
(Stafford Smith, Fortaleza, 2014)



## Problem or solution-centred??



Willows & Connell 2003 UKCIP



## Australian adaptation planning standard – *developing*



- Reviewed ~24 adaptation planning guides and related literature
- Analysed recommended steps and sub-steps
- Identified unusual or more recent features
- If available (not much), explored evaluations



## Key elements of leading practice

- 5-6 basic iterative steps are ~universal, & key sub-steps (n=24)
  - But still expressed in many different ways: **time to get consistent**



## Core steps (whatever you call them)

0. Getting ready to start

1. **SCOPING** – goals, scope, decision areas affected, managing the process

- Getting the right people involved, choosing approaches

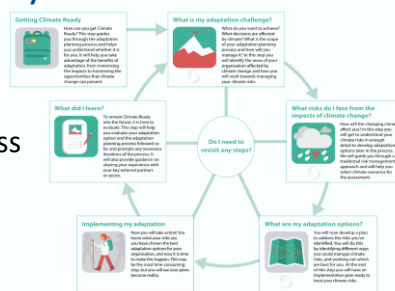
2. **IDENTIFYING** – risks, opportunities, response measures

3. **APPRAISING** – assembling adaptation options, appraising them, developing an implementation plan

4. **IMPLEMENTING** – sign off, timing, actions

5. **MONITORING** – evaluating success, sharing lessons, planning to iterate

- Critical for emergent effects



## Key elements of leading practice

- 5-6 basic iterative steps are ~universal, & key sub-steps (n=24)
  - But still expressed in many different ways: time to get consistent
- Different levels of planning detail
  - Issue evident since 2000s (e.g. 'tiers' in UK-CIP), but not formalised
    - Operational **Cycles of increasing detail: Scan, Portfolio, Project**



## Operational cycles – may be sequential

Cycle:	SCAN	PORTFOLIO	PROJECT
<b>Status of decision maker</b>	First consideration of managing climate risks; poorly defined scope; limited understanding of stakeholders and their expectations		
<b>Intended output</b>	Decide <b>what areas of operations</b> require future planning effort		



# Operational cycles – may be sequential

Cycle:	SCAN	PORTFOLIO	PROJECT
Status of decision maker	First consideration of managing climate risks; poorly defined scope; limited understanding of stakeholders and their expectations	General understanding of the climate risks faced by the organisation, and identified priority areas for attention	
Intended output	Decide <b>what areas of operations</b> require future planning effort	Develop a broad <b>adaptation pathway across affected areas</b> of the organisation	



# Operational cycles – may be sequential

Cycle:	SCAN	PORTFOLIO	PROJECT
Status of decision maker	First consideration of managing climate risks; poorly defined scope; limited understanding of stakeholders and their expectations	General understanding of the climate risks faced by the organisation, and identified priority areas for attention	Strong understanding of climate risks faced by the organisation and related decisions; focus on a previously prioritised decision area
Intended output	Decide <b>what areas of operations</b> require future planning effort	Develop a broad <b>adaptation pathway across affected areas</b> of the organisation	Implement investment in <b>targeted adaptation project</b> (or deliberate decision to delay action)



## Operational cycles – may be sequential

Cycle:	SCAN	PORTFOLIO	PROJECT
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<b>Intended output</b>	Decide what <b>areas of operations</b> require future planning effort	Develop a broad <b>adaptation pathway across affected areas</b> of the organisation	Implement investment in <b>targeted adaptation project</b> (or deliberate decision to delay action)
	e.g. high level regional adaptation plan which identifies sectors or places for more analyses	e.g. portfolio analysis for a company or council, identifying areas for detailed investment planning	e.g. plan for project implementation, may be informal or major project like Brisbane airport 3 <sup>rd</sup> runway

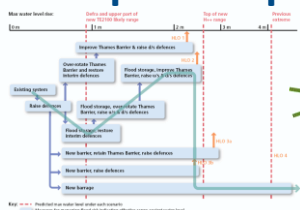


## Key elements of leading practice

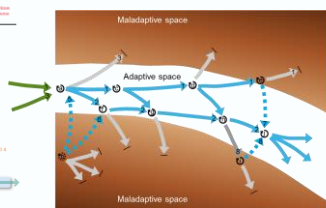
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  - But still expressed in many different ways: time to get consistent
- Different levels of planning detail
  - Issue evident since 2000s, but not formalised
  - Operational Cycles of increasing detail: Scan, Portfolio, Project
    - **Guides what detail is needed in other issues**
- Diagnose problem/context framing better
  - Diagnostics leading to more informed **choice of risk assessment methods**
- Growing **rigour about measures and options, and methods for appraising options** (*per Hinkel, Bisaro, etc*)
  - More availability of registers of risks and measures/opportunities by sector
  - Growing ability to look at systemic risks from value and supply chains, and cross-scale effects; often coming to be recognised as dominant risks
- Firmer guidelines for how to **select climate inputs**



## Adaptation pathways developments...



Thames Barrier: Lowe *et al.* UKMO 2009



Change in biophysical variables over time  
Wise *et al.* 2014, *GEC* 28: 325-336

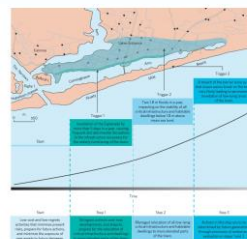
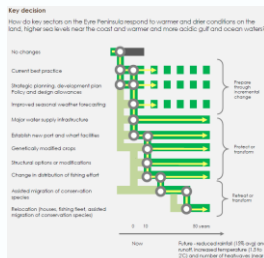


Figure 15.10: Evolution of the proposed flood adaptation pathway for Lake Burragorang, showing the response of triggers, the actions they are likely to effect, and the value of the response.

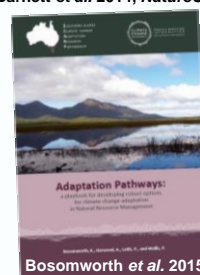
Barnett *et al.* 2014, *NatureCC* 4



Haasnoot *et al.* 2013, *GEC* 23, 485-498



Sieberttritt *et al.* 2014, Eyre Peninsula



Bosomworth *et al.* 2015

## Priorities x cycle

Cycle:	SCAN	PORTFOLIO	PROJECT
<b>Context analysis:</b> social and institutional analysis techniques for barriers (e.g. VRK diagnostic)			
<b>Risk assessment approaches:</b> climate-driven or experience-driven / vulnerability or adaptive capacity			
<b>Choice of climate data:</b> level of detail and diversity			

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<b>Context analysis:</b> social and institutional analysis techniques for barriers (e.g. VRK diagnostic)	<b>Low priority</b> – this cycle emphasises the identification of areas of decision making that need closer examination in the subsequent cycles	<b>Critical</b> - explicitly use to identify barriers to action in each decision-making area of the portfolio; also to appraise all adaptation options	Important but should be <b>already be known</b> ; use diagnostics as part of appraising adaptation option priorities
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<b>Risk assessment approaches:</b> climate-driven or experience-driven / vulnerability or adaptive capacity	Emphasise <b>local experiences, past exposure</b> to climate-related hazards, simplified trends in potential impacts	<b>If</b> resource limited, then emphasise experience-driven approach if context analysis identifies many barriers, <b>else</b> take climate-driven approach; ideally both	<b>For small projects</b> , emphasise experience-driven approach <b>if</b> context analysis highlights many barriers, <b>else</b> take climate-driven approach; <b>for large projects, do both.</b>
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<b>Choice of climate data:</b> level of detail and diversity	Regional <i>summaries</i> for general future impacts and confidence	Regional <i>summaries enhanced by trajectories</i> of main climate variables over time	For bigger, longer-term or contentious projects use <b>detailed projections</b> , else as for Portfolio cycle.



## Selection of climate data x cycle & step

- In Steps 1 and 2, ensure all possible risks are considered by using the 'greatest plausible change' climate information.
- In Step 3, obtain a balanced assessment of whether to act through a balanced understanding of the range of possible futures, to avoid acting either too soon or too late.
- Use greater detail as you move from *Scan* to *Portfolio* to *Project* Cycles

Cycle:	SCAN	PORTFOLIO	PROJECT
<b>Step 1 Scoping</b>	Use regional <i>Summaries</i> for <i>greatest plausible change</i> , to ensure all issues are raised	Use regional <i>Summaries</i> or <i>Trajectories</i> of <i>greatest plausible change</i> to identify relevant decision areas	[N/A usually]
<b>Step 2 Identifying</b>	Use regional <i>Summaries</i> , emphasising ' <i>maximum consensus</i> ', with some sense of uncertainties	Use <i>greatest plausible change</i> scenarios from regional <i>Trajectories</i> : adjust for whether variables change monotonically	Choice of <i>Trajectories</i> or <i>Projections</i> systematically dependent on scale of decision context and style of risk management...
<b>Step 3 Appraising</b>	[N/A: usually qualitative analysis]	Extend the <i>Trajectories</i> used above to the 3-4 that cover the full range of possibilities for this step, allowing for direction of change in variables and your risk tolerance	Level of detail dependent on scale and significance of project – mostly may not need any more data, but some cases require detailed <i>Projections</i> data for quantitative appraisal of options; then risk management and data needs systematically interlinked...

See Climate Navigator at [www.climatechangeinAustralia.gov.au](http://www.climatechangeinAustralia.gov.au), forthcoming





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