

**Climate change,
adaptation,
scenarios:
new conditions,
new concerns,
new concepts**

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The *Scenarios for Climate Adaptation* project

Challenges in climate change adaptation

Contextualising scenarios

Findings and conclusions

Scenarios for Climate Adaptation project

- Vic Centre for Climate Change Adaptation Res.
- John Wiseman, Taegen Edwards, Che Biggs
- Steering committee: Penny Whetton, Roger Jones, Ray Ison, Darryn McEvoy, Barry Warwick

- Aim: to examine use of and potential for scenario approaches to support government CC adaptation planning in Victoria

- Workshops with 60 state and local gov. staff
- In-depth survey (100 responses)
- 20 expert interviews
- 3 critical perspectives papers and seminar

- Report, guidebook, papers by June this year

Many reported challenges in planning for climate change adaptation

What do we need to plan in our sector locations

How do we deal with those who don't want to think about climate change?

How are we acting too soon?

What skills and infrastructure do we need?

What if it turns out we did the wrong thing?

How

How do we integrate everything we need to consider?

What information do we need to base our decisions on?

How do we incorporate new thinking in our current institutional environment?

What are others doing?

What will be the cost of adaptation?

How do we

Who needs to be involved and how do we engage them?

How will we know if we are doing the right thing?

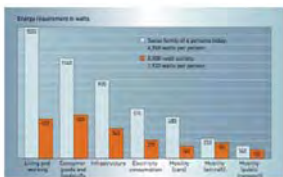
Will our work on adaptation detract from our work on mitigation?

Who will bear the costs of adaptation?

WHO MAKES THE RULES?

Centralized

Functional Green



Power Green



HOW DO WE USE TECHNOLOGY?

Precautionary



We Green

Precautionary

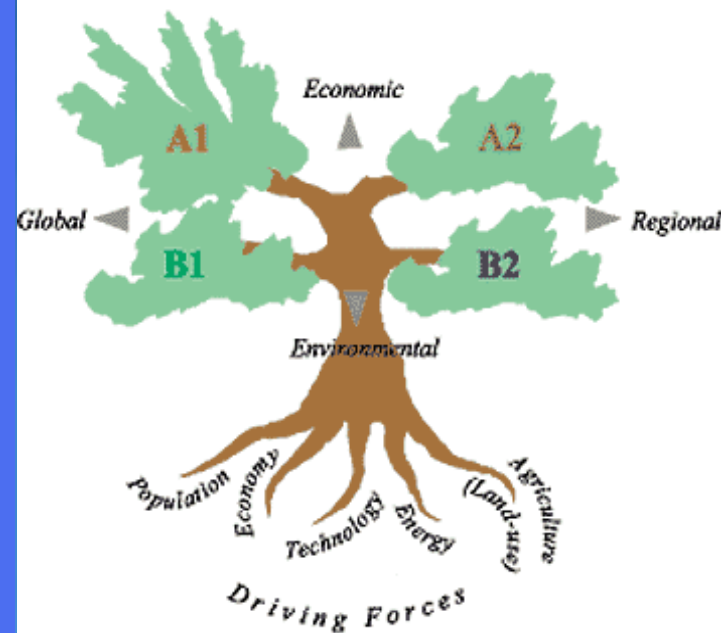


Hyper Green

Distributed

Scenarios:
a set of internally consistent plausible descriptions of the future

SRES Scenarios

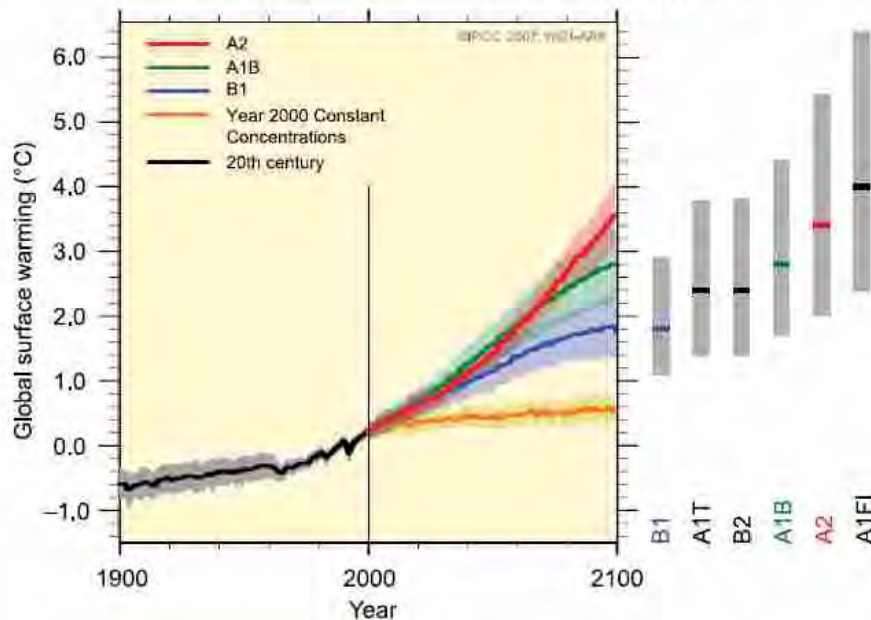


Alternate Scenario Archetypes



Ref: Jamais Cascio, Open The Future

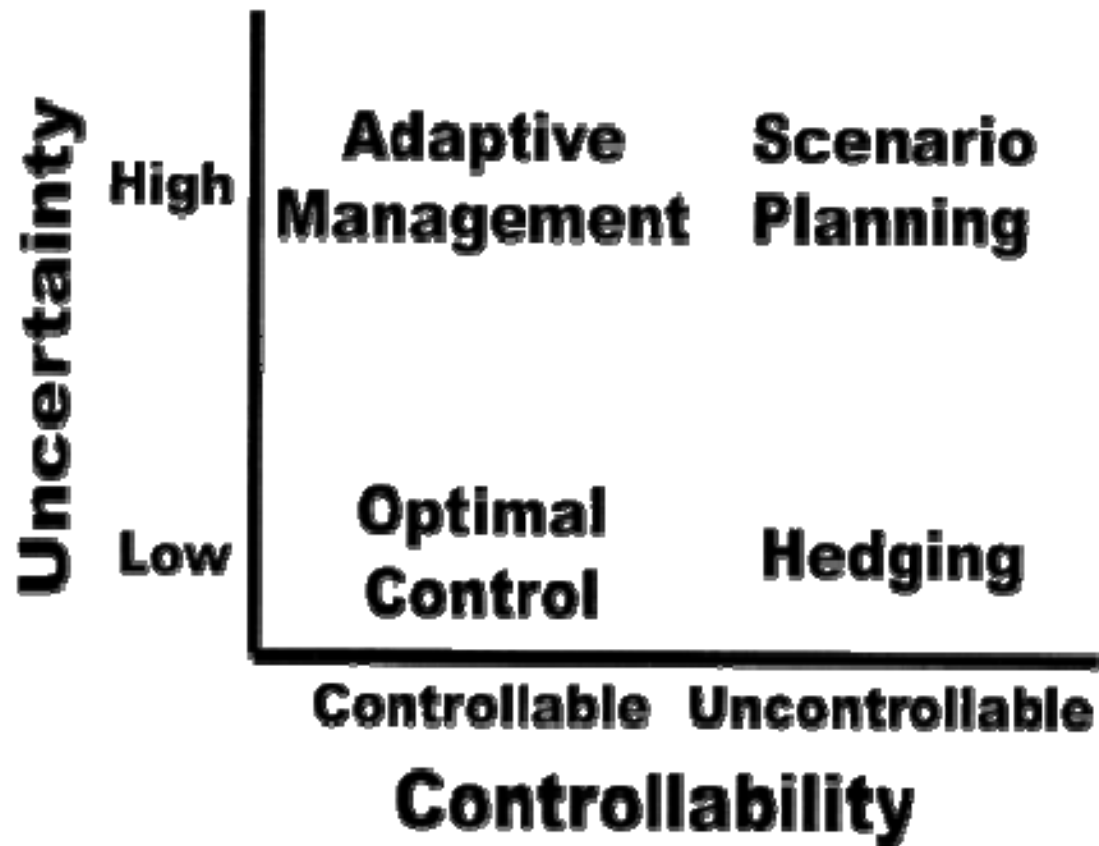
MULTI-MODEL AVERAGES AND ASSESSED RANGES FOR SURFACE WARMING



Prediction's poor cousin?

'While people have a strong desire for prediction, the capacity to predict in complex systems is limited – hence the need for scenarios. If an outcome was simple to predict, then one would use a prediction'

Jones, R. (2010) The use of scenarios in adaptation planning: managing risks in simple to complex settings. www.vcccar.....



Peterson, G., Cumming, G. & Carpenter, S. (2003) Scenario planning: a tool for conservation in an uncertain world, *Conservation Biology*, 17, 358-366.

**Indeterminate
science**



**Participatory,
multidisciplinary
scenario
development**



**Insufficiency
of science
alone**

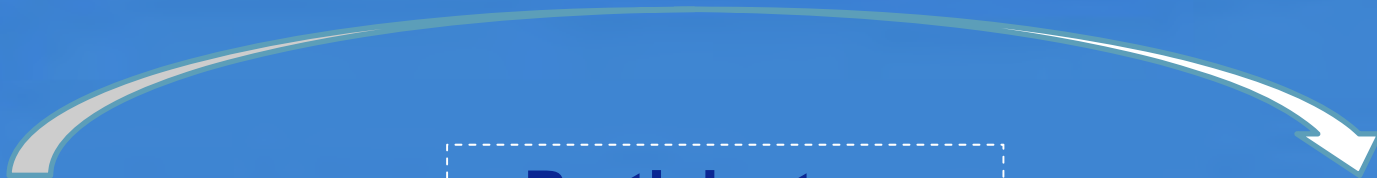
**Indeterminate
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**Participatory,
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**Insufficiency
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Scenarios:

Prediction's poor cousin....

...or from another family altogether?

The purpose of scenarios is to help us *'move away from the "one future" mentality and expose the inherent and sometimes irrational assumptions that lie behind our vision of the future'*.

Braithwaite, C. (2010) Scenario Planning and Sensitivity Analysis, KPMG: Melbourne

The scenario spectrum

Predictions

Projections

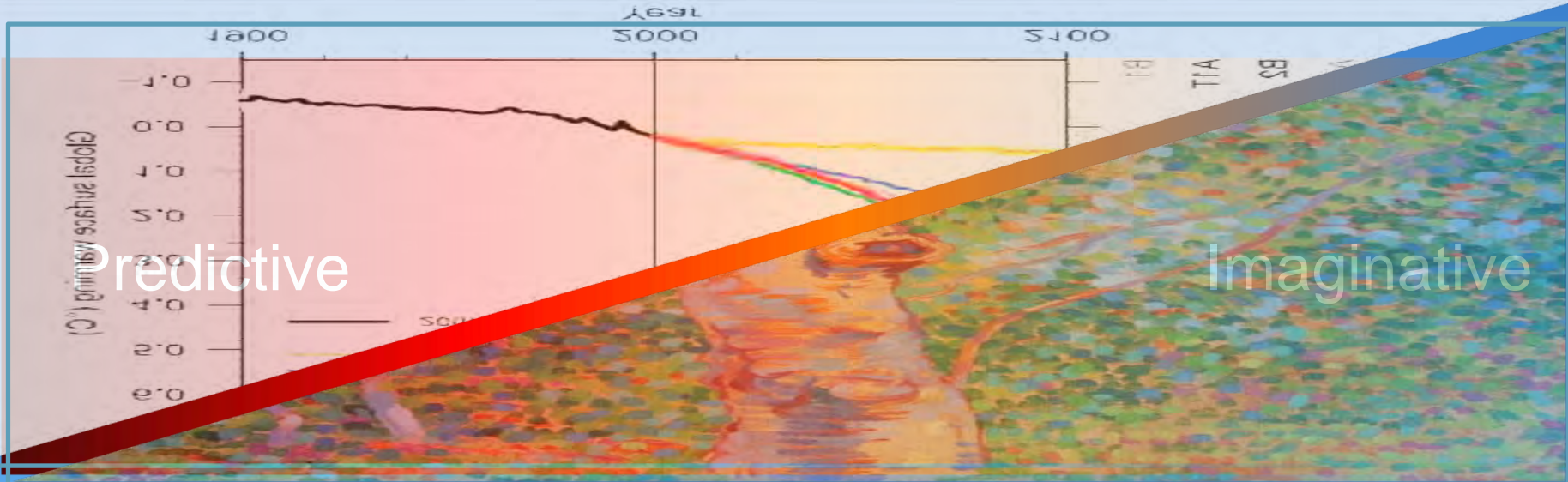
Imagination

Highly bounded

Highly unbounded

Possible but plausible

Scientific knowledge



Other disciplinary knowledge

Non-disciplinary knowledge

The scenario spectrum

Focused question
Short time scale
Detailed output

Predictive

Expert knowledge
Clear uncertainty bounds
Incremental change

General concern
Long time scale
Broad brush picture

Imaginative

Diverse perspectives
Unknown uncertainty
Transformational change

Scenarios

Focused question
Short time scale
Detailed output

Predictive

Expert knowledge
Clear uncertainty bounds
Incremental adaptation

General exploration
Medium-long time scale
Broad brush picture

Imaginative

Diverse & participatory input
Unknown uncertainty
Transformational adaptation

"Imagine the unimaginable"

Scenarios

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"Imagine the unimaginable"

Scenarios

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Predictive

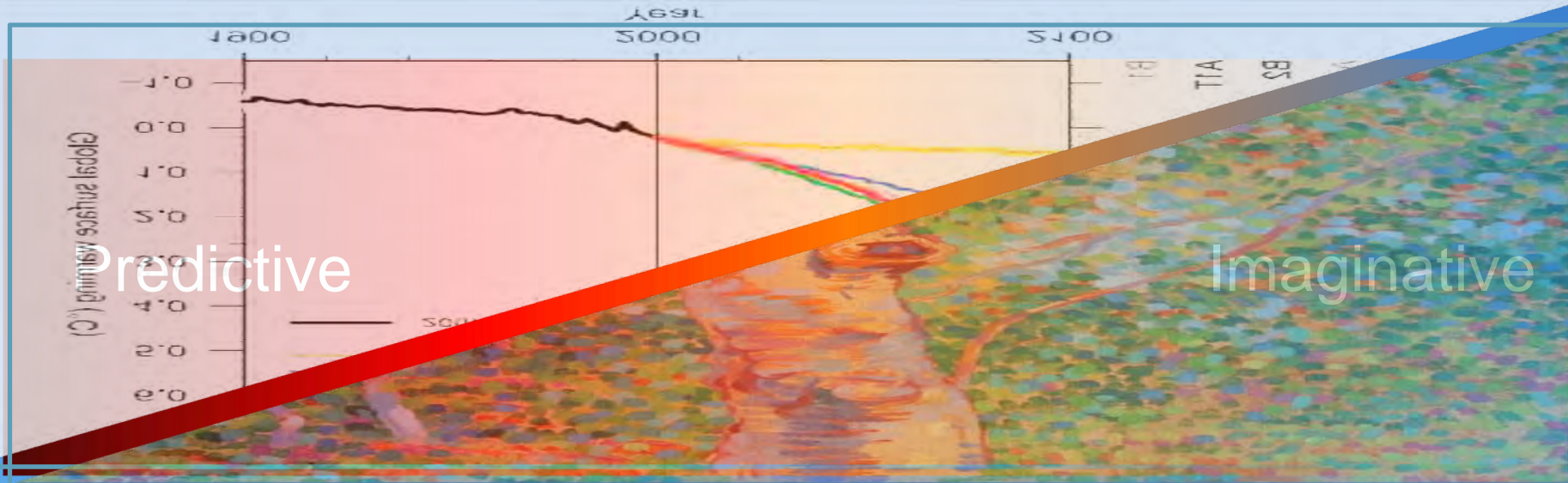
Expert knowledge
Clear uncertainty bounds
Incremental adaptation

General exploration
Medium-long time scale
Broad brush picture

Imaginative

Diverse & participatory input
Unknown uncertainty
Transformational adaptation

Engagement, dialogue, empowerment



Predictive

Imaginative

The future is determined

The future is open

Role of human influence and choice is clear

Frightening? Empowering

Types of scenarios

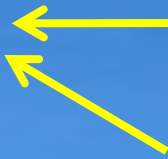
Type	Focus
Predictive	<i>What is likely to happen?</i>
Exploratory	<i>What could happen?</i>
Normative	<i>What do we want to happen?</i>

Borjeson, L., Hojer, M., Dreborg, K., Ekvall, T. & Finnveden, G. (2006) Scenario types and techniques: towards a user's guide. *Futures*, 38, 723-739.

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Possibilities



Vision



Borjeson, L., Hojer, M., Dreborg, K., Ekvall, T. & Finnveden, G. (2006) Scenario types and techniques: towards a user's guide. *Futures*, 38, 723-739.

“Scenarios ... are simply stories of the future that help people make sense of multiple impacts happening in compound ways in times of uncertainty”

Mike McCallum, scenario practitioner

Scenarios for Climate Adaptation study



Examples of the 35 projects identified

Project title	Purpose	Participants
Future Coasts	Inform development of guidelines, tools and policy recommendations; Build stakeholder capacity	Vic Dept of Sustainability and Environment and CSIRO staff
Climate change adaptation strategy and action plan	Inform adaptation action plan	City of Melbourne staff
Rural local government in a climate of change	Deepen understanding; Strategic planning; Integrated regional planning	Members of Alpine and Towong shire councils, North Eastern Greenhouse Alliance
Scenarios for climate change adaptation in the Hamilton region of Victoria	Explore future possibilities; Strategic planning; Community engagement	RMIT Global Cities Research Institute and Hamilton critical reference group; Community members; State and local agencies

Scenarios for Climate Adaptation study

Main findings

- Scenarios being used quite widely across state and local gov
- Starting to be used for climate change adaptation planning
- Are reinforcing the idea that adaptation responses need to be robust to multiple possible futures
- But there are barriers to their use and implementation

Educative

Major benefits reported

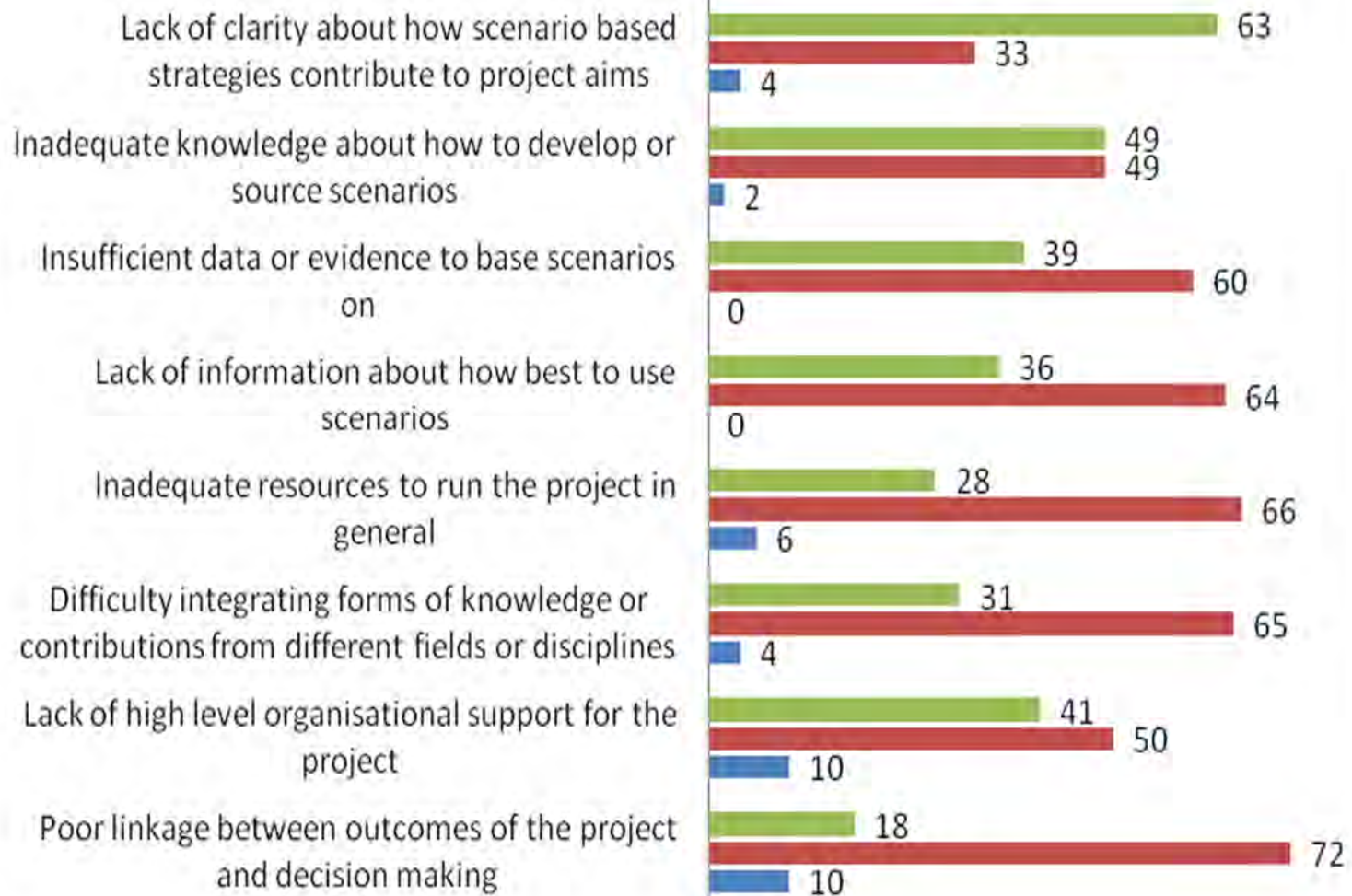
- Greater awareness of climate change and its impacts
- Heightened awareness of need for robust adaptation responses
- Development of interdisciplinary and systems perspective
- Exploration and challenging of values and assumptions
- Development of shared understanding among participants
- New awareness of choices and options
- Process more than output.... “You had to be there”

Motivational

Barriers to using scenario planning for climate adaptation

- Lack of engagement on climate change and adaptation
- Inadequate support or resources to run the project
- Difficulty accessing, assessing and integrating diverse information
- Constraints on developing or incorporating 'out of the box' perspectives
- Poor translation into adaptation decision-making

■ Not a significant problem ■ Significant problem ■ Unsure



Barriers to using scenario planning for climate adaptation

- High level concerns about scenario planning
 - **Credibility** – does it count as evidence for Evidence Based Policy?
 - **Legitimacy** – who is involved? Participation limited but crucial
 - **Saliency** – time scale and breadth of issues, and novelty of ideas,
difficult to translate into near term, single sectoral planning

Conclusions

- Scenario approaches challenge conventional paradigms in sci. & policy
- They are currently most valuable as a metaphor and motivator
- They need to be both: *Open.... but pragmatic*
Comprehensive..... but plausible
- Cross-sectoral, cross-institutional scenario processes with high level buy-in are needed for coordinated, non-maladaptive agenda-setting and policy formulation
- More constrained, detailed scenario planning is needed to identify, test, prioritise and monitor adaptation decisions

Stage of assessment	Research question
Scoping	What is the domain of the area of interest, who will be involved and what methods will be applied?
Identification	What risks do we need to assess?
Analysis	What is their likelihood and potential impact?
Evaluation	Which options best manage those risks?
Management	How do we implement adaptation actions?

Top-down approaches
 Natural science-dominated
 Model projections
 Calculated risk



Perceived risk
 Contextual development
 Social science-dominated
 Bottom-up approaches

At risk_(noun)
 Chance of loss
 Assesses what not to do



Social amplification of risk



To risk_(verb)
 Chance of gain
 Action under uncertainty

Scenarios

Exploratory scenarios of climate change tested on system (top down)

Exploratory scenarios of system under climate change (bottom-up)

Normative scenarios of policy/desired futures under climate change

Adaptation scenarios testing management options

OR
 Reflexive scenarios validated and updated by monitoring and review, involving some or all of the above