

Extending the rational model of decision making in climate adaptation

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Climate change is already underway!



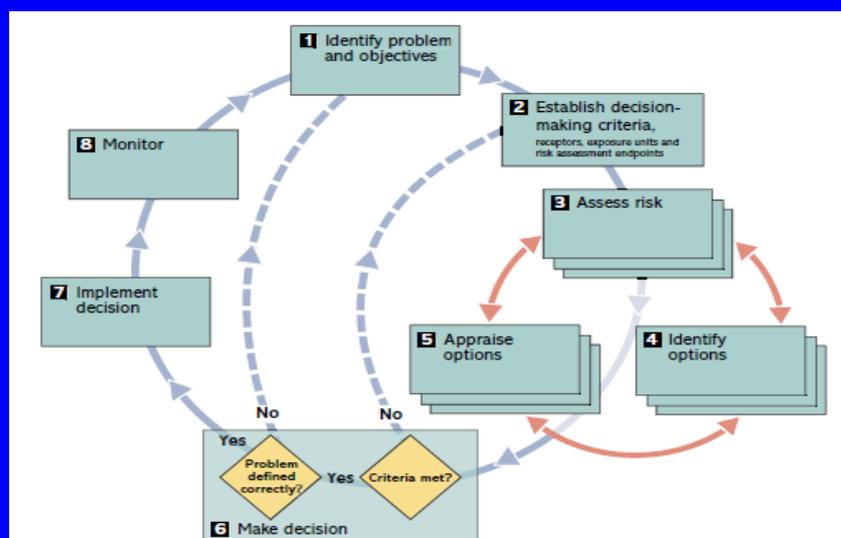
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Adaptation decisions

- **Are faced with:**
 - complexity of climate change
 - uncertainty about the right course of action
 - risks involved in different actions
- **Are helped by:**
 - A plethora of decision support tools

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A sophisticated example of an adaptation decision framework (UKCIP, 2007)



The focus of this presentation:

- Not on how decisions *ought to* be made
- But, on how decisions are *actually* made

- Not to recommend ‘good practice’ about how to make adaptation decisions
- But, to provide a **conceptual understanding** of how people make decisions

- To help achieving more *effective* decisions

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3 Perspectives on decision making

- **Rational economic Perspective**
 - People as intuitive economist

- **Psychological Perspective**
 - People as intuitive psychologists

- **Sociological Perspective**
 - People as intuitive politicians

(Philip Tetlock, 1991)

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The Rational Perspective

- People are seen as utility maximisers
- Their decisions are based on rationally ordered preferences, based on the level of utility attached to, and probability of, each choice

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The logical steps of the rational decision process:

- Define the problem
 - Identify the decision criteria
 - Weight each criteria
 - Assess risk
 - Generate options
 - Rate options on each criterion
 - Compute the optimum option
 - Monitor and evaluate
- (Bazerman, 2001; UKCIP, 2007)

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The mismatch

- People are not always driven by maximising their net benefit
- Their rationality is 'bounded'
 - (Herbert Simon, 1957)
- Rational model hardly matches the *disjointed* and *incremental* processes of decision making

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The Psychological Perspective

- People are not irrational, but their rationality is bounded by their **cognitive abilities**
- People are driven to achieve mastery of their complex **environment** through:
 - *mental shortcuts* or heuristics
 - (Gigerenzer et al, 1999; Calne, 1999)
- These are practical but lead to at least **4 biases**

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Bias 1: in framing the problem

- Treating choices differently depending on the manner in which they are described
- *Cognitive illusion*: people are more risk averse for losses than for gains
- People are *loss* averse!

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Bias 2: in using information

- Giving more attention to information that is more easily *available*
- Putting more weight on memories that are more easily *retrievable*
- *Cherry picking* evidence that prove our points

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Bias 3: in making judgement

- Use our senses to *filter* information
- A useful practice but leads to:
 - **over confidence** about our estimates
 - inability / unwillingness to **update** our judgement
- Over-dependence on *familiar means*

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Bias 4: in evaluating decisions

- *Attributing* good outcomes to our own action and bad outcomes to the factors outside our control
- Having *illusion of control* over the risks of our actions, and
- *Discounting* information which suggests otherwise

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The Sociological Perspective

- People are not irrational but, their rationality is bounded by **social processes**
- People are driven to achieve mastery of their complex **social milieu**
- Social processes influence:
 - how we think, reason, and decide
 - what decisions are considered as *legitimate*

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Influential social pressures

- *Coercive pressure* involves social sanctions
 - *what we have to do*
- *Mimetic pressures* involves imitating others
 - *what others do*
- *Normative pressures* involves values & norms
 - *what we should do*

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Decisions makers are faced with competing demands

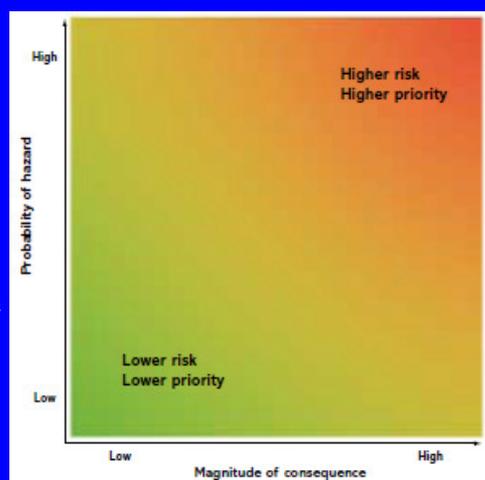
- Social pressures do not always push towards the same direction
- A common coping strategy is to put the emphasis on *procedures* rather than *qualities or consequences*

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Rational Perspective on Risk

- Risk is the combination of the probability and magnitude of a consequence
- It is the product of the probability of occurrence and magnitude of the likely consequence

(UKCIP, 2007:44)



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Psychological Perspective on Risk

- People's perception of risk depends on their:
 - *Fear* of consequences:
 - over-adaptation
 - Perceived *control* over the events:
 - under-adaptation



Peacehaven, Sussex

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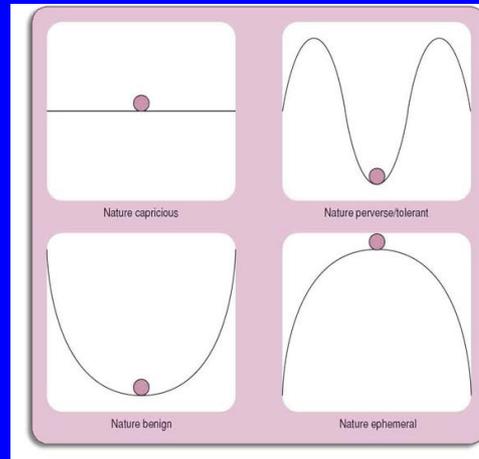
Sociological Perspective on Risk

- Risk as socially constructed
- Different social groups approach uncertainty in different ways (Beck, 1992; Giddens, 1990)
- Faced with unknown risk, people tend to construct it on the basis of their assumptions about how the world works

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Four myths of nature

- Nature as capricious:
 - world as *precarious*
- Nature as benign:
 - world in *equilibrium*
- Nature as ephemeral:
 - world as *fragile*
- Nature as tolerant:
 - world as predictable and *tolerant* of shocks



Schwarz & Thompson, 1991

Adams, 1995:34

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Reactions to climate risks and adaptation

- World is precarious; *Nothing can be done*
- World is in equilibrium; *Nothing needs to be done*
- World is fragile; *Nothing should be done*
- World is tolerant; *Something can be done*

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Understanding decision making

- The insight into different perspectives helps:
 - Paying more attention to the limitations of rational decision analysis
- Decisions tools enhance the reasoning process but, they are used by humans who:
 - Have limited cognitive abilities
 - Operate under social pressures

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Subversion of rational techniques by:

- *Changing* the assumptions
- *Ignoring* the tentative nature of the inputs
- *Filtering* options
- *Framing* the outputs

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What is an effective decision?

- Decisions can be effective even if they do not follow rational processes
 - Intuitions allow us to tap into our tacit knowledge and experience
 - to make effective decisions with less cost & time
- Seeking legitimacy raises the potential for wider acceptability of the decisions

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To sum up ...

- Adaptation policies / measures will be more effective if they are based on a recognition that,
- People are **simultaneously:**
 - Naive economists
 - Naive psychologists
 - Naive politicians

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