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## Communicating the uncertainty of risk estimates to policy makers

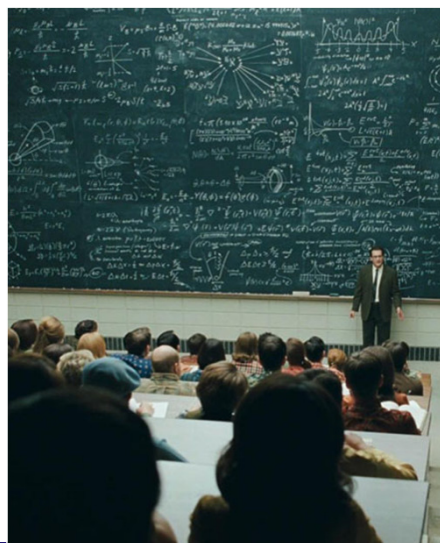
Sir Mark Walport  
Chief Scientific Adviser to HM Government



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## Communication and risk

- Risk and the Government Office for Science
- Challenges:
  - Risk, hazard, uncertainty, vulnerability, threat
  - Values and lenses
  - Communication

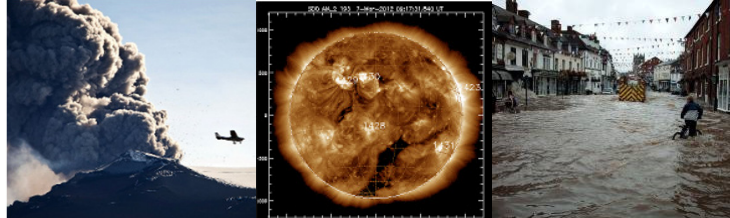




# Where Does Risk Come In?

Assessment and management of risk is at the heart of what GO-Science and the Government does:

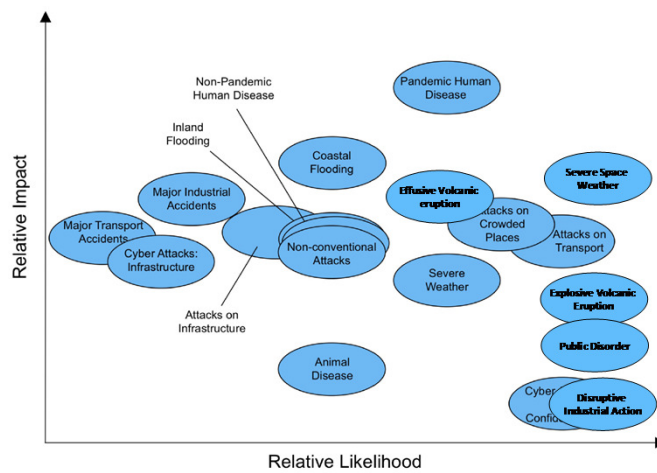
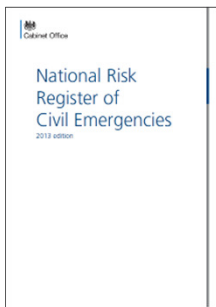
Natural Disasters



Human



# National Risk Register





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## Responding to Risk

Prevent



Mitigate



Manage



Clear-Up



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## Key Concepts



Risk

Hazard

Uncertainty

Vulnerability

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## Distinguishing risk and hazard



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## New technologies: Managing risk, not ducking it

### GMOs

- What organism?
- What gene?
- What purpose?
- The specific application – not the generic technology



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Acts to provide a framework for policy-makers in situations of uncertainty

No single definition of PP - expressed and applied differently by international agreements and organisations



## Precautionary Principle

Interpretation of the EU Communication on the precautionary principle (2000):

- Based on fullest possible **scientific evaluation of hazard**
- Decision to act or not preceded by **risk evaluation** of those hazards and consequences of inaction
- Involves the greatest possible transparency
- Takes into account the principles of risk management (proportionate response, risk-benefit analysis, cost of action or inaction, reviewed in light of new science)



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Challenge of asymmetric incentives to regulators

## Precautionary Principle

Harm can flow from not doing something



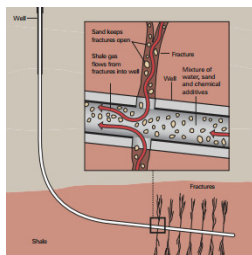


## Fracking

### Scientific concerns

Fossil fuel, engineering and geological:

- Loss of integrity in aquifer zone
- Seismic events
- Methane release



### Understanding public attitudes

Anti-fracking movements are not solely concerned with emissions or the risks of pollution or seismicity: Opposition to continued exploitation of fossil fuels in general

- Opposition to the oil and gas industry
- 'Not in my back yard'



## The policy challenge: Viewing difficult issues through lenses



**74%** of respondents are very or fairly concerned about climate change.

**79%** believe the UK should reduce its use of fossil fuels.

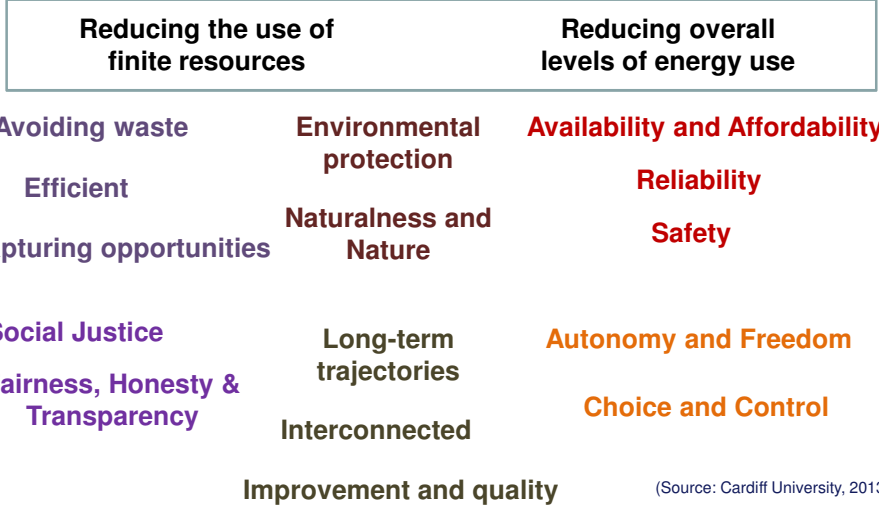
**83%** of respondents are fairly or very concerned that in the next 10-20 years electricity and gas will become unaffordable for them.

**82%** of the British public have strong concerns about the UK becoming too dependent on energy from other countries. Respondents were also concerned about having no alternatives in place when fossil fuels run out (84%), and the possibility of a national petrol shortage (73%) and frequent power cuts (63%).

Parkhill et al, Transforming the Energy System – Public Values, Attitudes and Acceptability, 2013 (UKERC)



## Values and lenses



## Summary: The challenges of risk communication

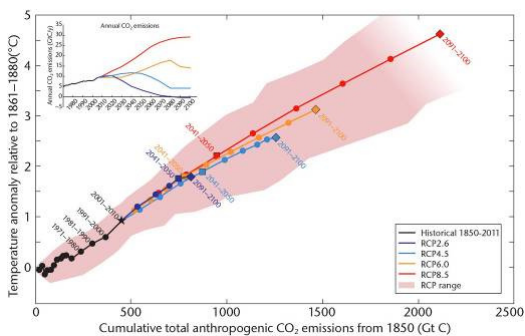
BSE



Pesticides



Climate Change





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## GCSA themed Annual Report

Innovation:  
Managing, not ducking  
risk



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