

Perceptions and Attitudes Towards Climate Change and Adaptation – Evidence and Policy

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Europe Adapts to Climate Change
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The Leverhulme Trust



Overview

- Attitudes Towards Climate Change – What we Currently Know
- Risk in Adaptation Policy – Issues of Communication
- Extreme Events and Awareness of Change

Climate Change

– a Human and Social Problem!

- Key drivers of anthropogenic climate change are *human activities* (e.g. food and heating, transportation, consumption, population growth).
- Solutions are typically new technologies / engineering interventions or economic instruments
- Climate mitigation or adaptation is unlikely to succeed without behavioural changes

Why Perceptions & Behaviour and Matter?

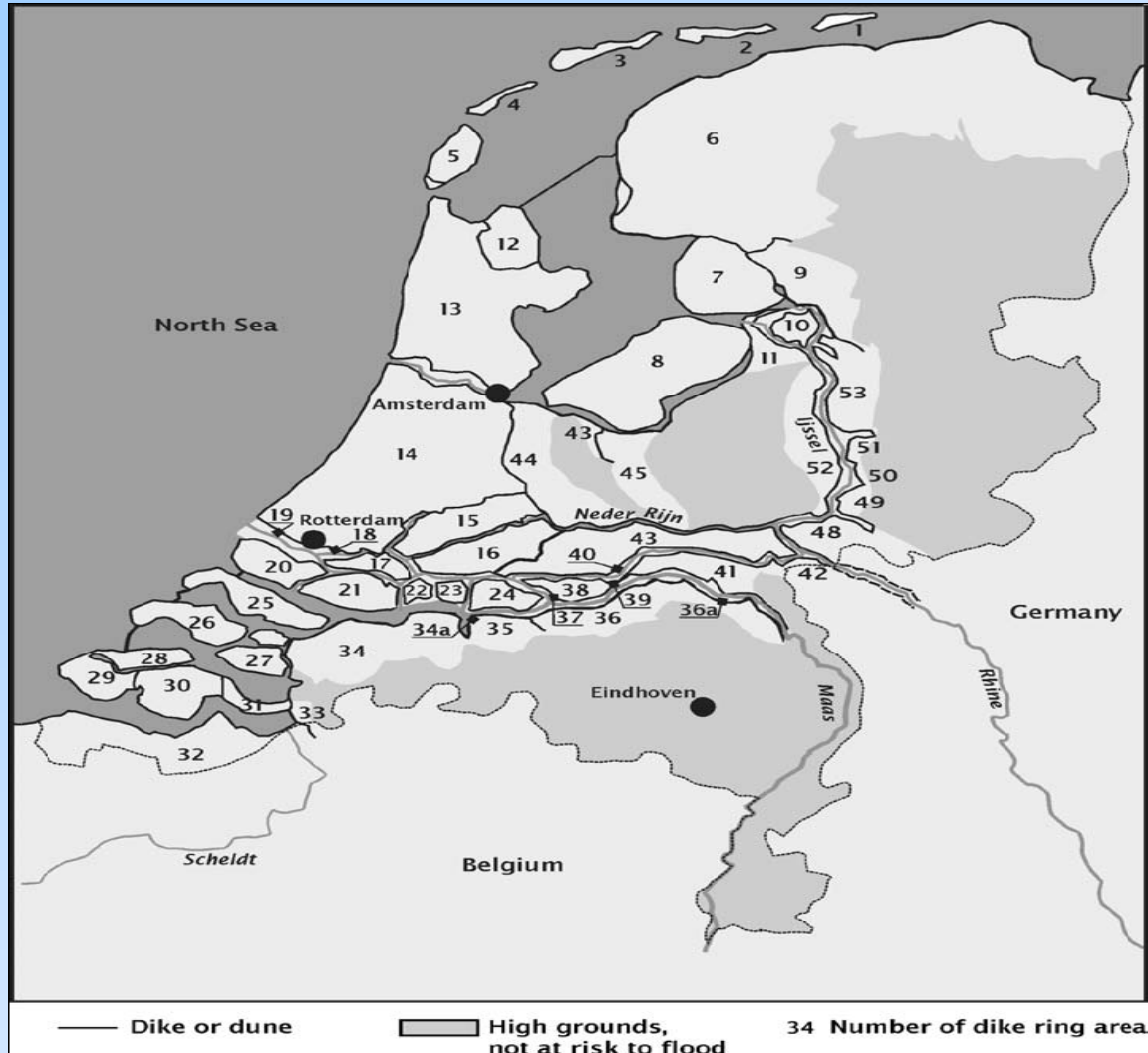
- Some people (still) might not believe the science
- Acceptability of technologies, financial or other climate policy instruments not guaranteed without public 'buy-in'
- Implicit behavioural assumptions in climate policies
 - e.g. uptake of energy efficiency, coastal retreat management
- Perceptions (even when wrong) have real consequences

BUT ALSO (FORTUNATELY):

- Knowledge and attitudes are (sometimes) related to sustainable behaviour

5m Sea-Level Rise – The Netherlands

Source: Olsthoorn, et al (2008) *Climatic Change*.



Climate Change Risk Perceptions

Extensive research has shown:

- *People are concerned* about cc (this is increasing), believe it is happening, but some still think it is natural variation
- *Can confuse cc* with other environmental issues (e.g. ozone)
- View it as a *distant problem* affecting other people and times
- *Recognise the effects* (heat, melting glaciers) but don't connect these with *anthropogenic causes* (energy use, deforestation)
- Many causes (e.g. electricity use) '*invisible*' in everyday life

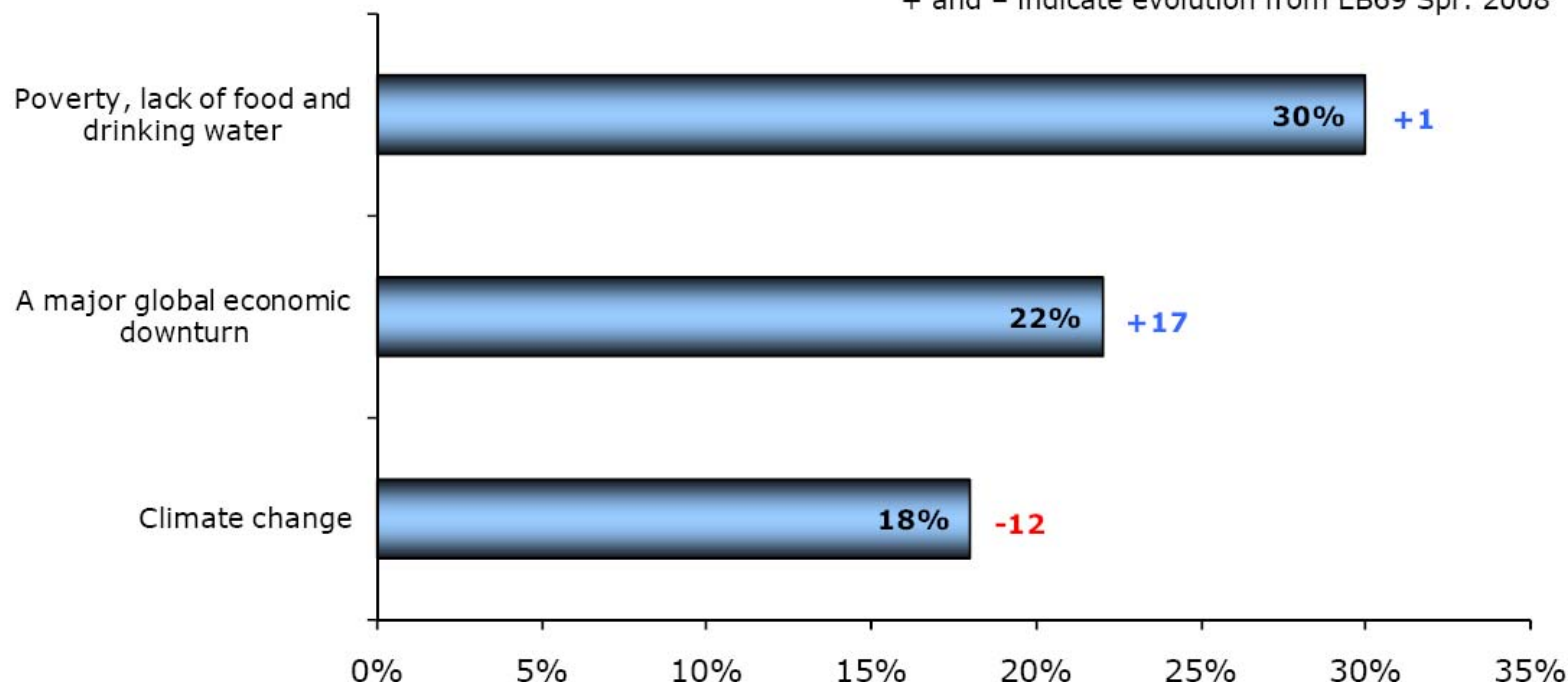
Lorenzoni and Pidgeon (2006) *Climatic Change*, 77, 73-95. Lorenzoni, Pidgeon and O'Connor, R. (2005) *Risk Analysis*, 25, 1387-1398.

Seriousness of Climate Change (2009)

Special Eurobarometer 313 – European Attitudes Towards Climate Change

QE1a In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole? Firstly?
% EU

+ and - indicate evolution from EB69 Spr. 2008


































Seriousness of Climate Change (2009) Special

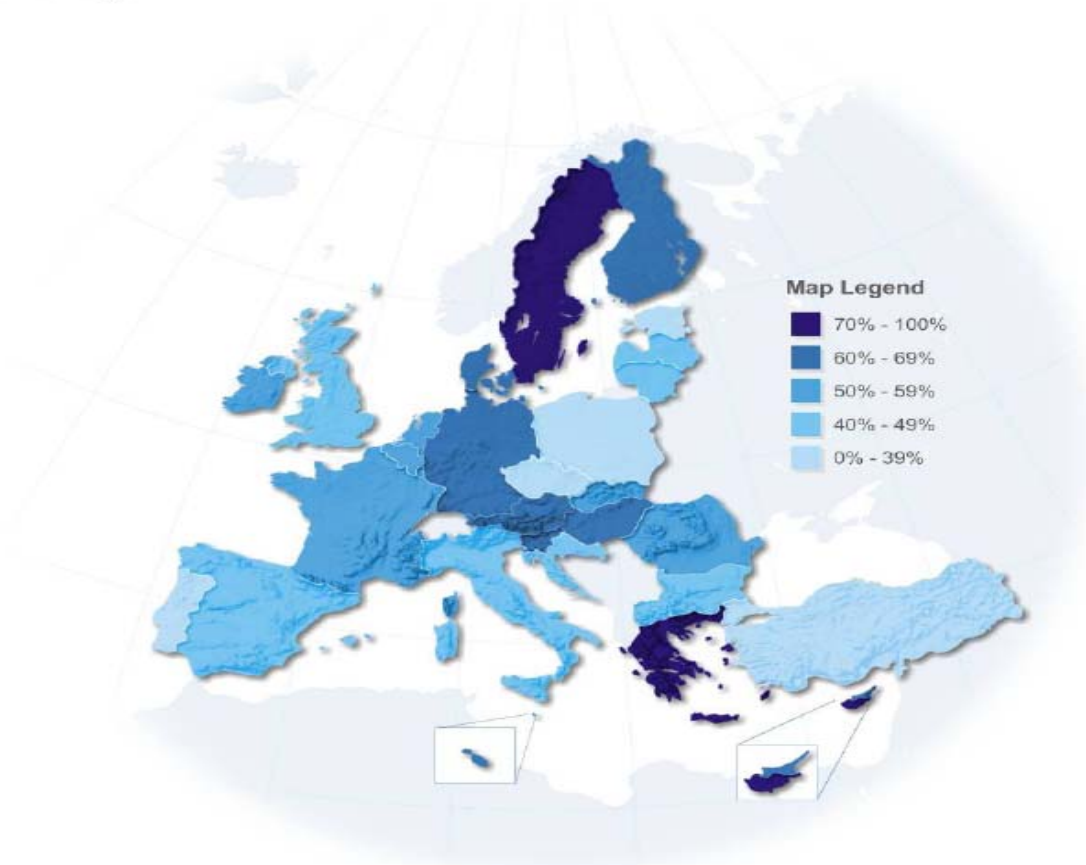
Eurobarometer 313 – European Attitudes Towards Climate Change

Question: QE1. In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole?

Answers: Climate change

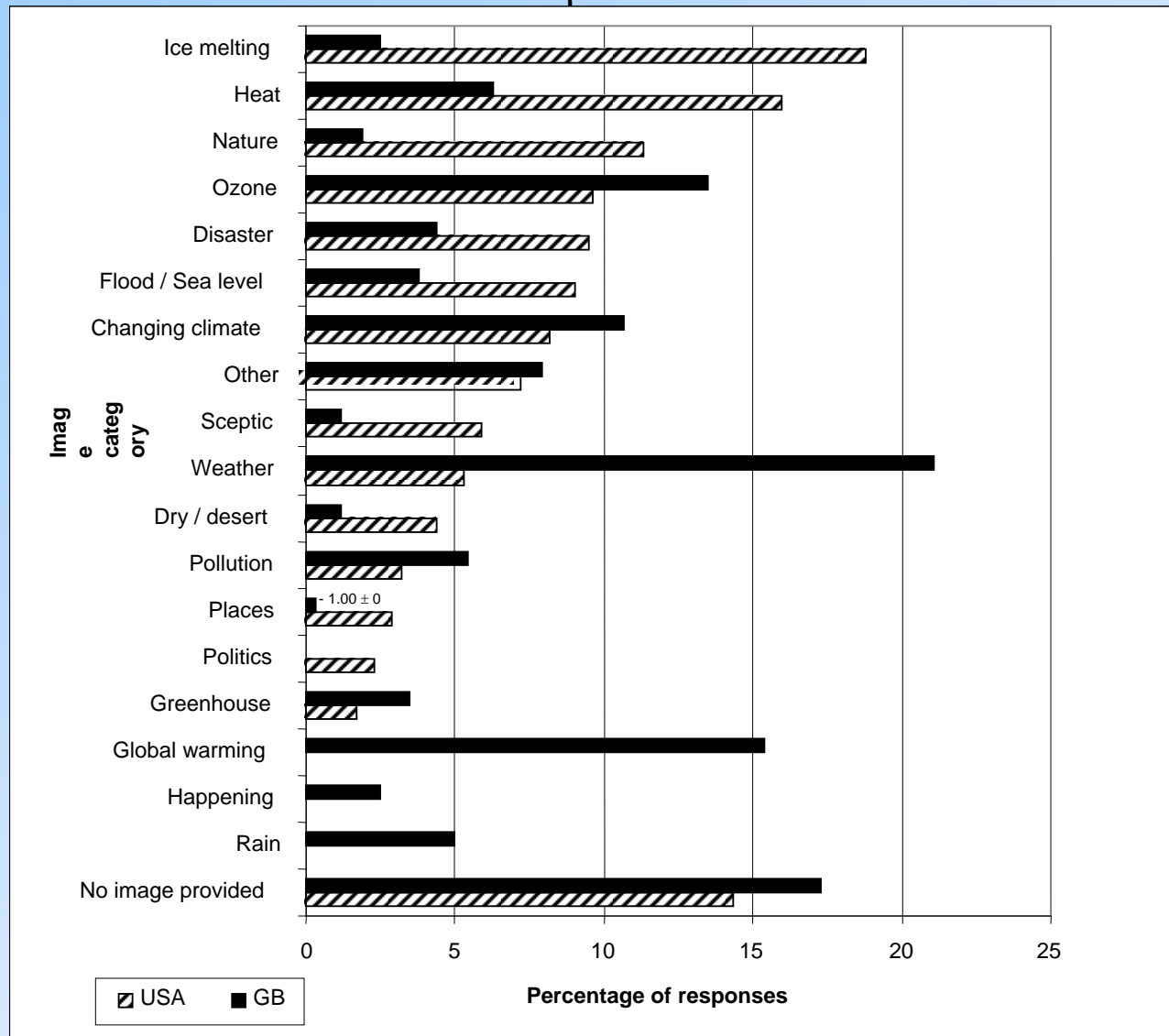
 SE	82%
 CY*	76%
 EL	71%
 FI	67%
 DE	65%
 DK	64%
 AT	63%
 HU	61%
 MT	61%
 SI	61%
 IE	58%
 NL	57%
 BE	54%
 LU	54%
 SK	53%
 FR	51%
 RO	51%
 EU27	50%
 LT	47%
 UK	46%
 ES	44%
 LV	43%
 BG	43%
 IT	41%
 EE	37%
 CZ	33%
 PL	33%
 PT	30%
 HR	46%
 MK	42%
 TR	32%

* CY (top) = 61%



Images associated with Global Warming (US) and Climate Change (British)

(Lorenzoni et al (2006) *Journal of Risk Research*, 9(3), 265-281.



Do you think the world's climate is changing, or not? (GB, 2005, n=1491)

91% Yes

4% No

5% Don't know

What do you think is causing the world's climate to change? (%)

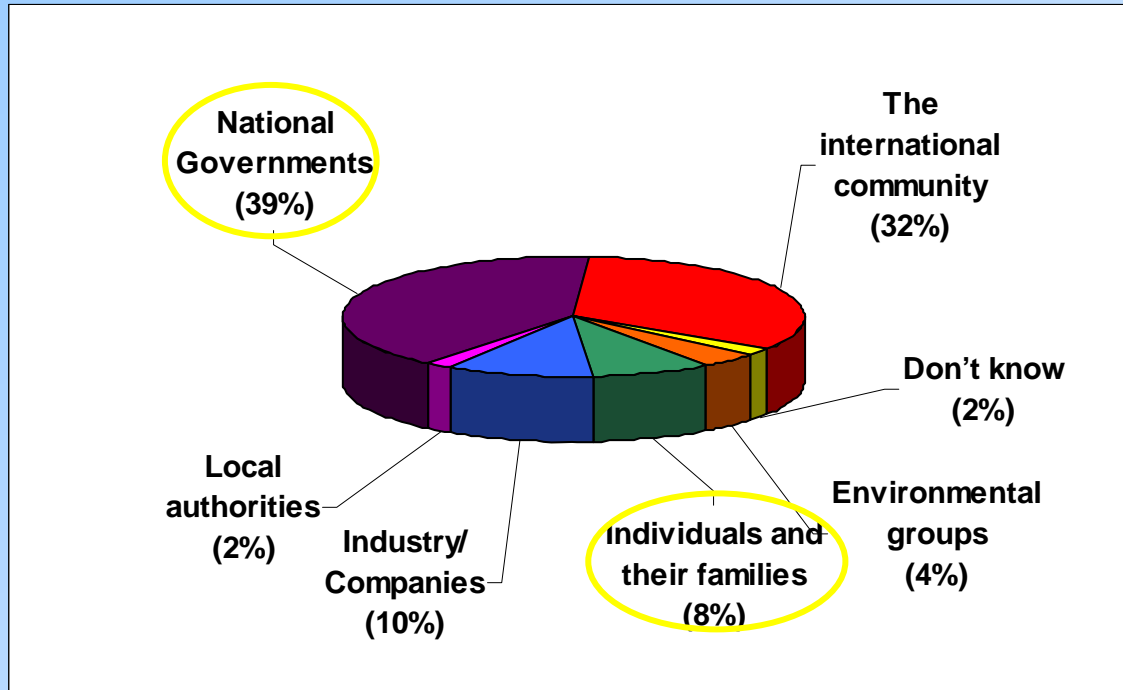
Air pollution	39
Cars / planes / transport	31
Burning fossil fuels, such as coal and oil, from power stations	29
Industry / factories / emissions from factories	19
Loss of ozone layer	19
Global warming (unspecified)	17
Deforestation / logging / clearing of rainforests	15
Carbon dioxide	15
Man – made (unspecified)	13
Burning trees / forest fires	10
Natural causes (unspecified)	9
Oil / gas / coal emissions	9
Nuclear power	5
Other	21

Barriers to Engaging With Climate Change

Lorenzoni, Whitmarsh and Nicholson-Cole, *Global Env Change*, 2007

- Lack of knowledge
- Uncertainty and Scepticism
- Distrust in Information Sources
- Externalising Responsibility
- Distant Threat
- A Marginal Threat
- Fatalism and Helplessness
- Lack of Political Action
- Lack of Business Action
- Worry about Free-riders
- Social Expectations (e.g. to consume)
- Lack of Enabling Initiatives

‘Which one, if any, of these do you think should be mainly responsible for taking action against climate change?’



(GB, n=1491, 2005, Source Poortinga, Pidgeon and Lorenzoni, 2006)

People see others as responsible, consistent with other research. Also sets a dilemma as people also tend not to trust these institutional actors.

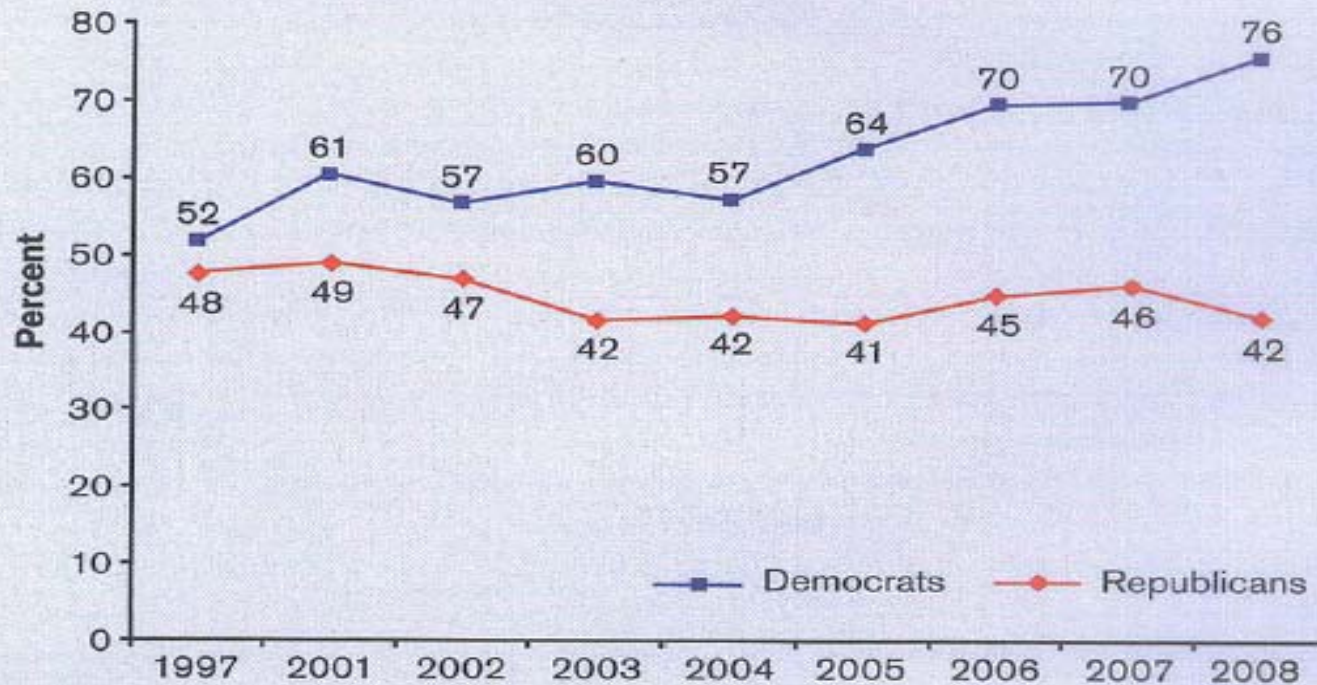
Climate Governance Trap

- Western democracies in particular face a governance trap.
 - People see politicians and policy makers as primarily responsible (because they reason the problem is too big for them to resolve alone) hence are not impelled to act
 - In turn politicians want people to act, while at the same time cite the electoral cycle as a reason why they will not impose what they see as unpopular environmental measures

US Beliefs on Climate Change by Political Party (Gallup Polls)

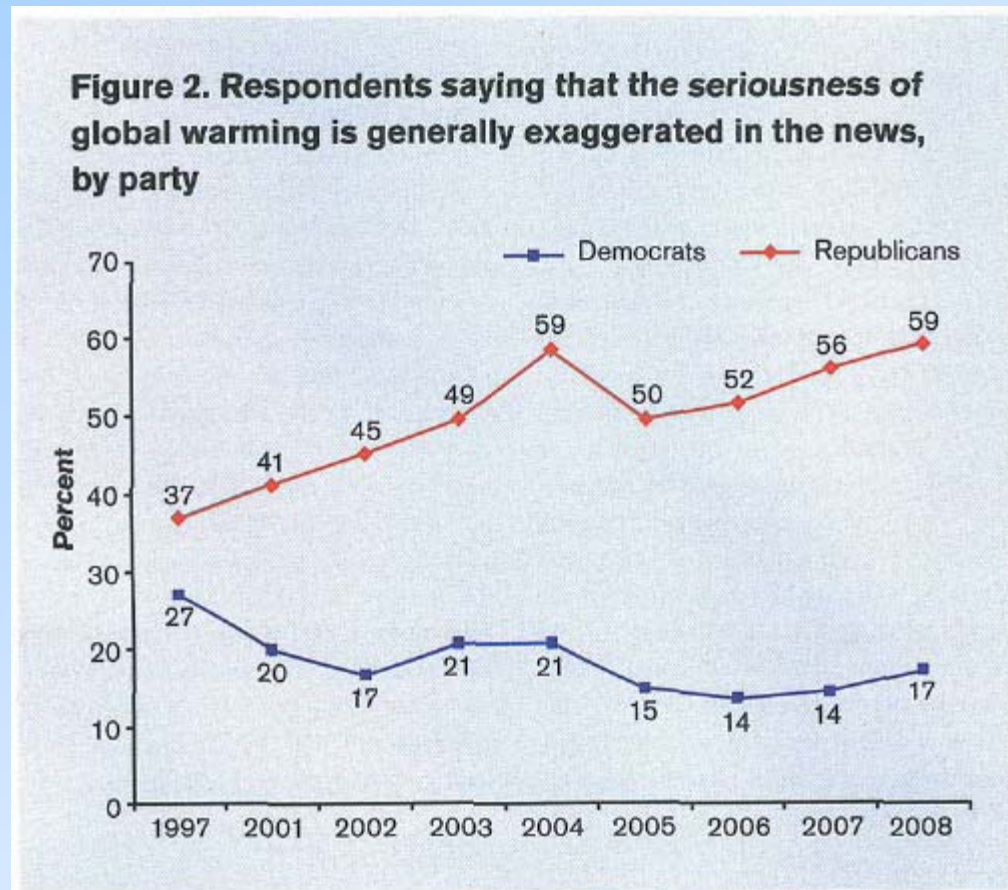
Source: Dunlap & McCright, 2008, *Environment*. 50, 26-35

Figure 1. Respondents saying that the effects of global warming have already begun, by party



US Beliefs on Media Reporting by Political Party (Gallup Polls)

Source: Dunlap & McCright, 2008, *Environment*.



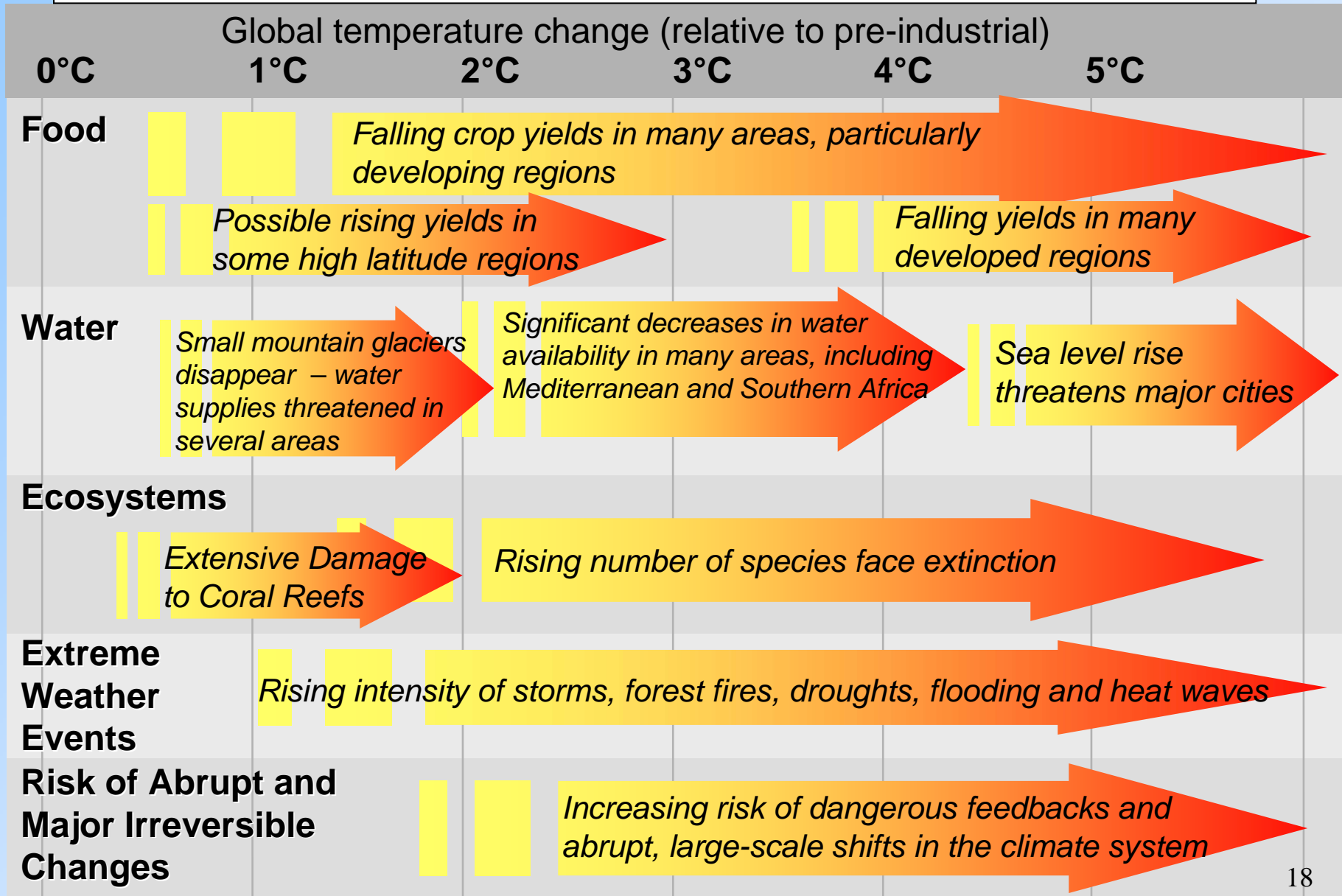
The Challenge Posed by Risk in Adaptation Policy

Adaptation and Risk Discourses

See: Pidgeon and Butler, *Environmental Politics*, September 2009.

- **UK Stern report - adaptation and mitigation within risk-based frameworks:**
 - ‘[economic analysis] must be global, deal with long time horizons, have the economics of risk and uncertainty at its core, and examine the possibility of major, non-marginal changes’ (2006, p25, emphasis in the original).
- **IPCC 4th Assessment (2007). Conclusions expressed as likelihood and degree of belief.**
- **UK Climate Projections ‘09 incorporate uncertainties to aid adaptation decision-making.**
- **The fat tail problem – the non-zero chance of extreme warming ($t > 4\text{deg}$) may dominate decisions (cf Weitzman, 07, 08)**

Projected Impacts of Climate Change (source Stern, 2006)



Difficulties of Communicating Risk and Uncertainty

- **Engineering ‘Risk’ = Probability x Consequence**
- **Lay beliefs involve more than just ‘risk’**
 - **Severity and Nature of Consequences**
 - **Cultural Orientations (there is no single ‘public’)**
 - **Social Amplification Effects**
 - **Trust in Risk Managers / Science**

Guidelines for Risk Communication -1

- Need to understand and address people's actual concerns and framings (not just your own).
- The 'Public' is not a single entity – so consider the need for multiple messages
- Target knowledge gaps if necessary – but not 'information for its own sake, or to persuade'

Guidelines for Risk Communication - 2

- **Contextualise or even avoid ‘risk’ numbers - what matters more is whether it will affect me and if yes what do I need to do for protection**
- **If possible use trusted sources.**
- **Link messages about risk to practical actions people can take (fear framing does work)**
- **Evaluate the impacts of communications**

Attitudes towards Adaptation

Attitudes Towards Adaptation

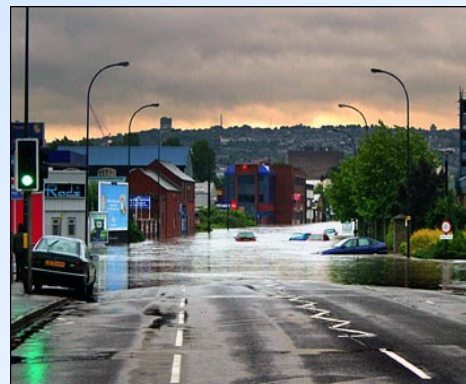
- Far less well studied than overall concern / knowledge or mitigation behaviours
- Humans are creatures of habit – so will not entertain major changes unless events make salient the need for them
- Impacts of recent events?

The Impact of Local Events

- Climate change is intangible, viewed as a distant and future problem, with a lack of direct localised experience
- Do *local experiences* of possible climate impacts increase willingness to enact changes in ways of living relating to both adaptation and mitigation?
- Previous UK research in 2003 found that experiences of flooding did not result in differences of understanding and response with regard to climate change (Whitmarsh, 2008, *Journal of Risk Research*, 11(3): 351-374)

2007 Summer Floods

- **Floods across large parts of Southern and Northern England in summer (June, July, August) of 2007**
- **“In terms of scale, complexity and duration, this is simply the largest peacetime emergency we’ve seen.”**
- **55,000 properties flooded. Around 7,000 people were rescued from the flood waters by the emergency services and 13 people**
- **Largest loss of essential services since World War II, with almost half a million people without mains water or electricity.**
- **Insurance industry pay out over £3 billion**
(Pitt Report, 2007)



Discussion Groups - 1

- **Non Proximal Groups:** Ten focus groups (participant n-96) in non-flooded areas in England (Norwich) Scotland (Glasgow) and Wales (Cardiff) with members of the general lay public in July and August 2007.
- **Proximal Groups:** Six focus groups (participants n-50) across 3 UK cities affected by flooding (Gloucester, Sheffield and Oxford) in November 2007 All individuals living in areas affected by flooding but not personally flooded



Discussion groups - 2

- Varying age, gender, socio-economic position
- 2 hour long sessions
- Same climate change topic guide followed in all groups (Proximal and Non-Proximal)



Residents of Flood Areas - Responses

- No clear differences in discussions about climate change
- N=20 (or 40%) participants made links between flooding and climate change when asked *what they thought caused flooding*. More reflected on possible links after discussing climate change as a distinct issue.
- *All participants* cited flood plain development and/or drainage as a cause of 2007 floods
- Links between flooding and climate change does not necessarily result in a belief that major changes in ways of living are needed

Making Connections: Climate Change and Flooding

“Well, yeah, I think climate change has a lot... might well have something to do with it. You know, it is...climate change which basically produces, you know, more extreme weather than we’ve had in the past...

(Samuel, Gloucester1, 29th November 2007)

“....it was just a storm, it was a storm and poor maintenance of the rivers, that’s what I believe, it’s no more complicated than that. ...

(Thomas, Sheffield1, 26th November 2007)

Extreme Weather, Climate Change and Flooding

“...it’s been happening all round the world for many, many, many, many, many centuries, so how can it be happening in one small town or city now all because of the climate change.....?”

(Tristan, Gloucester2, 29th November 2007)

“I come from Essex and in 1953 all of Essex went under water, Canvey Island was completely underwater, hundreds and hundreds of people died in that flood, but because we didn’t have thereason of global warming to blame it on, we just called it a storm, you know.

(Thomas, Sheffield1, 26th November 2007)

Flood Study – Preliminary Conclusions

(Butler and Pidgeon, forthcoming)

- **Experience of possible climate related impacts (i.e. floods) may not at present serve to construct climate change as more tangible for ordinary people (cf also Whitmarsh, 2008)**
- **Flooding and changes in weather conditions bound up with more familiar ‘natural’ processes**
- **Even where floods were attributed to climate change, this did not necessarily require acceptance of human activity as a cause, or drive changes in ways of living**
- **But may make acceptance of and co-operation over adaptation policy easier where this is seen to be for the benefit of protecting people**

Conclusions

- Perceptions and human behaviour matter
- People continue to see cc as a distant threat
- Risk discourses raise particular challenges for communication (but ones also raised elsewhere)
- Localising cc may be a more effective motivator for adaptation actions compared to mitigation

Thank You

To collaborators: Catherine Butler, Alexa Spence, Irene Lorenzoni, Wouter Poortinga, Tim O'Riordan, Mike Hulme, Lorraine Whitmarsh



Website -

www.understanding-risk.org



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Developmental Stages of Risk Communication (1970s-1990s)

- 1) Get the numbers right**
- 2) Tell people the numbers**
- 3) Explain what the numbers mean**
- 4) Show people they accepted similar risks**
- 5) Show people it's a good deal for them**
- 6) Treat people nicely**
- 7) Make people partners**
- 8) (and if all else fails) All of the above**

Fischhoff, B. 1995 Risk perception and communication unplugged: twenty years of process. *Risk Analysis*, 15, 137-145.

Models of 'Trust'

Structural Attributes of an Agency

- Particularly Competence and Care (we trust organisations, groups and others who are expert and act in our interests)
- However, there is always some scepticism. Trust is rarely unconditional

Social Agreement

- Based Around Shared Social Values (we trust organisations, groups and others who share our goals or identities)

Emotion (Affect)

- Sometimes trust in organisations can be judged by association with positive or negative beliefs about the hazard they regulate / manage

THE INDEPENDENT
Newspaper of the Year

to 5,723 www.independent.co.uk SATURDAY 19 FEBRUARY 2005 (Republ

The final proof: global warming is a man-made disaster

BY STEVE CONNOR
Science Editor
in Washington

SCIENTISTS HAVE found the first unequivocal link between man-made greenhouse gases and a dramatic heating of the Earth's oceans. The researchers – many funded by the US government – have seen what they describe as a "stunning" correlation between a rise in ocean temperature over the past 40 years and pollution of the atmosphere.

The study destroys a central argument of global warming sceptics within the Bush administration – that climate change could be a natural phenomenon. It should convince George Bush to drop his objections to the Kyoto treaty on climate change, the scientists say.

Tim Barnett, a marine physicist at the Scripps Institution of Oceanography in San Diego and a leading member of the team, said: "We've got a serious problem. The debate is no longer: 'Is there a global warming signal?' The debate now is what are we going to do about it?"

The findings are crucial because much of the evidence of a warmer world has until now been from air temperatures, but the new study shows that the oceans are warming too. Barnett said: "The real key is the amount of energy that has gone into the oceans. If we could mine the energy that has gone in over the past 40 years we could run the state of California for 200,000 years... It's come from greenhouse warming."

Because the global climate is largely driven by the heat locked up in the oceans, a rise in ocean temperatures has a profound effect on the rest of the world. Barnett said: "The oceans are a vast heat sink. They absorb 2.5 million petawatts of energy every second. That's 100 times more than the entire world's energy consumption."

How ocean currents work

44 A satellite image of the Pacific, showing the wide variation in temperatures created by the current El Niño. The white areas show warmer waters, contrasting with colder areas (blues and pinks). Heat and saltiness are inextricably linked in ocean circulation. In the North Atlantic warm water from the Gulf Stream is pulled by a "conveyor belt" driven by the sinking of cold, salty and dense water off eastern Greenland.

Time Life/Getty Images



no longer tenable." Typical ocean temperatures have increased since 1960 by between 0.5C and 1C, depending largely on depth. Dr Barnett said: "The real key is the amount of energy that has gone into the oceans. If we could mine the energy that has gone in over the past 40 years we could run the state of California for 200,000 years... It's come from greenhouse warming."

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**Saturday 19
February 2005**

Some Consequences

- **Communicating just probabilities may:**
 - be confusing (e.g. $1/1000$ vs $1/10,000$)
 - hence risk comparisons sometimes help
 - but they may still ignore people's key concerns
 - and/or appear patronising
- **Need for new approaches that respect people's actual concerns about risk issues**

Qualitative Factors

(Source DoH Communicating Risks to the Public, 1998)

The following usually make risks seem less acceptable:

- Involuntariness
- Inequitable
- Inescapable / many exposed
- Unfamiliar / novel
- Man-made
- Hidden / Irreversible
- Danger to children
- Particular 'dread' outcomes (e.g. cancer)
- Victims identifiable
- Appears poorly understood by science
- Contradictory responses
- Distrust of authorities

Climate Confidence Monitor

(Source HSBC, 26th Nov 2008)

Figure 2 Climate Confidence Monitor 2008

Country	Concern <i>Climate change and how we respond to it are among the biggest issues I worry about today.</i>		Confidence <i>The people and organisations who should be doing something about climate change are doing what is needed.</i>		Commitment <i>I am personally making a significant effort to help reduce climate change through how I live my life today.</i>		Optimism <i>I believe we will stop climate change.</i>		
	2008	2007	2008	2007	2008	2007	2008	2007	
France	36%	37%	5%	7%	28%	30%	5%	5%	5% Fewer than 1 in 10 agrees
UK	26%	22%	9%	5%	26%	19%	9%	6%	
Germany	33%	26%	9%	6%	32%	25%	9%	11%	15% 1 in 10 people agrees
Canada	34%		6%		29%		9%		
Australia	36%		8%		26%		12%		
USA	26%	32%	12%	13%	24%	23%	12%	18%	26% 1 in 5 people agrees
Mexico	63%	59%	15%	14%	40%	43%	27%	24%	
Brazil	52%	58%	12%	14%	34%	47%	25%	26%	34% 1 in 3 people agrees
India	54%	60%	19%	19%	32%	47%	42%	45%	
Malaysia	52%		31%		31%		26%		51% Half of all people agree
Hong Kong SAR	36%	46%	30%	38%	27%	37%	21%	30%	
China	52%	47%	55%	46%	56%	44%	47%	39%	

Percentage of people scoring 6-7 on a 1-7 scale of agreement with each of the four index statements

Figure 3 Willingness to make further individual contributions

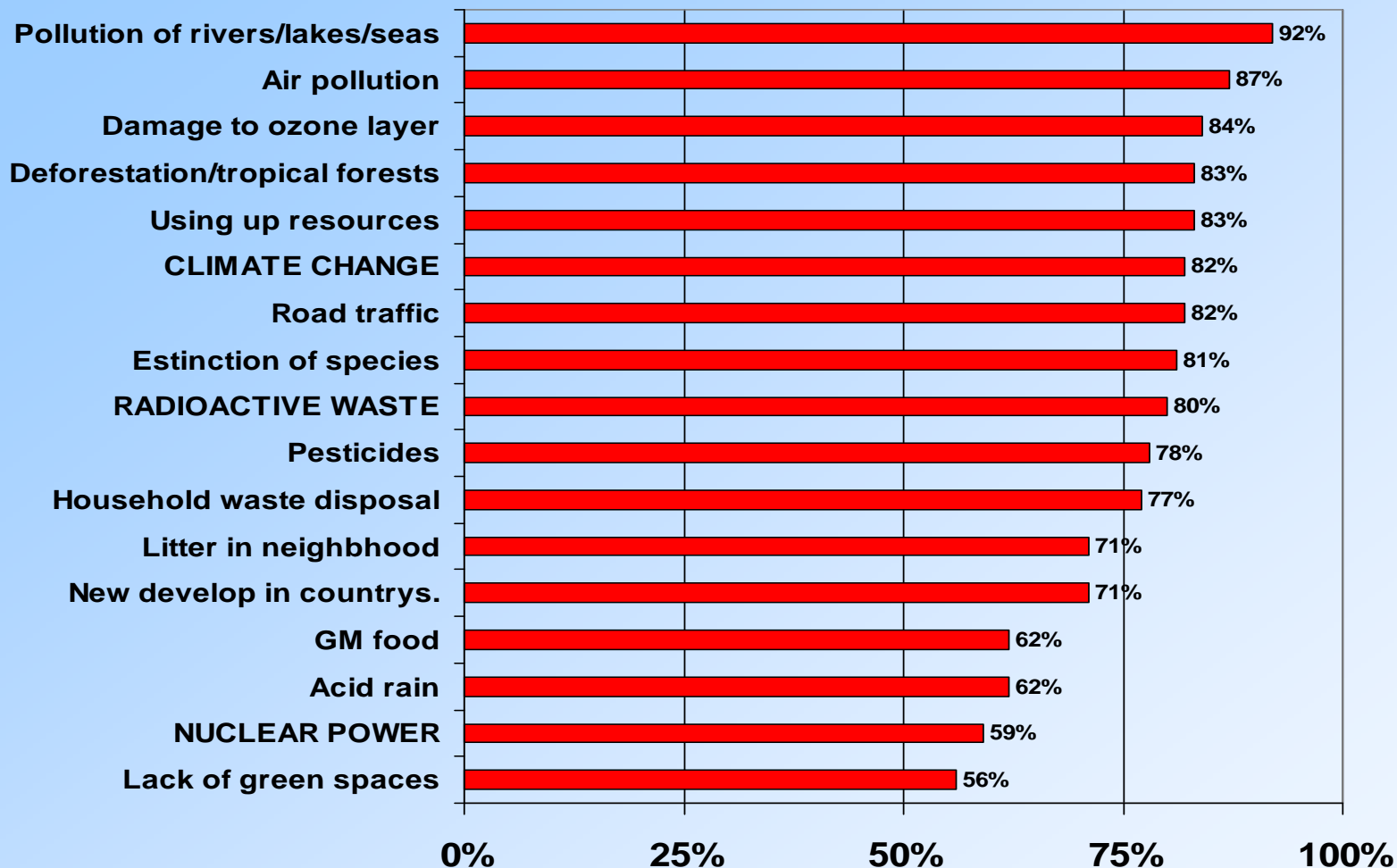
How important are these issues to you?

(Base GB, 1547, 2002) Scale: 1= Not at all important, 5 = Very important

Health (P)	4.84
Partner and family (P)	4.79
Law and order (S)	4.71
Personal safety (P)	4.70
Education (S)	4.66
Being independent (P)	4.62
Privacy (P)	4.58
Having a comfortable life (P)	4.50
Personal finance (P)	4.46
Social relations/Friends (P)	4.44
Environmental protection (S)	4.43
Terrorism (S)	4.41
RADIOACTIVE WASTE	4.22
The economy (S)	4.21
Animal welfare (S)	4.15
Excitement/Fun (P)	4.11
World poverty (S)	4.06
Tackling human rights (S)	4.03
Work (P)	3.99
CLIMATE CHANGE	3.84
Population growth (S)	3.71
GENETIC TESTING	3.62
RADIATION FROM MOBILE PHONES	3.39
GM FOOD	3.29
Religion (P)	3.07

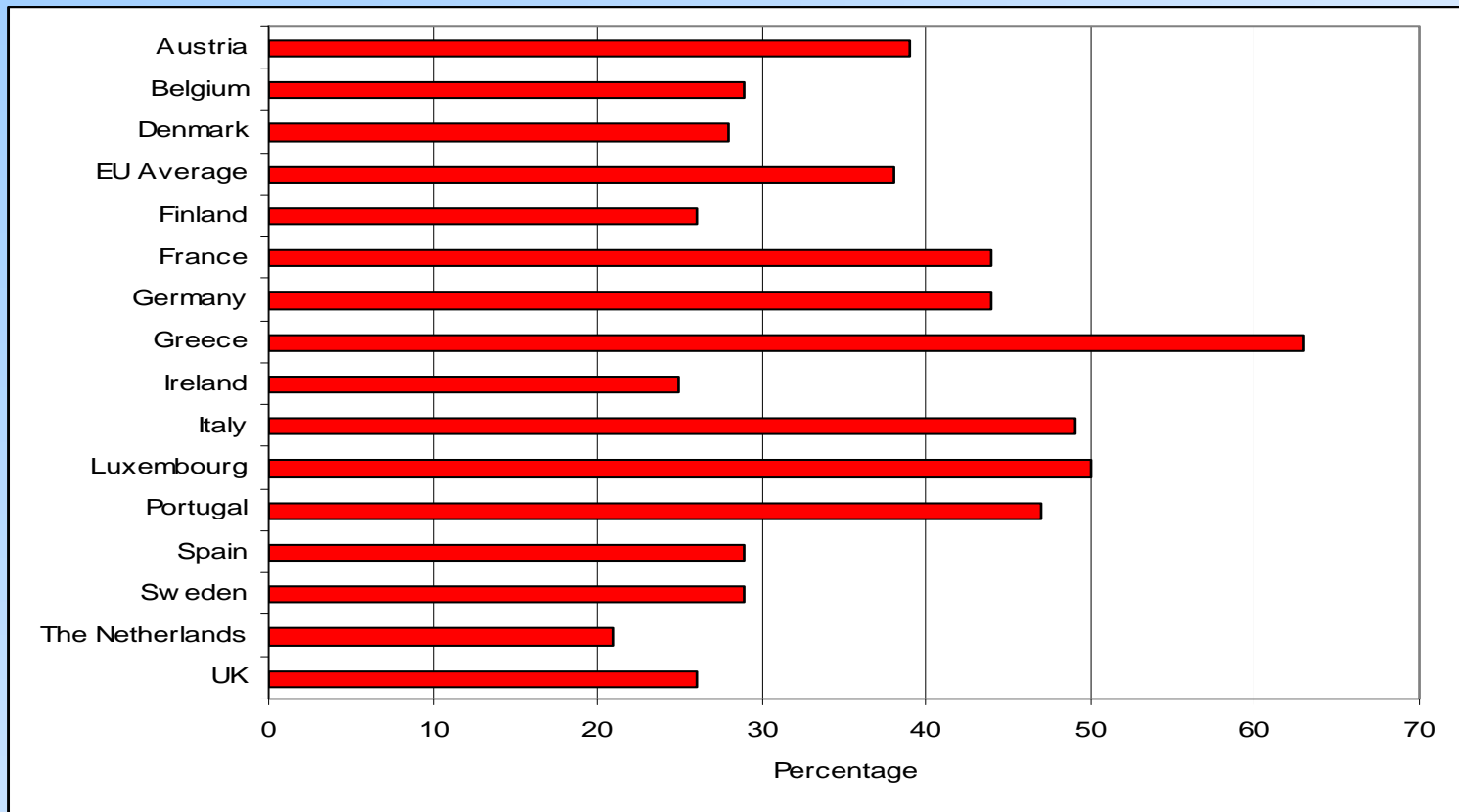
How concerned are you about the following issues?

(Base, GB, 2005, n=1491)



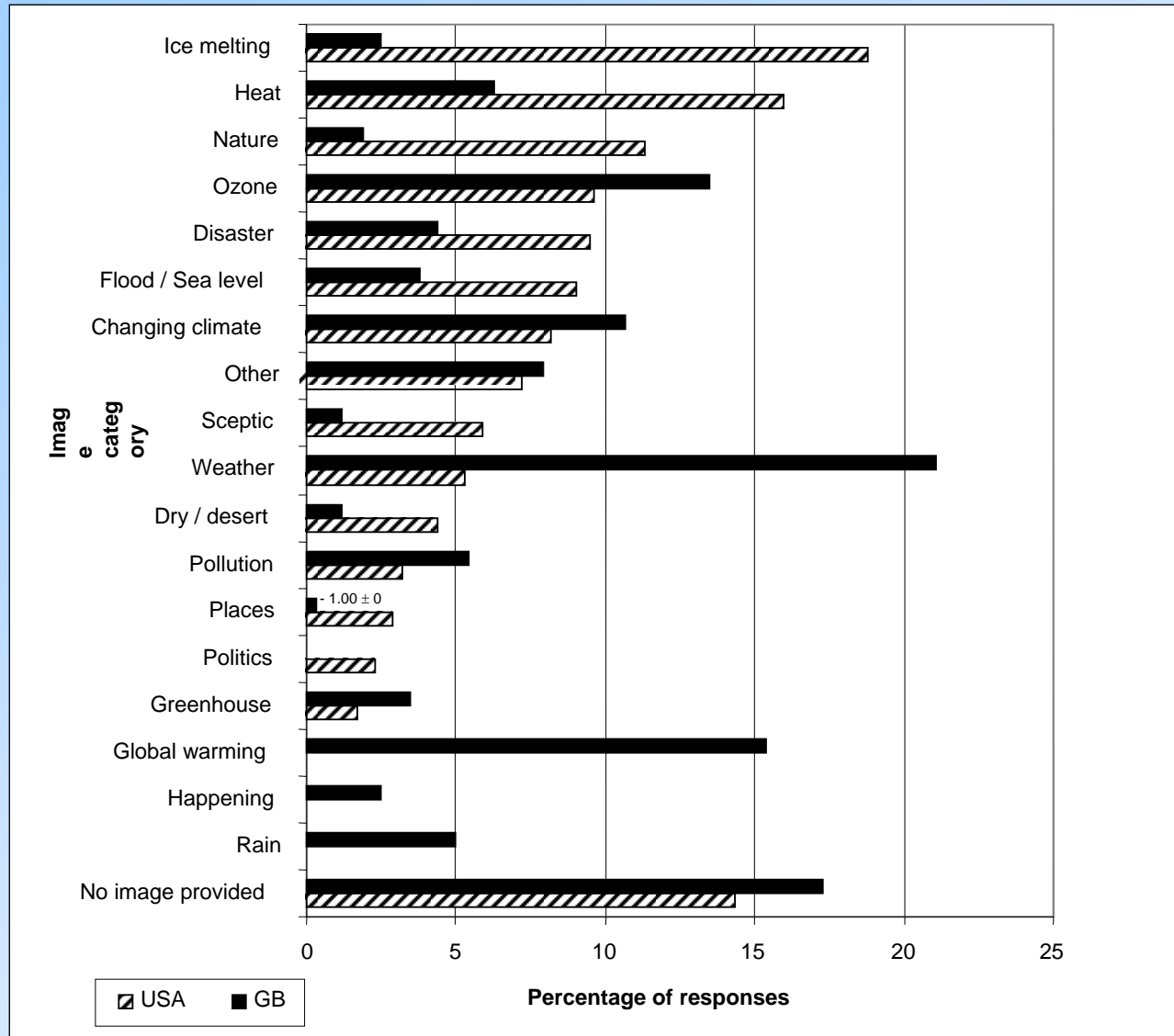
Aggregate % of 'very concerned' and 'fairly concerned'

Concern about climate change in EU-15 Member States (2002).



Percentage of respondents “very worried” about climate change in EU-15 Member States (EORG, 2002).

Images associated with Global Warming (US) and Climate Change (British) (Lorenzoni, Lieserowitz et al, 2006)



Example Comments - 2002 Focus Groups

Paula: The ice caps melting and the sea levels rising, parts of America will disappear.

Jack: We'll lose... the Antarctic will start to disappear won't it? There will be a lot of lake-land villages [that] will start to disappear. [...].

Sue: I suppose everyone will have different locations to live in won't they? They'll just learn to move around and adapt.

(Heysham, climate change)

Example Comments - 2002 Focus Groups

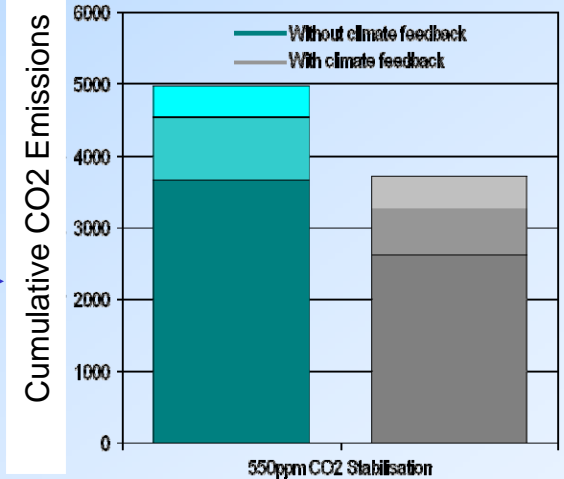
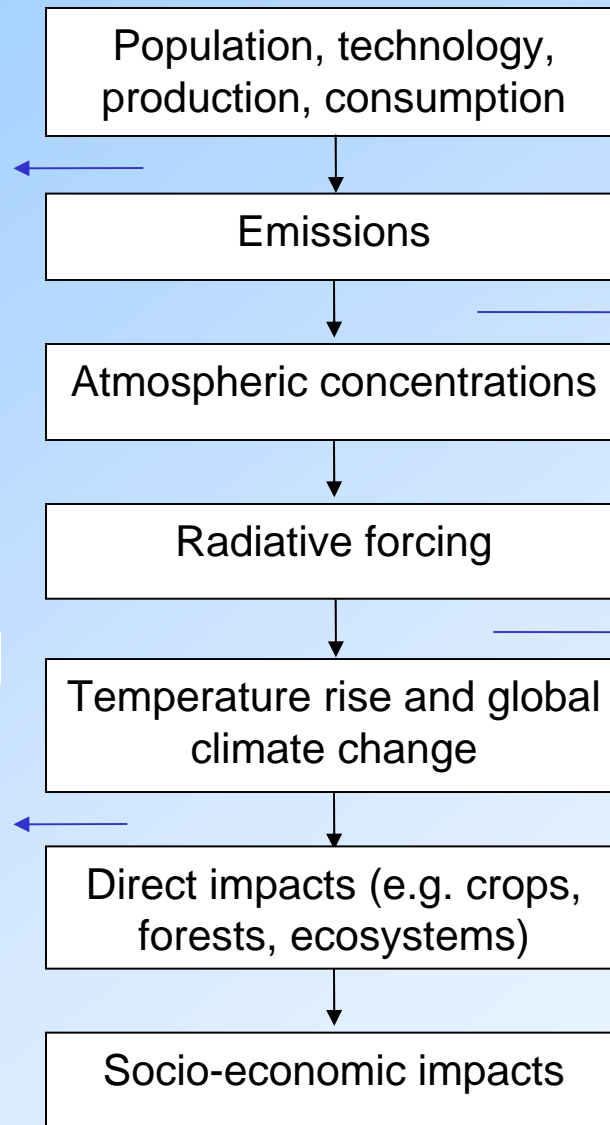
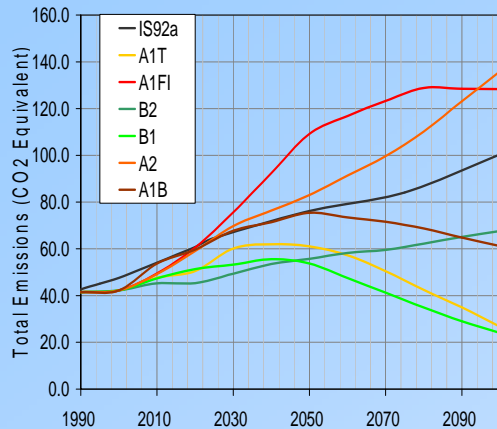
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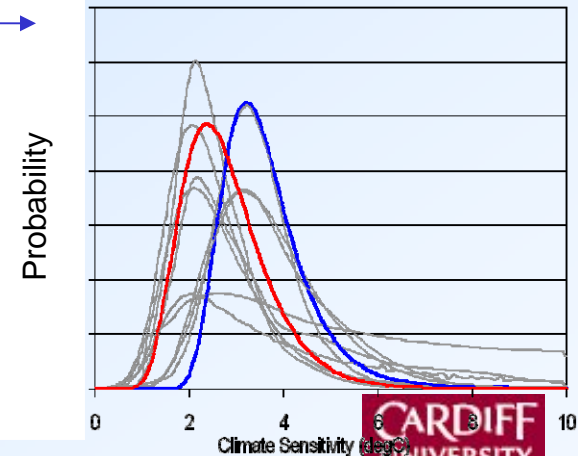
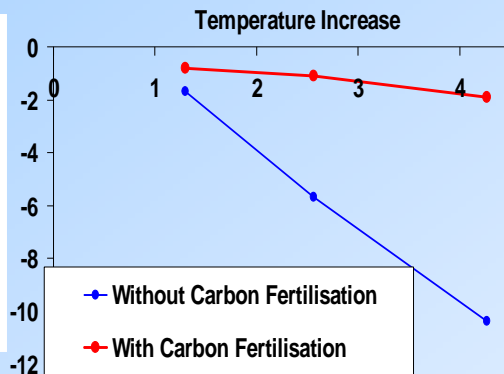
Sue: I suppose everyone will have different locations to live in won't they? They'll just learn to move around and adapt.

(Heysham, climate change)

Working with Uncertainty (based on Stern, 2006)



% Change in Global Cereal Production



‘Dangerous’ Climate Change

– also a Human Issue

- Introduced in UNFCCC 1992 – objective of policy is to *avoid dangerous anthropogenic interference in the world’s climate*
- Danger involves *risk and uncertainty* as measured by science
- But also *societal judgements and values*
 - e.g. about severity of consequences
 - about acceptability of options for mitigating and adapting to risk

Seriousness of Climate Change (2008 vs 2009)

Special Eurobarometer 313 – European Attitudes Towards Climate Change

In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole?

Firstly? Any others? - % EU

■ EB69 ■ EB71

