Why We Disagree About Climate Change

UNDERSTANDING CONTROVERSY, INACTION AND OPPORTUNITY

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Preface

Why We Disagree About Climate Change is a book about the idea of climate change: where it came from, what it means to different people in different places, and why we disagree about it. It is a book which also develops a different way of approaching the idea of climate change and of working with it.

I deliberately present climate change as an idea as much as I treat it as a physical phenomenon that can be observed, quantified and measured. This latter framing is how climate change is mostly understood by scientists, and how science has presented climate change to society over recent decades. But, as society has been increasingly confronted with the observable realities of climate change and heard of the dangers that scientists claim lie ahead, climate change has moved from being predominantly a physical phenomenon to being simultaneously a social phenomenon. And these two phenomena are very different. As we have slowly, and at times reluctantly, realised that humanity has become an active agent in the reshaping of physical climates around the world, so our cultural, social, political and ethical practices are reinterpreting what climate change means. Far from simply being a change in physical climates – a change in the sequences of weather

experienced in given places – climate change has become an idea that now travels well beyond its origins in the natural sciences. And as this idea meets new cultures on its travels and encounters the worlds of politics, economics, popular culture, commerce and religion – often through the interposing role of the media – climate change takes on new meanings and serves new purposes.

In *Why We Disagree About Climate Change*, I examine this mutating idea of climate change. I do so using the concepts, tools and languages of the sciences, social sciences and humanities, and the discourses and practices of economics, politics and religion. As we examine climate change from these different vantage points, we begin to see that – depending on who one is and where one stands – the idea of climate change carries quite different meanings and seems to imply quite different courses of action. These differences of perspective are rooted much more deeply than (merely) in contrasting interpretations of the scientific narrative of climate change. Our discordant conversations about climate change reveal, at a deeper level, all that makes for diversity, creativity and conflict within the human story – our different attitudes to risk, technology and well-being; our different ethical, ideological and political beliefs; our different interpretations of the past and our competing visions of the future. This discord, in the context of climate change, has been described by the novelist Ian McEwan: 'Can we agree among ourselves? We are a clever but quarrelsome species – in our public discourses we can sound like a rookery in full throat.'[1] If we are to understand climate change and if we are to use climate change constructively in our politics, we must first hear and understand these discordant voices, these multifarious human beliefs, values, attitudes, aspirations and behaviours. And, especially, we must understand what climate change signifies for these important dimensions of human living and human character.

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[1] p 3 in British Council (2005) *Talking about climate change* British Council: Manchester, UK

To illustrate what I mean, let me cite four contemporary and contrasting ways of narrating the significance of climate change – just some of the more salient discourses currently in circulation.

Climate change as a battleground between different philosophies and practices of science, between different ways of knowing. 'Climate change as scientific controversy' is a compelling discourse to which the media and other social actors are readily attracted. Although the controversy is allegedly about science, very often scientific disputes about climate change end up being used as a proxy for much deeper conflicts between alternative visions of the future and competing centres of authority in society.

Climate change as justification for the commodification of the atmosphere and, especially, for the commodification of the gas, carbon dioxide. In this frame, climate change is viewed as the latest rationale for converting a public commons into a privatised asset – in this case, the global atmosphere. 'Ownership rights' to emit carbon dioxide are allocated or auctioned between entities, alongside the attendant machinery of the market which prices and regulates the commodity.

Climate change as the inspiration for a global network of new, or reinvigorated, social movements. Seeing climate change as a manifestation of the nefarious practices of globalisation, this framing warrants the emergence of new forms of activism, both elite and popular, to challenge these practices and to catalyse change in political, social and economic behaviour.

Climate change as a threat to ethnic, national and global security. The rhetoric associated with this framing compares climate change (unfavourably) with the threats posed by international terrorism, warranting a new form of geo-diplomacy at the highest levels of government. This framing has been espoused especially by the UK Government in recent years, and led in April 2007 to the first debate about climate change to be held at the United Nations Security Council.

These examples of sites of scientific, economic, social and political conflict and innovation illustrate that the idea of climate change

possesses a certain plasticity – or at least that the idea of climate change has been constructed in such a way as to ensure that it possesses this quality of plasticity. Such an attribute allows climate change easily to be appropriated in support of a wide range of ideological projects. Climate change can be framed, can be moulded, in many different ways. Sometimes these frames complement each other, yet often they appear to conflict.

All of the above suggests that, far from starting with ignorance and ending with certainty, the story of climate change is much more interesting. It is a story about the meeting of Nature and Culture,[2] about how humans are central actors in both of these realms, and about how we are continually creating and re-creating both Nature and Culture. Climate change is not simply a 'fact' waiting to be discovered, proved or disproved using the tenets and methods of science. Neither is climate change a problem waiting for a solution, any more than the clashes of political ideologies or the disputes between religious beliefs are problems waiting to be solved.

The full story of climate change is the unfolding story of an idea and how this idea is changing the way we think, feel and act. Not only is climate change altering our physical world, but the idea of climate change is altering our social worlds. And this idea is reaching farther and farther across these social worlds.[3] Rather than asking 'How do we solve climate change?' we need to turn the question around and ask 'How does the idea of climate change alter the way we arrive at and achieve our personal aspirations and our collective social goals?' By understanding why we disagree about climate change we will also

better understand what it takes to live sustainably on a crowded finite planet inhabited by a 'quarrelsome species'.

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[2] I adopt capitalisation for the nouns 'Nature' and 'Culture', here and elsewhere in the book, to signify that I am treating them as unique entities rather than as a class of entities Although there are many cultures, the idea of Culture is singular Similarly, while we may recognise many different natures around us, the constructed idea of Nature is singular

[3] A poll of 22,000 citizens across twenty-one countries conducted for the BBC World Service in September 2007 revealed that nearly 80 per cent of those surveyed believe that human activities are a significant cause of climate change

FURTHER READING FOR CHAPTER 6

Douglas, M and Wildavsky, A (1982) **Risk and culture; an essay on the selection of technological and environmental dangers.** University of California Press: Berkeley, CA.
Although not specifically about climate change or climate risks, this book remains a classic introduction for understanding the ways in which risks get constructed in society Douglas and Wildavsky introduce a cultural theory of risk perception and help to explain why some risks become salient and acted on, while other risks are downgraded and ignored

Leiserowitz, A A (2006) Climate change risk perception and policy preferences: the role of affect, imagery and values **Climatic Change 77,** 45–72
This empirical study of public attitudes to global warming in the USA tests two ideas: that risk perceptions are influenced by affective imagery and that cultural values influence risk perception A survey of 670 respondents confirms both hypotheses Here is empirical evidence for understanding why we disagree about climate change – not to do with the science, and not much to do with cognition, but a lot to do with values, world-views, emotions, trust and experience

Schellnhuber, H -J , Cramer, W , Nakicenovic, N , Wigley, T M L and Yohe, G (eds) (2006) **Avoiding dangerous climate change.** Cambridge University Press
This is the edited book which resulted from the 2005 Exeter conference on Avoiding Dangerous Climate Change The book contains forty-one separately authored chapters and, although these are of uneven quality, the book is significant in that it offers, at a particular moment in time, the sum of efforts from natural scientists, and from economists, to address the idea of dangerous climate change

Thompson, M and Rayner, S (1998) Cultural discourses In: Rayner, S and Malone, E L (eds), **Human choice and climate change. Vol. 1: The societal framework.** Battelle Press: Columbus, OH, pp 265–344
This book chapter was prepared as part of the major social science study of climate change completed in the 1990s, and remains one of the best available overviews of how individuals, societies and cultures perceive climate change and the attendant risks It provides an introduction to Cultural Theory, risk perception, and the role of values and uncertainty in the construction and interpretation of climate risks

SEVEN

The Communication of Risk

7.1 Introduction

In May 2004, the Hollywood movie *The Day After Tomorrow* went on worldwide release. Tens of millions of cinema goers in over a hundred countries saw the movie which, with gross takings of over $500 million, made a large return from its production costs of $125 million. The film depicts an abrupt and catastrophic transformation of the Earth's climate into a new Ice Age, with North America being in the eye of the cataclysm. It plays upon the scientific uncertainty surrounding a so-called 'tipping point' in the Earth system: the shut-down of the thermohaline circulation (which carries the warm waters of the Gulf Stream into high European latitudes) in the world's oceans. Set against a background of tidal surges, tornadoes, flooding and hurricanes, the human story in the film is about a climatologist who tries to figure out a way to save the world from these cataclysmic changes in climate, while simultaneously trying to rescue his young son stranded in New York, which has been inundated by a giant tsunami and then enveloped in a mega-ice storm.

Climate change is not a usual subject for a Hollywood movie. Although the film makers acknowledged their exaggeration and

sensationalisation of the science, they nevertheless claimed that their portrayal of dramatic climate events could have a major influence on the behaviour of society. They suggested that it might motivate people to do something about climate change before it 'became too late'. 'To have a major studio release of a movie tackling a serious issue is a terrific opportunity for Americans to start talking about the reality of the problem [of climate change], what can be done about it and the enormous threat that President Bush is not dealing with.'[1] Producer Mark Gordon hoped his movie would make people think. He stressed it wasn't made to fit any single agenda, but he clearly revelled in the stir that was caused: 'From the box-office point of view, controversy is good. It makes people talk about it .. you couldn't buy this kind of publicity.'[2]

Scientists, politicians, environmental campaigners and their critics also speculated about how the film might impact on public perceptions of climate change and their demand for, or acceptance of, new policy initiatives. Some believed it would increase awareness about climate change and even galvanise the public to effect changes in behaviour and put pressure on governments to act on climate change. Others, however, thought it would reinforce scepticism about climate or else have no impact at all. Advocacy groups around the world prepared for the film's launch by issuing press releases, by distributing leaflets to cinema goers explaining the serious threats posed by climate change, and by organising public meetings and panel discussions about the film's 'serious message'.

But what affect did The Day After Tomorrow actually have on cinema goers? Was it an effective way of engaging with a section of the public that might be less easily reached through more conventional forms of science communication? Did it alter the way people viewed the science of climate change? Survey work conducted with cinema audiences in a number of countries – the USA, the UK, Germany and Japan – revealed mixed reactions.[3]

Ambiguous and ambivalent indications of attitudinal and behavioural change were revealed among respondents who had viewed the film. Analysis focused on four key social and behavioural issues: people's perception of the *likelihood* of extreme impacts; their *concern* over climate change versus other global problems; their *motivation* to take action; and the locus of *responsibility* for the problem of climate change. Some changes in concern, attitude and motivation were found in a number of viewers. Seeing the film changed some people's attitudes, at least in the short term. These viewers were significantly more concerned not only about climate change, but also about other environmental risks such as biodiversity loss and radioactive waste disposal. While the film increased general anxiety about environmental risks, viewers experienced difficulty in distinguishing science fact from dramatised science fiction. In particular, the dramatic portrayal of climate change in the film reduced viewers' belief in the likelihood of extreme weather events occurring as a result of climate change.

Although the film may have sensitised viewers, and perhaps even motivated some of them to act on climate change, the indications were that the public did not feel they had access to information about what action they could take to mitigate climate change. In addition, the research suggested that any increase in concern about climate change induced by the film appeared short lived, with most viewers treating the film purely as entertainment. Overall, the film sent mixed messages about climate change to viewing audiences and cannot be

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[1] Peter Schurman, Moveon org's executive director, 20 May 2004, Associated Press www msnbc msn com/id/4900768/ [accessed 3 July 2008]

[2] *Ibid*, Mark Gordon, producer of *The Day After Tomorrow*

[3] See, for example, Leiserowitz, A A. (2004) Before and after The Day After Tomorrow: a US. study of climate change risk perception *Environment* 46(9), 24–37; Reusswig, F and Leiserowitz, A A (2005) The international impact of The Day After Tomorrow (Commentary) *Environment* 47(3), 41–3; Lowe, T. D , Brown, K , Dessai, S , de Franca Doria, M , Haynes, K. and Vincent, K (2006) Does tomorrow ever come? Disaster narrative and public perceptions of climate change *Public Understanding of Science* 15(4), 435–57

said to have induced the sea-change in public attitudes or behaviour that some advocates had been hoping for.

The Day After Tomorrow is just one of a number of high-profile popular devices for communicating climate change in recent years which have been claimed to have had a powerful effect, either intentionally or unintentionally, on public opinion. In December 2004, just a few months after *The Day After Tomorrow* was released, the best-selling novelist Michael Crichton published his fictional thriller *State of Fear*. This novel portrays the idea of climate change as a conspiracy between scientists and environmental campaigners: a self-important non-governmental organisation deliberately hypes the science of global warming to further the ends of evil eco-terrorists. The conclusion of *State of Fear* is that global warming is a non-problem; it acts as a social attenuator of risk in contrast to the risk amplifiers we saw in the previous chapter. Like *The Day After Tomorrow*, Crichton's novel addresses real scientific issues and controversies, but is similarly selective (and occasionally mistaken) about the basic science.

In May 2006, two years after *The Day After Tomorrow*, another movie was released that has been claimed to have had a more lasting effect on public opinion, especially in America. *An Inconvenient Truth* is a documentary film about global warming, presented by US politician Al Gore, which became the fourth highest-grossing film documentary of all time. The movie had the deliberate goal of awareness-raising and inducing behavioural change[4] and its perceived impact was undoubtedly one of the factors that led to Al Gore being awarded, jointly with the IPCC, the 2007 Nobel Peace Prize. The citation for the Prize stated it was awarded 'for their [Gore's and the IPCC's] efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change'.

This chapter examines how the idea of climate change has been represented in a range of media contexts – by scientists, by campaigning organisations, by governments, by advertisers. It discusses the relationship between these representations and the different underlying motivations of the communication agents involved. Public and policy discourses of climate change are certainly influenced by how scientific risks associated with climate change are communicated: the different ways the issue is framed, the different audiences targeted, the different language, stories and visual imagery adopted. We need to understand the ways in which science, policy and the public meet through media-shaped narratives. We need to understand who controls these narratives and the way they influence what people believe about climate change and about its significance. **One of the reasons we disagree about climate change is that we receive multiple and conflicting messages about climate change and we interpret them in different ways.**

We start by considering a number of conceptual models which describe how science might be communicated across and within society (Section 7.2). The traditional 'deficit model' of science communication is no longer tenable; it is not sufficient to argue that more or clearer information about climate change from scientists will lead to greater public engagement with the issue. Neither can it be argued that more scientific *certainty* about future climate change, or better representations of scientific *uncertainty*, will necessarily lead to greater public agreement about what to do in response. There are barriers other than lack of scientific knowledge to changing the status of climate change in the minds of citizens – psychological, emotional and behavioural barriers. We need to understand the complex 'cultural circuits' of science communication in which framing, language,

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[4] The website for *An Inconvenient Truth* – www.climatecrisis.net – contains specific information and printable tips that are intended to foster individual energy efficiency, including information about how each individual can reduce his or her impact on climate change at home, in commuting, and even nationally and internationally

imagery, marketing devices, media norms and agendas all play their part in the construction, mediation and reception of messages.

As we have seen in Chapters 3, 4 and 5, there is no universal way in which science, economics or religion can speak about climate change. When it comes to communicating climate change within the public realm it is therefore no surprise that very different messages about climate change are constructed. The 'framing' of climate change is explored in Section 7.3, showing relationships between how the issue is presented and the intended cognitive or behavioural outcomes. Climate change means different things to different people because we are all exposed to a variety of messages about climate change and we each interpret them according to our own unique background – our knowledge, experiences, values and circumstances. These messages are conveyed through complex combinations of language, images and symbols, some of which are examined in Sections 7.4 (which deals with the use of language) and 7.5 (which examines the use of images). These sections also include case studies about the language of catastrophe and about the challenges of using climate change imagery in environmental campaigning.

Communications experts Craig Trumbo and James Shanahan have researched the ways in which the public understand the ideas surrounding climate change. They observe: 'If public understanding of [climate change] is built on a narrative construct – one subject to a potential fickle storytelling process that can easily be driven in any direction – then politically based policy and regulatory strategies that rely on [such] an authority located in public opinion could be seriously misinformed.'[5] It is the argument of this chapter that the contested nature of the science, economics and beliefs that surround the idea of climate change makes it inevitable that the stories that are told about

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[5] p 203 in Trumbo, C W and Shanahan, J (2000) Social research on climate change: where we have been, where we are, and where we might go *Public Understanding of Science* 9, 199–204

climate change in the media can 'easily be driven in any direction'. This was one of the ideas we introduced in Chapter 1 – climate as a carrier of ideology – and it is an idea supported by our exploration of the communication of climate change.

7.2 Science Communication Models

A conventional, and still prevalent, view of the relationship between science and the public sees it as consisting of a one-way flow of knowledge and information. Popularised in the 1980s under the slogan 'the public understanding of science', this view requires scientists to become better and more frequent communicators and the public to become more engaged and receptive listeners. The media conduits along which this knowledge passes should be neutral conveyors of scientific ideas and facts. When applied to scientific knowledge that relates to matters of public policy, such as climate change, this model of communication assumes that the provision of scientifically sound information can change public behaviour and increase support for new policy measures. If the public are resistant to these scientific messages, this implies that the public are exhibiting a lack of necessary knowledge – a deficit which needs remedying by science communicators. For obvious reasons, this model of science communication has been termed the 'deficit model'.

Since the late 1990s, a series of seminars organised by the Cambridge Media and Environment Programme has explored the performance of BBC media in reporting a range of environmental issues, most notably climate change and sustainable development. Participants were drawn from the media, government and the world of science. In reflecting on the discussions during these seminars, one of the organisers, British geographer Joe Smith, observed the deficit model in operation through the assumptions brought to the table by the participants. The media had failed in what they viewed as their duty to inform the public. As Smith comments, the

scientists 'suggested the media are responsible for public ignorance of both causes and consequences of climate change ... in other words, they imagine an uncomplicated flow of [climate change] data from experts, packaged by the media, to an uninformed, receptacle-like society'[6]

The deficit model of science communication places a very high premium on science for the shaping of individual and collective opinions and adopts a rational-actor model of human behaviour.[7] In relation to climate change it reasons thus: scientific research discovers the problem of climate change; science seeks to identify a range of potential solutions; scientists then inform politicians of these findings and also seek to alter public awareness, attitudes and behaviour by telling them the 'facts' of climate change. We encountered this type of reasoning back in Chapter 3: *The Performance of Science*, when we were examining the role of science in policy. There it was called 'the technocracy model' of decision making.

People and organisations who adopt this mode of reasoning are very likely to end up frustrated. As we have seen in previous chapters, interpretations of climate change by the public are mediated by their values, beliefs and personal experiences, and by cultural norms. This is consistent with the findings of a large survey of American citizens conducted in 2004. Political scientist Paul Kellstedt and colleagues found that 'more scientifically informed' respondents not only felt less personally responsible for global warming, but also showed less concern about it. They concluded that 'the knowledge-deficit

model is inadequate for understanding mass attitudes about scientific controversies'.[8]

The problem is further compounded because the media do not operate as a neutral conveyor of scientific knowledge to a passive audience. They actively and continuously engage in framing, filtering and interpreting messages about climate change using affective and emotive language and imagery. This frustration is well summarised by American geographer Susi Moser, commenting on the deliberations of an expert workshop of climate change scientists, advocates and communicators held in the USA in 2004. 'If only they [the public] understood how severe the problem is .. if only we could explain the science more clearly, train to be better communicators, become more media-savvy, get better press coverage .. The science of global warming is clear – why are we not acting as a society to combat the problem? Why are they not listening? Why is no-one doing anything?'[9]

These frustrations of scientists, campaigners, and perhaps some politicians – their perception of a communication failure – can lead to a variety of reactions. Scientists may be called upon to speak with clearer or more passionate voices; the media may be criticised for balancing scientific views for and against human influence on climate; the public may be blamed for being stubborn and perverse. As risk expert Tom Lowe puts it, 'Risk communicators shout louder to try and shake some sense into people .. The public are on the receiving end of an increasingly distraught alarm call.'[10]

If approaching climate change communication through a deficit model is inadequate for imposing a consensus scientific view of climate

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[6] p 1473 in Smith, J (2005) Dangerous news: media decision making about climate change risk *Risk Analysis* 25, 1471–82

[7] The rational-actor model of behaviour assumes that behaviour is motivated by a conscious and rational calculation of advantage, a calculation that in turn is based on an explicit and internally consistent value system Many social psychologists would disagree that this is an adequate description of how humans appear to behave

[8] p 122 in Kellstedt, P M, Zahran, S and Vedlitz, A (2008) Personal efficacy, the information environment, and attitudes towards global warming and climate change in the United States *Risk Analysis* 28(1), 113–26

[9] p 3 in Moser, S and Dilling, L (eds) (2007) *Creating a climate for change: communicating climate change and facilitating social change* Cambridge University Press

[10] Quoted in Revkin, A (2007) Are words worthless in the climate fight? *New York Times*, 3 December

change on a passive public, how else might we think of the relation-ship between science and society? And what do alternative models of science communication imply for the extent to which we can agree or disagree about climate change? One reaction against the deficit model is the idea of dialogue or deliberation between scientists and citizens.

Dialogues imply extended conversations between scientists and the public, between experts and non-experts. These conversations are rooted in the personal experiences and values of the participants as much as they are driven by scientific knowledge. A deliberative approach to climate change communication changes the balance of power between scientist and citizen. Within the context of such extended conversations about climate change, the citizen is able to bring into the open the role of individually held beliefs and values. Citizens are able to see whether the expert knowledge of the scientist is resistant or sympathetic to such personalised viewpoints. Equally, scientists may be able to examine whether the words, numbers or visual devices that they use to convey complex ideas about future cli-mates and their uncertainty find any traction with a listening public. Through dialogues, disagreements about climate change can certainly be aired and different positions understood, even if no resolution to disagreement is forthcoming.

This more engaged form of science communication has been rec-ognised in recent years among many scientific institutions, although it remains far from the norm. For example, a report from the British House of Lords in February 2000 – *Science and Society* – identified the importance of a shift in the culture of science communication from a deficit to a dialogue model. 'Direct dialogue with the public should move from being an optional add-on to science-based policy making and to the activities of research organisations and learned institutions, and should become a normal and integral part of the process.' [11]

While scientist–citizen dialogues offer a more engaging way to communicate ideas about climate change, by their very design they will always only ever touch a very small proportion of the public. The majority of citizens will not come into direct contact with scientists through extended conversations[12] and will continue to rely upon mes-sages conveyed to them by various forms of media: television, news-papers, websites, magazines, radio. If the media do not, in fact, act as neutral conveyors of information about climate change, we need better ways of conceiving and understanding their role if we are to under-stand this important communicative dimension of why we disagree about climate change. Instead of the metaphor of linearity in commu-nication implied by the deficit model, a more plausible metaphor that has been proposed is that of cultural circuits and their entanglement.

The idea of 'cultural circuits'[13] offers a very different perspective on science communication from that implied by the deficit model. The latter model sees the senders of climate change knowledge (scientists) only distantly connected to the receivers of such knowledge (the public) through the lines of information flow offered by the media. Scientists, media and public have their own distinct domains and the senders and receivers have little influence on each other. In contrast, a cultural circuits conception of this relationship maintains that both senders and receivers are jointly engaged in shaping and changing the meaning of messages about climate change. The media themselves offer a dynamic arena where these powerful processes are played out Messages about climate change have no starting point and no ending point; they travel around this circuitry, changing frame, form and meaning as they go.

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[11] House of Lords (2000) *Science and society* Report of the House of Lords Select Committee on Science and Technology, London

[12] Climate change blogs – such as www realclimate org – offer a different means of connecting expert with non-expert, although again this is not mass communication

[13] The application of the 'circuits of culture' model to climate change studies was made by Carvalho, A and Burgess, J. (2005) Cultural circuits of climate change in the UK broadsheet newspapers, 1985–2003 *Risk Analysis* 25(6), 1457–70

This view of the media as a collection of dynamic agents continually active – either implicitly or explicitly – in shaping and reshaping messages about climate change fits much more realistically with what we can observe happening than does the deficit model. It also allows us to understand the role of the media in propagating or even fostering disagreements. We will find examples later in the chapter of how this is achieved through framing the issue of climate change in different ways (Section 7.3), through the use of language (Section 7.4) and through the use of imagery (Section 7.5). For now, let us consider just one example from each of the three domains of this cultural circuitry of climate change communication – the media, the public and science – which illustrates these dynamics at work.

Media. Newspapers continue to operate as a major source of information for the public in many countries, although of slowly diminishing significance in relation to internet-based media and television. A number of studies in recent years have tracked the reporting and representation of climate change in print media in countries such as the USA, the UK, Japan and India. One facet of newspaper reporting that has more rarely been examined is the role of ideology[14] in print media representations of climate change. Newspapers, either through their proprietors or through tradition, frequently espouse specific ideological positions.

Communication scientist Anna Carvalho explored the relationships between the ideologies of three national UK newspapers – *The Times*, the *Guardian* and the *Independent* – and their coverage and representation of climate change during the period 1985–2001.[15] She found significant differences between coverage in *The Times* and the other two newspapers which she attributed in part to the more conservative ideological slant of that newspaper. The *Guardian* and the *Independent* gave greater weight to scientific assessments of climate change risks and demanded stronger political intervention. *The Times*, however, favoured a greater emphasis on scientific uncertainties about future risks and adopted a more liberal, market-oriented view of potential policy options. Similar differences in the reporting of climate change can be linked to the different ideological slants of national American newspapers; for example, the *Wall Street Journal* (more sceptical of climate change) compared with the *New York Times* (more accepting of the potential risks and the need for government intervention). Newspaper media therefore actively shape stories about climate change, whether stories of the scientific risks involved or stories about possible policy solutions. Science, ideology and public audiences become entangled in the web of these cultural circuits.

Public. New media forms and technologies are altering the ways in which citizens interact with 'news' and science. They are offering platforms for more diverse public voices to be heard on issues such as climate change. New televisual and web-based diary styles, for example, allow a new depth to public communication about everyday lives; a phenomenon that Richard Sambrook – director of BBC Global News – has termed '360 degree storytelling' Far from being passive receivers of expert science, media communication now allows citizens to actively challenge and reshape science, or even to constitute the very process of scientific investigation through mass participation in simulation experiments such as 'climateprediction.net'[16] New media developments are fragmenting audiences and diluting the authority of the traditional institutions of science and politics, creating many

[14] As we defined it in Chapter 1, an ideology may be thought of as a 'body of doctrine, myth or belief that guides an individual, a social movement, institution, class, or large group' In this case, we are thinking of ideology as guiding the way in which the world is idealised and reported by a newspaper

[15] Carvalho, A (2007) Ideological cultures and media discourses on scientific knowledge: re-reading news on climate change *Public Understanding of Science* 16, 223–43

[16] This project harnesses the power of tens of thousands of home computers around the world to generate computer predictions of future climate See www climateprediction net/ [accessed 14 November 2008]

new spaces in the twenty-first century 'agora' (places of public assembly) where disputation and disagreement are aired. As geographer and media analyst Joe Smith has remarked, television 'programming that blurs the boundaries between news/current affairs and other broadcast categories   offers further opportunities for engaging publics in understanding and debating climate change risks'.[17]

Science. The internet is still a relatively new medium and its roles in the circuits of communication are still being formed and described. The internet has revolutionised the ways in which communication of scientific ideas occur, but has also at times blurred and confused the role that science plays in public debates. A good example of this occurred in November 2007, when the results from 'an important new study' were posted on the internet. Referring to a new scientific paper in the *Journal of Geoclimatic Studies*, the post suggested that undersea bacteria were mostly responsible for the build-up of carbon dioxide in the atmosphere and *not* fossil fuel emissions from human energy generation. Within a few hours, maybe even minutes, this new scientific finding was appearing on blogs and circulating around the world on email lists, finding a particularly receptive audience among groups and commentators who were sceptical of the human influence on climate.

The story was of course a hoax, with the perpetrator being British novelist and journalist David Thorpe. He later explained his reasons for creating such a spectacularly successful hoax:

> Sometimes fiction and satire can reach places facts alone can't – in the right context   What the hoax showed is that there are many people willing to jump on anything that supports their argument, whether it's true or not   What we wanted to emphasise is that it's necessary to achieve scientific validity using the peer-review model   Proper climate science makes every attempt to do this, and is a constantly evolving and self-refining process, as all science is.[18]

[17] Smith, Dangerous news, p 1480
[18] *New York Times* science blog: http://dotearth blogs nytimes.com/2007/11/11/the-life-and-death-of-a-climate-hoax/ [posted by Andy Revkin, 11 November 2007]

What this example shows is the dynamic interplay between science, media and public at work through the medium of the internet. As *New York Times* science correspondent Andy Revkin commented, it showed 'the amazing power of the Web to amplify and then dismantle fictions at light speed'. The power of the media to shape, convey and dismantle 'truth' is ever-changing.

We saw in Chapter 3: *The Performance of Science* the difficulty of retaining a view of science in which an unambiguous truth is spoken to power, especially science that addresses public policy issues such as climate change. We now see similar difficulties in a view of science communication in which knowledge about climate change is transmitted unambiguously to the public. The aphorism 'all publicity is good publicity' may hold true to some extent for politicians or celebrities seeking to retain a public profile. It is less clear whether it applies to complex issues such as climate change. 'Raising awareness' of climate change can never be neutral or an end in itself. Each story we hear about climate change is framed in a certain way to emphasise a particular facet of the phenomenon, whether this be concerning the severity or the responsibility for the problem or the options and responsibility for implementing solutions.

7.3 No Message is Neutral

If we understand the relationships between science, media and public in the ways implied by the metaphor of tangled circuitry, we can begin to understand the multiple ways in which an issue such as climate change can be framed. Rather than there being only 'facts' about climate change proclaimed by institutions such as the IPCC – 'facts' received intact by the masses – the circuitry of the media offers spaces and creative potential for social actors to filter, amplify and rhetoricise these 'facts' in multiple ways. As Carvalho and Burgess explain in the

context of newspapers: 'Different social actors are locked in competition around how climate change risk is to be framed in the media ... their framings are always mediated through each newspaper's preferred ideological world-view.'[19] No message about climate change is neutral; certain aspects of the story are emphasised and other aspects are downplayed or ignored.

The idea of 'frames' and 'framing' has emerged in the social psychology community over recent decades and has been particularly applied to how news, ideas and issues are reported in the media. Put simply, 'Frames organise central ideas, defining a controversy to resonate with core values and assumptions ... They allow citizens to rapidly identify why an issue matters, who might be responsible and what should be done.'[20] One can use this idea of framing to examine, from a number of different standpoints, how ideas about climate change are communicated: the originator of a news story (e.g. the scientist or campaigner), the transmitter (e.g. the journalist or media institution), and the audience (e.g. the public or policy makers). Originators of stories may frame them according to their specific world-view or according to their understanding of the world-views of the audience(s) they are trying to reach. The public on the other hand, faced with a daily torrent of competing or conflicting news stories, will often use their own framing of issues as a way of filtering or selecting stories that accord with these frames. And the media will also be active through their role in re-framing issues according to their own ideologies, norms or audience preferences. This is known in psychology as the 'confirmation bias'.

When looked at in this way, climate change offers opportunities for governments, organisations and individuals to adopt an almost unlimited variety of framing devices. One can trace the changing dominant frames that have been used to present climate change

at the largest scale, that of international institutions. In the 1980s, climate change first came to global prominence as an environmental issue and hence attracted the attention of environmental campaigning organisations such as Greenpeace and Friends of the Earth. The IPCC was a creation of environmental bureaucrats (UN Environment Programme) and meteorologists (World Meteorological Organization) rather than one of, for example, development economists (World Bank). Over the subsequent twenty years, however, one can see how different meta-frames for climate change have been adopted: as a development issue (the prominence of climate change at the 1992 Earth Summit and the 2002 Johannesburg follow-on), as an economic issue (the 2006 Stern Review), as an issue of national and global security (the UN Security Council debate of April 2007; see Chapter 9: *The Way We Govern*), or as an issue of morality and social justice (the World Council of Churches; see Chapter 5: *The Things We Believe*).

Each of these framings of climate change emphasises certain aspects of the issue, while de-emphasising others. They also carry implications for how the causes of climate change are portrayed – over-consumption by the North, a failure of markets, structural injustices in the world economy – how urgent responses to climate change should be, and who should be the main agents responsible for implementing solutions. Framing climate change as a failure of markets, for example, implies that it is market entrepreneurs, economists and businesses that need to take the lead in 'correcting' this failure. Framing climate change as a challenge to individual and corporate morality, on the other hand, suggests that very different cohorts of actors should be mobilised.

None of these ways of framing climate change can be claimed to be wrong in any absolute sense. Equally, none of them offer a 360-degree view of climate change. By definition, frames select and emphasise certain facets of an issue and must therefore de-select and de-emphasise others. Communicating climate change can therefore

[19] Carvalho and Burgess, Cultural circuits of climate change, p 1458.

[20] p 56 in Nisbet, M C and Mooney, C (2007) Framing science *Science* 316, 56

never be merely 'raising awareness' or simply presenting 'the facts'. Raising awareness of what aspect of climate change? Raising awareness with what audience and end in sight? In the very act of constructing and communicating a story about climate change, certain causes, actors or responses are favoured or demonised.

A good example of contrasting media framing of climate change comes from the newspaper reporting of the IPCC's Fourth Assessment Report and the publication of the Working Group II Report on Impacts, Adaptation and Vulnerability. On Saturday 7 April 2007, the day after the report was finalised and approved by governments in Brussels, nearly all of the national British daily newspapers carried one or more stories on the findings. Drawing upon exactly the same IPCC press release and the same IPCC Summary for Policymakers, the reporting in two of the more popular newspapers – the *Daily Mirror* and the *Daily Express* – was especially noteworthy. The *Daily Express* ran a headline 'Melting Ice Doomsday' and introduced their item with 'Britain faces catastrophe within 50 years unless governments act now to prevent climate change'.[21] In contrast, the *Daily Mirror*'s headline was 'Boom & Dust', with the following introduction: 'Britain would become warm and prosperous through global warming but it will bring disaster to poor countries, the world's top scientists warned yesterday.'[22] In one frame, climate change brings catastrophe to Britain, a prospect which the newspaper uses to challenge national governments to act. In the other frame, climate change offers economic benefits to Britain, while countries in the developing world reap disaster.

Different framings resonate more powerfully with some audiences than they do with others. Mike Shanahan, press officer at the International Institute for Environment and Development in London,

TABLE 7.1: *Examples of ways of framing climate change, and the audiences most engaged*

Climate change frame	Audience engaged
Scientific uncertainty frame	Those who don't want to change
National security frame	As above, but now inspired to act
Polar bear frame	Wildlife lovers
Money frame	Politicians and the private sector
Catastrophe frame	Those who are worried about the future
Justice and equity frame	Those with strong ethical leanings

Source: Shanahan (2007)

illustrates six different framings of climate change,[23] each constructed to appeal to particular audiences (the implication being that they will have less – or no – appeal to other audiences). These frames, together with their prospective audiences, are shown in Table 7.1. We can see how framings may relate, albeit unevenly, to the different 'ways of life' presented in Chapter 6: *The Things We Fear* through the lens of Cultural Theory (Box 6.1). A catastrophe frame, for example, may engage those who see Nature as ephemeral (egalitarians), whereas the scientific uncertainty frame may engage those who see Nature as capricious (fatalists).

Communicating climate change always carries a message or, to put it more formally, any communication about climate change will always frame the issue in a particular way; for example as scientists seeking to reduce uncertainty, as social justice movements seeking to protect the vulnerable, or as carbon entrepreneurs seeking to make money through new commodity markets. Using the idea of frames to help us understand why we disagree about climate change requires

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[21] *Daily Express*, 7 April 2007, see www.express.co.uk/posts/view/3796 [accessed 14 November 2008]

[22] *Daily Mirror*, 7 April 2007, see www.highbeam.com/doc/1G1-161683981.html [accessed 14 November 2008]

[23] Shanahan, M (2007) Talking about a revolution: climate change and the media COP13 *Briefing and Opinion Papers*, IIED: London

us to take one further step: to understand the roles of language and imagery in the construction of these different framings. This is the step that the next two sections of this chapter help us to make.

7.4 Linguistic Repertoires

Closely allied to the idea of frames are what have been called linguistic repertoires, 'routinely used systems of language for describing and evaluating actions, events and people'.[24] A repertoire might include a distinctive vocabulary, a set of stylistic features, certain metaphors, idioms or images. We might well expect different ways of framing climate change to be related in some way to the adoption or preference for certain linguistic repertoires. Framing climate change as a security issue, for example, might favour the adoption of phrases such as 'coastal defence' and 'climate protection' or metaphors such as climate change as 'a weapon of mass destruction'[25] and waging a 'war on climate change'. Using language is never neutral, but always active. Tracing and following linguistic repertoires associated with climate change is one more way in which we may reveal how and why we disagree about climate change.

This approach has been pursued most systematically in two studies (*Warm Words* and *Warm Words II*)[26] conducted for the London-based Institute for Public Policy Research (IPPR). These studies examined articles from UK newspapers and magazines, as well as TV and radio news clips and adverts, press ads and websites. Over 600 such items were studied in each of two periods – from November

FIGURE 7 I: *Consensus and outlying 'linguistic repertoires' used in public discourses around climate change in UK society between March and July 2007 Source: Segnit and Ereaut (2007)*

2005 to February 2006 and again between March and July 2007. The research concluded in July 2006 that, 'the climate change discourse in the UK today looks confusing, contradictory and chaotic'. The authors interpreted twelve linguistic repertoires that captured this diversity, offering labels ranging from 'alarmism' and 'sober alarm' to 'techo-optimism' and 'rhetorical scepticism'. Eighteen months later, the repeat analysis suggested that some convergence was occurring around a smaller cluster of repertoires that embraced both 'alarm' and 'resolve' about climate change (Figure 7 1). These repertoires might collectively be considered as constituting the mainstream consensus, while several outlying repertoires representing a variety of minority and more sceptical narratives continued to circulate.

These conditions of linguistic diversity relate only to one particular society and present snapshots taken at two moments in time; many

[24] Segnit, N and Ereaut, G (2007) *Warm words II: how the climate story is evolving* IPPR/Energy Savings Trust: London

[25] Houghton, J T (2003) Global warming is now a weapon of mass destruction. *Guardian*, 28 July 2003

[26] Ereaut, G and Segnit, N (2006) *Warm words: how are we telling the climate story and can we tell it better?* IPPR. London; and Segnit, N and Ereaut, G. (2007) *Warm words II: how the climate story is evolving* IPPR/Energy Savings Trust: London
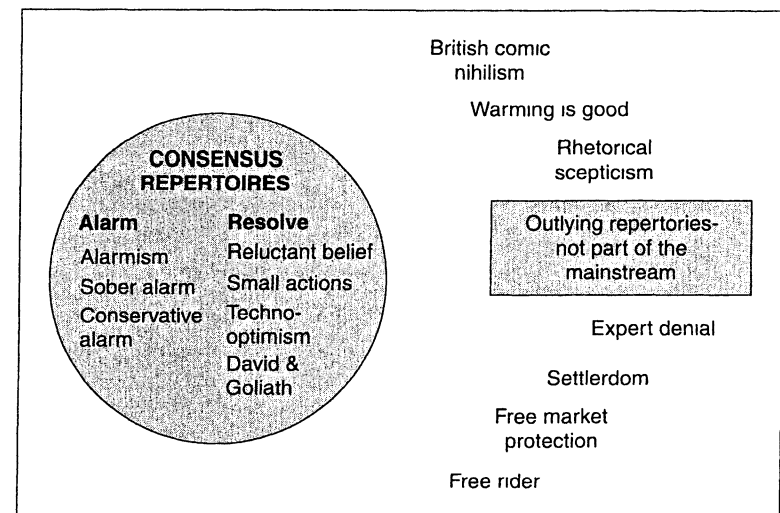
more comparative cross-cultural and longitudinal studies would need to be conducted to build up a more comprehensive insight into how the language of climate change evolves across societies and through time. The real value of these two IPPR studies for our current purpose, however, is their revelation of the diversity of linguistic repertoires of climate change that can co-exist in a society at the same time. Each repertoire reveals something different about the multiple and perhaps overlapping constituencies that tend to use them. The 'reluctant belief' repertoire – a pragmatic, if weary, acceptance that climate change is real and that something needs to be done – suggests a very different outlook regarding the urgency and motivation to respond to climate change than that implied by the 'David and Goliath' repertoire – aggressive, oppositional campaigning environmentalism and radical heroism. An example of contention about the validity of the language adopted by the 'alarmist' repertoire is summarised in Box 7.1.

Box 7.1: The Language of Catastrophe

One of the linguistic repertoires suggested by the *Warm Words* studies of the IPPR (see main text) was labelled 'alarmism', caricatured by the aphorism 'we're all going to die'. Central to this repertoire is the use of words such as 'catastrophe', as in the example, 'scientists are increasingly concerned at the possibility of abrupt catastrophic climate change'.[27] A number of scientists have challenged the aptness of this language for describing what science has discovered about climate change and how science projects future climate risks. In an article for BBC News On-line in November 2006, Mike Hulme asked the question, 'Why is it not just campaigners, but politicians and scientists too, who are openly confusing the language of fear,

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[27] p 13 in McDermott, T (2007) No time to lose *New Statesman*, London, 29 January

terror and disaster with the observable physical reality of climate change, actively ignoring the careful hedging which surrounds science's predictions?'[28] In challenging the widespread adoption of this linguistic rhetoric, Hulme concluded, 'The IPCC scenarios of future climate change ... are significant enough without invoking catastrophe and chaos as unguided weapons with which forlornly to threaten society into behavioural change.'

The use by scientists of the language of catastrophe was subsequently defended by another climate scientist, Australian modeller James Risbey. In his essay, Risbey claims that the language of catastrophe is a suitable, indeed a necessary, means of communicating the scientific nature of the problem. He distinguishes between discourses which are 'alarmist' (rhetorical, inconsistent with the science and implying fatalism) and those which are 'alarming' (emerge from current scientific understanding and intended to alert the public of the need to change course).[29] Risbey goes on to accuse those who do not adopt such urgent language in their descriptions of the science as failing in their civic duty to inform the public, a 'scientific reticence' which falls short of the standards of impartial communication.

Risbey's response to Hulme's argument encapsulates several of the dilemmas, several of the reasons we disagree about climate change, already encountered in this book. The different positions adopted by these two experts on the most suitable language used to communicate climate change can be traced back to several facets we have already examined: the relationship between consensus and uncertainty in science; the role of science in public policy; the extent to which beliefs and values insinuate themselves in scientific judgements; the different views of Nature as suggested by Cultural Theory.

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[28] Hulme, M (2006) 'Chaotic world of climate truth', BBC News On-line, 4 November 2006, http://news.bbc co uk/1/hi/sci/tech/6115644 stm [accessed 3 July 2008]

[29] Risbey, J S (2008) The new climate discourse: alarmist or alarming? *Global Environmental Change* 18(1), 26–37

There are many ways in which language plays a central role in the communication of climate change and, through the different choice of words, opens up spaces for misunderstanding, if not disagreement. We briefly examine here just two more of these: the adoption of the descriptors 'climate change' or 'global warming' to describe the phenomenon of concern; and the ways in which scientific uncertainty about future climate is captured through words

In the English language, the terms most often used to describe the physical transformation of global climate through human modification of the atmosphere have varied over time. The 'greenhouse effect' or 'enhanced greenhouse effect' were terms widely used in the early scientific framing of the issue in the 1980s and early 1990s (see Chapter 2: *The Discovery of Climate Change*). These have subsequently been largely replaced either by the more generic term 'climate change' or the more evocative expression 'global warming' More recently, the adjective 'catastrophic' has increasingly been used in descriptions of the phenomenon, thus 'catastrophic climate change' now circulates as a separate descriptor, carrying a greater sense of urgency than the more neutral 'climate change'.

Each of these terms not only conveys differences in technical understanding of what is being described, but also has different impacts on lay audiences. In a detailed examination of public understanding of the terms 'climate change' and 'global warming', social psychologist Lorraine Whitmarsh found different associations were triggered by these two terms among a cohort of the British public. 'Climate change' evoked a lower level of concern than did 'global warming', the latter being more commonly associated with heat-related impacts and, erroneously, stratospheric ozone depletion. Conversely, while it has been claimed that the term 'catastrophic climate change' (see Box 7.1) should be adopted in order to alarm the public,[30] positive

messages tend to be more attractive and effective in motivating behaviour change than negative ones. As Whitmarsh concludes, in this context, even if nothing else is signified by this study, 'there needs to be an explicit recognition that terminology is not neutral and should not be used indiscriminately'[31]

The second example of how our use of language can exacerbate disagreement comes from a more technical aspect of science communication – how scientific uncertainties are represented. We saw in Chapter 3: *The Performance of Science* that there are a number of ways in which scientific assessments, such as the IPCC, handle uncertainty about future climate projections. In particular we drew a distinction between model-based and expert-based disagreement (see Box 3.1). These different approaches to capturing scientific uncertainty may have much wider ramifications for how the public or policy makers interpret scientific information about possible future outcomes. Risk analyst Tony Patt explored whether the portrayal and communication of scientific uncertainty made any difference to people's belief in scientific projections or their willingness to favour specific policy actions on climate change. He concluded that whether uncertainty was presented as arising from disagreements 'between models' or disagreements 'between experts' – in other words, the social history of that uncertainty – did indeed matter. 'The fact that conflict has arisen about particular estimates of the future may signal features not only of the science, but also of the politics of that science, that are relevant for policy makers to learn [from].'[32]

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30 For example, see Read, R. (2007) Emergency talk *Guardian*, 13 November: '"Climate change" is a criminally vague and anodyne term that is dangerous for us to use Let's not fool ourselves by using warm words such as "climate change" (or indeed "global warming", which still to my ears sounds pretty misleadingly

pleasant I meet lots of people who say things like, "Yeah, we could use a little global warming around here!") Talking instead about averting "climate catastrophe" is not alarmism It is simply calling things by their true names'

31 p 18 in Whitmarsh, L (2008) What's in a name? Commonalities and differences in public understanding of 'climate change' and 'global warming' *Public Understanding of Science* doi:10 1177/0963662506073088

32 p 45 in Patt, A (2007) Assessing model-based and conflict-based uncertainty *Global Environmental Change* 17(1), 37–46

The language we use in telling stories about climate change may reflect our disagreements about the saliency and urgency of the issue while, at the same time, careless and unthinking use of our language in this respect may perpetuate or exacerbate these disagreements. These dual characteristics of language can also be found in the iconography of climate change, to which we now turn.

7.5 The Iconography of Climate Change

Climate change has long presented challenges for the media, campaigners and scientists wishing to use visual devices in their communication to lay audiences. The standard scientific index for monitoring and predicting global climate change is the globally averaged near-surface air temperature. Yet this quantity – a disembodied global temperature – can be neither directly measured, seen nor photographed. As media expert Stuart Allan and colleagues have remarked about a whole genre of technologically induced risks, including climate change: 'They operate outside the capacity of (unaided) human perception. This im/materiality gives [such] risks an air of unreality until the moment they materialise as symptoms. In other words, without visual presences, the hazards associated with these technologies are difficult to represent as risks.'[33]

Making climate change visual – through drawings and paintings, photographs and icons – has a long history, whether constructed for artistic, historical or normative purposes. The late-medieval winter landscapes by Dutch Renaissance painter Pieter Bruegel – for example his 1565 'Hunters in the Snow' – remain evocative depictions of an era when the European climate was colder than today, as do depictions by wood-engravers and artists of London frost fairs on the River Thames from the seventeenth to nineteenth centuries (Figure 7.2).

FIGURE 7.2: An 1844 engraving from the Illustrated London News of the last Thames frost fair of February 1814
Source: National Maritime Museum, London

Glaciers and palm trees have been enduring motifs of climate change, as demonstrated by the Swiss geographer Stefan Brönnimann in his survey of over a hundred years of print media.[34] And, more recently, the Cape Farewell project has sought to motivate international artists and writers to find innovative ways of representing the implications of climate change through taking them on dedicated voyages to the High Arctic. The aim is to make the invisible global climate, visible and local in new ways. 'We intend to communicate through artworks our understanding of the changing climate on a human scale, so our individual lives can have meaning in what is a global problem.'[35]

[33] p 3 in Allan, S , Adam, B and Carter, C (eds) (2000) Environmental risks and the media Routledge: London

[34] Brönnimann, S (2002) Picturing climate change Climate Research 22, 87–95.
[35] David Buckland, artist and project director of Cape Farewell, quoted in Martin, C. (2006) Artists on a mission Nature 441, 578

We may find creative ways beyond the computer graphics and maps of science for visualising climate change and what it means to different people. But are we increasing shared awareness and inspiring common advocacy among the public, or are we simply reflecting the growing range of meanings that climate change has for society? In other words, does the iconography of climate change help us to agree about what is signified by the phenomenon or does it entrench, in visual form, the reasons for our disagreement? There is certainly a wide spectrum of images that are used by communicators as icons or signifiers of climate change. The case study of climate change campaigns operated by Greenpeace over recent years (Box 7.2) is one good example of this. Other examples include the adoption of the polar bear as a 'poster-child' of climate change and the ways in which climate change has been signified by commercial advertisers in recent years. We will briefly examine both of these examples.

Box 7.2: Greenpeace and the Picturing of Climate Change

The environmental campaigning organisation Greenpeace first attended to the idea of global climate change as a priority issue in the late 1980s. Photography is central to the organisation's campaigning philosophy – 'bearing witness to environmental damage' – and it has successfully used visual imagery in campaigns against whaling, marine pollution and nuclear power. Yet climate change has presented Greenpeace with a major dilemma – how does one photograph a phenomenon that is largely invisible and one whose most dramatic effects are scheduled for the as yet unrealised future?

Media expert Julie Doyle has traced the ways in which Greenpeace has pictured climate change in its campaigning literature over the

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period 1994–2005.[36] This short history of climate iconography from within one organisation powerfully reveals the different ways in which the visual has been enlisted in support of different framings of climate change. Greenpeace has been consistent in communicating climate change to worldwide audiences and campaigning against it, and yet very different messages have been conveyed through their adoption of different visual icons.

Doyle identifies five phases in the visual iconography of climate change used by Greenpeace: climate change as time bomb, as fossil fuel addiction, as catalyst for renewable energy, as dirty politics and, finally, as 'here and now' reality. For each of these five framings of climate change, different visual icons have been emphasised in Greenpeace's marketing campaigns. This is not so much revealing disagreements about climate change, but revealing the multiple ways in which climate change can be framed and communicated to different effect at different times.

With their 1994 report *Climate Time Bomb*, Greenpeace sought to drive home the message that the future impacts of climate change would be on a par with a nuclear holocaust. The cover image was of a sunset (or sunrise), edited to resemble the mushroom cloud of a nuclear warhead explosion (see Figure 7.3). In 1997, their campaign moved on to draw attention to the underlying cause of anthropogenic climate change – the dependency of the world economy on fossil fuels. The report *Putting the Lid on Fossil Fuels*, published in 1997, carried a stark image of a red, overheating Earth, to drive home the message of the global consequences of continued fossil fuel consumption. This contrasted with the more upbeat framing of climate change from 1998 onwards, in which the opportunities for a major switch away from fossil fuels to renewables was emphasised. Thus the report *New Power for Britain* in 1998 displayed

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[36] Doyle, J (2007) Picturing the clima(c)tic: Greenpeace and the representational politics of climate change communication *Science as Culture* 16(2), 129–50
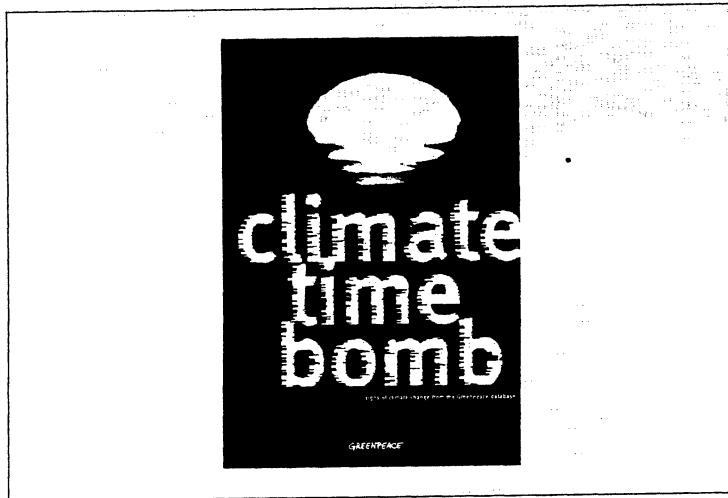
FIGURE 7 3: *Front cover image of the Greenpeace report* Climate Time Bomb, *published June 1994.*
Source: Greenpeace (2004).

wind, sun and waves as the energy saviours for avoiding the worst that climate change might throw at us.

By 2002, Greenpeace's climate change frame had changed again, this time to attack the Bush Administration and ExxonMobil as twin targets that were obstructing progress on tackling climate change. Their 'Stop Esso' campaign from 2001/2 featured the face of George W Bush adjacent to an adulterated Esso logo. As Doyle commented, climate change was by now perceived by Greenpeace 'to have developed sufficient cultural resonance for the public to understand [the image] without including evidence of climate [change] impacts'.[37]

The final phase of visual framing explored by Doyle is the more recent one from the 2000s in which visual imagery is used

by Greenpeace to document the past and present effects of global warming on the physical environment, notably on ice sheets and glaciers. This visual device is consistent with Greenpeace's corporate philosophy of 'bearing witness to environmental damage', but the juxtaposed imagery of glaciers from a hundred years ago and from today also evokes nostalgia for an irretrievable past. This is quite a different emotive pull from their original 1994 image of a 'nuclear' time-bomb, with the emotional connotations of danger, fear and death.

In each of these framings, climate change is represented through iconography which is aimed at inducing very different reactions in audiences. We might all recognise that climate change is the common thread through this story, but what climate change signifies in each case is quite different, as are the responses thereby provoked in Greenpeace's target audiences.

Polar bears. Polar bears are frequently used as an iconic species in the communication of climate change by the media; photographs of polar bears commonly adorn newspaper articles and campaigning tracts in the Western press. During protests in July 2001 at the Sixth Conference of the Parties to the Framework Convention in The Hague, environmental campaigners dressed up as polar bears and dramatised 'die-ins' to drive home their point about climate change threatening this iconic species. Popular articles frequently suggest a rapid and alarming decline in polar bear populations under climate change. Underlying such practices lies the view that, 'the polar bear is coming to symbolise the disappearing north, the end of the kind of climate we all grew up with'.[38]

[37] *Ibid*, p 143

[38] p 426 in Slocum, R (2004) Polar bears and energy-efficient light-bulbs: strategies to bring climate change home *Environment & Planning D: Society and Space* 22, 413–38

But the iconography of the polar bear as signifier of climate change may as easily be seen as a site of heightened controversy and disagreement than as one that effectively stabilises debate and concern around a shared natural 'treasure'. Survey work shows that the power of the polar bear icon to represent climate change in the minds of the public rests on its emotional appeal. While powerful among those to whom polar bears matter, this has little or no traction among those who are not interested in polar bears. This visual representation of climate change is also fragile because the dynamics of polar bear populations are contested among ecologists. To what extent are polar bears seriously threatened by climate change over and above other human pressures on their habitats? Danish statistician Bjørn Lomborg opened his recent book *Cool It* by questioning whether polar bears were indeed the 'canaries in the coalmine' they are frequently portrayed to be. 'Once you look at the supporting data the narrative falls apart.'[39]

Advertising climate change. One of the most powerful cultural uses of visual imagery is in commercial advertising. Value is added to products by using evocative images and texts, often appropriating meanings from one cultural context and attaching them to products in unrelated settings to advance sales (commercial advertising) or behavioural change (social marketing). Here we find more examples of where the iconography of climate change has solidified differences between climate change discourses rather than acted as a common visual denominator to induce agreement.

American public health expert Stephen Linder has examined how commercial advertisers have taken the idea of climate change, and the

presumed widespread public concern about it and, through visual and textual cues, used climate change to position their product or company in the market-place. On the one hand, companies such as the Ford Motor Company and Ben & Jerry's ice-cream draw upon themes of corporate social responsibility to make their products appear responsible. A Ford advert from May 2001 therefore shows the iconic image of the sun rising over the orb of the Earth with the slogan, 'Global warming. There, we've said it. Some find our stand on global warming unique – mostly due to the fact that we actually have one.'[40] Ben & Jerry's assume that their audience know about climate change and want to do something to stop it, and thus associate their product indirectly with this assumed desire. Over their advertising image of a tub of ice-cream is the slogan: 'Ben & Jerry's ice cream: help put the freeze on global warming.'[41]

On the other hand, advertisers may also invert the presumed social conscience about climate change. Using text and imagery in an ironic way, they promote *greater* consumption, the opposite outcome from those seeking behavioural change through social marketing. Climate change is hence parodied in an attempt to lure world-weary and cynical customers. Linder gives the example of Ben Sherman Menswear who overlay an image of a rugged and resistant individual with the slogan, 'If the effects of global warming are everywhere, why's my flat so cold?[42] And another instance of a television advert for Australian Foster's Ice beer takes the parody of climate change one step further. The basic message of the advert is to combat global warming by consuming Foster's Ice beer to stay cool.

> The advert begins in mock serious tones, with some of the most clichéed images of global warming reviewed in quick succession The lighting is very dim, but the images feature fire and natural disaster The

[39] p 2 in Lomborg, B (2007) *Cool it: the skeptical environmentalist's guide to global warming* Cyan-Marshall Cavendish: London For a considered investigation into the future fate of polar bears see: O'Neill, S , Osborn, T J., Hulme, M , Lorenzoni, I and Watkinson, A R (2008) Using expert knowledge to assess uncertainties in future polar bear populations under climate change *The Journal of Applied Ecology* 45(6), 1649–59

[40] Cited on p 120, Linder, S H (2006) Cashing-in on risk claims: on the for-profit inversion of signifiers for 'global warming' *Social Semiotics* 16(1), 103–32
[41] *Ibid* , p 122
[42] *Ibid* , p 127

voiceover projects an ominous sounding authority; the effect is disorienting Finally, there is an empty set with a globe. The voiceover reviews the conventional set of personal mitigation options, familiar tips for reducing greenhouse gases by changing one's consumption habits. Then comes the punch line: a final option added is ' to say bollocks to it and enjoy an ice cold Foster's ...' The globe collapses into ashes, and the scene cuts away to a kangaroo tapping its foot to 1920s jazz by an inviting pool in an oasis-like setting, drinking a Foster's Ice The kangaroo offers a knowing wink to complete the parody The final scene overlays the concluding message in bold print: 'Global Cooling'[43]

In these examples, climate change – and the signs, symbols and images adopted by commercial advertisers – becomes just one more cultural idiom for promoting products and consumption. Adverts which parody the idea of climate change, such as Foster's Ice, reinforce contrary messages about climate change by referring to advertising efforts built around global warming and then mocking or subverting them.

7.6 Summary

So why do we disagree about climate change? This chapter has suggested that one of the reasons is that we frame, narrate, picture and interpret climate change in quite different ways. Messages about climate change emerge from all parts of the complex cultural circuitry which shapes news, prioritises stories and conveys ideas around our societies. Consensus scientific announcements about the prospects for future climate change or crafted statements about desirable policy frameworks issuing from meetings of the Parties to the Framework Convention rapidly change shape and gain new ideological baggage as they circulate through these digital networks. Messages about climate change become increasingly divergent, often confusing and

sometimes conflicting, as they are heard, translated and re-assimilated by the world's 6.8 billion inhabitants. It is not long before novelist Ian McEwan's apt metaphor becomes reality, 'Can we agree among ourselves about climate change? We are a clever but quarrelsome species – in our public discourses we can sound like a rookery in full throat.'[44]

Climate change is framed in a multitude of different ways, either informed by the world-views of those communicating or filtered by the intuitive world-views of those listening. Different climate change discourses use different linguistic repertoires, often related to the specific goals of the discourse coalition involved. The existence of different visual representations of climate change – including the different wider iconographies of climate change – loads attitudinal or behavioural outcomes in favour of preselected conditions. At the same time, trends in new media practices, most notably through digital and internet technologies, are opening the way for even greater fragmentation, liberalisation and democratisation of social discourses about a whole range of public policy issues. They may empower more participatory approaches to debating scientific knowledge and designing social responses to climate change, but it seems unlikely that, by themselves, these new media environments will either promote or enable greater agreement about climate change. In the communication of climate change, it seems that the centripetal forces at work are stronger than the centrifugal ones.

We have explored in this chapter the many ways in which climate change can be portrayed in our media, through different combinations of frames, language and imagery, and how these portrayals change meaning as they circulate. One framing of climate change that has saliency because of its appeal to our ethical instincts for justice and equality is one that claims that 'climate change will hit hardest on the poor' Developing countries are frequently portrayed in this

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[43] Ibid , pp 125–6

[44] p 3 in British Council (2005) Talking about climate change British Council: Manchester, UK

frame as needing the help of the developed world to cope with the consequences of climate change. Visual images are frequently used by development organisations such as Christian Aid, which depict flood victims in the global South with textual overlays calling out to Northern readers; for example, 'Do us a favour will you? Write to your MP about that Climate Change Bill.'[45] Are these expressions of a campaigning moral outrage or are they manifestations of a smug paternalism or an imperialising form of neo-colonialism? They certainly engage a different social class from that targeted by Foster's Ice beer.

We may disagree about climate change because of the contrasting ways in which we approach the questions of global inequality and sustainable development. It is to these dimensions of climate change that we now turn.

FURTHER READING FOR CHAPTER 7

Ereaut, G and Segnit, N (2006) **Warm words: how are we telling the climate story and can we tell it better?** Institute for Public Policy Research (IPPR): London

Segnit, N and Ereaut, G (2007) **Warm words II: how the climate story is evolving.** Institute for Public Policy Research (IPPR)/Energy Savings Trust: London
These two reports from an independent think-tank examine the ways in which climate change is being discussed in the public domain in the UK It illustrates a range of different linguistic repertoires that are commonly found, each representing a different conception of climate change as a 'problem' and the options available for 'solutions' The 2006 survey was followed by an updated account the following year

Killingsworth, M J and Palmer, J S (1996) Millennial ecology: the apocalyptic narrative from *Silent Spring* to global warming In: Herndl, C G and Brown, S C (eds), **Green culture: environmental rhetoric in contemporary America.** University of Wisconsin Press: Madison, WI, pp 21–45
This is an excellent essay which explores thirty-five years of environmental rhetoric from the 1960s to the 1990s starting with Rachel Carson's Silent Spring and ending with global warming Although it obviously misses the story of the last ten years, it places the language and discourse of environmental (climatic) apocalypse into a longer historical context The

enduring point is made that the aim of rhetorical apocalyptic warnings is not to predict the future, but to change it Such discourses are always oppositional, iconoclastic and faith-based, rather than calculative and prediction-based

Moser, S and Dilling, L (eds) (2007) **Creating a climate for change: communicating climate change and facilitating social change.** Cambridge University Press
This edited volume is the most comprehensive book yet published about the communication of climate change It collects together over thirty different contributions from (mostly American) academic, civic and governmental perspectives which examine the challenges of communicating climate change to facilitate societal response The short chapters include a mix of descriptive, critical and practical perspectives on these challenges

Smith, J (ed) (2000) **The daily globe: environmental change, the public and the media.** Earthscan: London
This book offers an accessible account of the state of knowledge about media treatment and public understanding around the world of key environmental issues such as climate change It incorporates a wealth of expertise and insight from distinguished journalists, politicians, researchers and environmentalists The book offers practical examples of successful new forms of communication and lays the foundation for effective strategies aimed at informing public debate on the choices and challenges presented by global climate and environmental change

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[45] For example, advertisement in the *Guardian*, 29 September 2007