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Clumsy solutions for a complex world: the case of climate change

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Successful solutions to pressing social ills tend to consist of innovative combinations of a limited set of alternative ways of perceiving and resolving the issues. These contending policy perspectives justify, represent and stem from four different ways of organizing social relations: hierarchy, individualism, egalitarianism and fatalism. Each of these perspectives: (1) distills certain elements of experience and wisdom that are missed by the others; (2) provides a clear expression of the way in which a significant portion of the populace feels we should live with one another and with nature; and (3) needs all of the others in order to be sustainable. 'Clumsy solutions' – policies that creatively combine all opposing perspectives on what the problems are and how they should be resolved – are therefore called for. We illustrate these claims for the issue of global warming.

Most climatologists agree that by burning fossil fuels and engaging in other forms of consumption and production we are increasing the amount of greenhouse gases that float around in the atmosphere. These gases, in trapping some of the sun's heat, warm the earth and enable life. The trouble is, some predict, that if we continue to accumulate those gases, over the course of the present century the average temperature on earth will rise and local climates will change, with possibly catastrophic consequences. Will this indeed happen? Does climate change put the future of the world at risk? Can only a radical reallocation of global wealth and power rescue us from this threat? Or should people not be overly worried, as the steady march of technological progress will see us through in the end?

Such questions of cause and effect are not limited to the issue of global warming, but surround any major social and political problem. We argue that the ways in which people understand social and political issues are derived from a strictly limited number of alternative perceptions of reality. These alternative ways of perceiving the world justify, represent and emerge from alternative ways of organizing social relations. We claim that successful solutions to pressing social ills tend to consist of creative and flexible combinations of these various ways of organizing, perceiving and justifying social relations. We call such arrangements 'clumsy solutions'. First, we argue *which* contending perspectives usually abound in public debates, by setting out the theory of socio-cultural viability. We then illustrate these claims with the help of the current debate on climate change. On this empirical ground, we then proceed to build our normative case for clumsiness by explaining *why* successful solutions to pressing social ills tend to combine alternative ways of perceiving and organizing. To exemplify this, we return to the climate change case. We show that the Kyoto Protocol has stagnated, since it has merely represented a single way of perceiving and solving the problem, and we also outline a more realistic, clumsy set of climate change policies.

The theory of socio-cultural viability

The current landscape of the social sciences can be divided roughly into two camps. One camp is built on the assumption that human beings, or indeed entire societies, are fundamentally the same. Rational choice theory (for example, Monroe 1991) is a major contender from this camp, since it posits that all individuals are similarly rational or self-interested. Another contender would be systems theory, which maintains that modern societies are fundamentally alike (Luhmann 1986). The second camp harbours a contrary position: the only goal to which social scientists can truly aspire is to document how every person, community and epoch is incomparably different. Post-structuralism (for instance, Derrida 2001) explicitly rejects making generalizations about social life, claiming that such an exercise would always do injustice to the uniqueness of people and cultures. In addition, many of those who have not embraced post-structuralism have ended up arguing that social scientists can only uncover local and temporary causal relationships (Green and Shapiro 1994: 188; Flyvbjerg 2001).

We feel that both these edifices sit on shaky foundations. In view of the wide social variety across time and space, it seems implausible to insist either that all individuals follow a single rationality or that all societies are similar. Yet if it were true that individuals or societies were uniquely different, then how could we ever communicate across cultures, understand history, cooperate, and interpret new events (Wildavsky 1987)? Fortunately,

it is possible to distinguish between a limited number of social and cultural forms, and still recognize wide social and cultural variety. Physics has maintained that all the material objects that we can observe consist of endlessly varying combinations of only six basic particles (or, in more recent formulations, a small number of strings). Analogously, it might be possible to discern a limited number of fundamental forms of social organization from which a large variety of ultimate forms of social and cultural life can be derived. This is the starting point of the theory of socio-cultural viability, or, for short, cultural theory (Douglas 1982, 1987; Thompson et al. 1990; Thompson et al. 1999).

The original aim of this theory was to devise a typology of social forms that fitted the classificatory schemes developed by the grand old social theorists (Durkheim, Marx, Weber, and so on), as well as the evidence collected in ethnographic studies (Douglas 1978). According to our cultural theory, four primary ways of organizing, perceiving and justifying social relations exist: (1) egalitarianism; (2) hierarchy; (3) individualism; and (4) fatalism. We postulate that these four 'ways of life' are in conflict in every conceivable domain of social life. Most such domains (say the way in which a school operates or an international regime functions) will consist of some dynamic combination of these pure forms. As many social domains can be distinguished within and between societies, the theory allows us to perceive a wide and ever-changing cultural and social variety, while still enabling us to formulate general propositions – including the possible ways in which people attempt to stave off a threat such as climate change. In order to explain this, we will have to spell out the theory.

Each way of life consists of a specific way of structuring social relations as well as a supporting cast of particular perceptions, values, emotions and interests. Our fourfold typology is derived from two dimensions of sociality that we call 'grid' and 'group' (Gross and Rayner 1985). Grid measures the extent to which ranking and stratification constrains the behaviour of individuals. Group, by contrast, measures the extent to which an overriding commitment to a social unit constrains the thought and action of individuals. Assigning two values (high and low) to the two dimensions gives the four ways of organizing social relations. Egalitarianism is associated with a low-grid score (little stratification) and a high-group score (strong group boundaries and solidarity). The combination of a high score on the grid dimension (lots of stratification) with a high score on the group dimension (much solidarity) gives hierarchy. The third way of life, individualism, is associated with low scores on both the grid and group scales. Lastly, fatalism is characterized by a high-grid and a low-group score.

We are now in a position to describe how these four ways of organizing tend to produce different ways of perceiving (human) nature, and the policy prescriptions that follow from that. In an egalitarian social setting, actors see nature as fragile and intricately interconnected, and man as essentially

caring (until corrupted by coercive institutions such as markets and bureaucracies). We must all tread lightly on the earth, and it is not enough that people start off equal; they must end up equal as well. Voluntary simplicity is the only solution to our environmental problems, with the Precautionary Principle being strictly imposed on those who are tempted not to share the simple life.

In a hierarchical setting, actors see the world as controllable. Nature is stable until pushed beyond discoverable limits, and man is deeply flawed but redeemable by firm and long-lasting institutions. Fair distribution is by rank and station or, in the modern context, by need (with the level of need being determined by expert and dispassionate authority). Environmental management requires certified experts to determine nature's limits, and statutory regulation to ensure that economic activity is kept within those limits.

In an individualistic setting, actors view nature as resilient – able to recover from any exploitation – and man as inherently self-seeking and atomistic. Trial and error, in self-organizing ego-focused networks (unfettered markets), is the way to go, with Adam Smith's invisible hand ensuring that people only do well when others also benefit. The upholders of individualism cooperate until others give them reason not to and then retaliate in kind (the winning 'tit for tat' strategy in the iterated prisoner's dilemma game), and see it as only fair that those who put the most in get the most out. They prefer institutions that work with the grain of the market (that get rid of environmentally harmful subsidies, for instance).

In a fatalistic setting, actors find neither rhyme nor reason in nature, and suppose that man is fickle and untrustworthy. Fairness is not to be found in this life, and there is no possibility of effecting change for the better. 'Defect first' – the winning strategy in the one-off prisoner's dilemma – makes sense here, given the unreliability of communication and the absence of acts of good faith. Without the possibility of ever getting in synchrony with nature, or of building trust with others, the fatalistic world is one in which learning is impossible (Banfield 1958; Putnam 1993). 'Why bother?' is the rational management response.

This classification of alternative ways of organizing and perceiving social relations has captured the contradictory ways in which people approach all kinds of public policy issues. Indeed, these solidarities, in varying strengths and patterns of paired alliance, are discernible almost anywhere you care to look – from debates over the wisdom of prescribing safety seat belts, via the different ways in which international regimes cope with transboundary risks such as water pollution, to the changing definition and treatment of the mentally ill by public authorities (Swedlow 1994; Adams 1995; Thompson et al. 1998; Verweij 2000). Thus, four straightforward organizational principles can result in an endlessly changing, infinitely varied, and complex social world.

Some will argue that this typology represents nothing new. Derived from classifications proposed by the founding fathers of the social sciences, it also overlaps with many recent categorizations, such as the typical reactions to decline that Hirschman (1997) has described (exit, loyalty and voice), the patterns of economic action that Polanyi (1944) has pointed to (market, redistribution and reciprocity), the sorts of 'goods' (private, public, common pool and club) distinguished by Snidal (1994), and Lichbach's (1995) solutions to collective problems (market and contract, hierarchy, and community). We agree with this assertion, but feel that these similarities merely fortify our assumption that human relations tend to be organized in a restricted number of ways.

Moreover, in comparison to other taxonomies, the grid-group classification comes with several advantages. Not only does it add a fourth way (usually fatalism) of organizing to many classifications, it also spells out the perceptions that typically underpin alternative ways of organizing. In addition, cultural theory's typology can be applied to any possible domain of human life (from sexual relations to the nuclear arms' race). Lastly, cultural theory is more than just a taxonomy – it is emphatically a dynamic theory, with its typology identifying the timeless components in the ever-changing positions that are the destinations and points of departure for all that endless movement. The approach posits that both societies and policy discourses are forever in flux. The source of perennial change at the socio-cultural level is the continuous waxing and waning, merging and splitting, of the four ways of life. The fount of change at the level of policy discourses is the enduring clash between policy actors adhering to alternative ways of life, which forces actors to constantly update, revise and re-invent their preferred policies in light of the criticisms received (even though their fundamental assumptions – those concerning nature, human nature, justice, risk, time, space, and so on – remain unchanged). As such, the approach lends itself to the study of human complex systems (Mitleton-Kelly 2005), and also ties in with recent conceptual efforts to emphasize the inherently dynamic nature of policy discourses (Grant et al. 2004) and socio-cultural settings (Martin 2002).

Cultural theory has several normative implications. First, there is the realization that people are arguing from different premises and that, since these premises are anchored in alternative forms of organizing, they will never agree. Second, in line with the 'argumentative turn' in policy analysis (Morone and Woodhouse 1986; Collingridge 1992; Winner 1992), this contention, as well as being unavoidable, is all to the good: something to be harnessed through constructive communication. Each way of organizing and perceiving: (1) distils certain elements of experience and wisdom that are missed by the others; (2) provides a clear expression of the way in which a significant portion of the populace feels we should live with one another and with nature; and (3) needs all the others in order to be sustainable. As Barry Schwartz (1991: 765) put it:

> Each way of life undermines itself. Individualism would mean chaos without hierarchical authority to enforce contracts and repel enemies. To get work done and settle disputes the egalitarian order needs hierarchy, too. Hierarchies, in turn, would be stagnant without the creative energy of individualism, uncohesive without the binding force of equality, unstable without the passivity and acquiescence of fatalism. Dominant and subordinate ways of life thus exist in alliance yet this relationship is fragile, constantly shifting, constantly generating a societal environment conducive to change.

For the above three reasons, it is important that all the ways of life be taken account of in the policy process. And that, for all its simplicity, is the essence of clumsiness: all the 'voices' heard, and responded to by the others. We can now return to the issue of climate change, and show how our theory sorts out the ongoing disputes regarding this topic – and what this implies for governance.

The contested terrain of climate change

Cultural theory holds that the specific policies and arguments advanced will constantly change, yet whatever policies are fought over, they will continue to represent a small number of competing ways of organizing and perceiving social relations. We can therefore use the theory to take a snapshot of the current state of the climate change debate. The present positions in the climate change debate can be read as three policy stories (three, because the fatalist solidarity does not motivate people to participate consistently in public debates; if it did, it would not be fatalistic). Each policy story provides a setting (the basic assumptions), a villain (the policy problem), heroes (policy protagonists), and a moral (the policy solution). Each story emphasizes different aspects of the climate change issue, and is defined in contradistinction to the other policy stories (Thompson and Rayner 1998a).

Profligacy: an egalitarian story

This story uncovers the profligate consumption and production patterns of the North as the fundamental causes of global climate change. Rich industrialized countries, so the argument goes, are pillaging the world's resources with little regard for the well-being of either the planet or the peoples of its poorer regions. Climate change is not an issue amenable to quick technical fixes; it is a fundamentally moral and ethical issue.

The setting for this story is an ecocentric world in which everything is intricately connected to everything else, and nature is fragile. This story urges us to think of Planet Earth as a single living entity. Environmental degradation,

then, is also an attack on human well-being. Humans have, until now, successfully deluded themselves that they can live apart from the natural environment. In reality, however, there is no place for humans outside nature and thus no justification for considering humans as superior to nature.

The villain, in the profligacy story, is the fundamentally inequitable structure of advanced industrial society. In particular the obsession with economic growth has not only brought us to the brink of ecological disaster, it has also distorted our understanding of both the natural and the social world. Global commerce and advertising lead us to desire environmentally unsustainable products (for example, bottled water, fast cars or high protein foods) while our real human needs (living in harmony with nature and each other) go unfulfilled. Furthermore, advanced capitalism distributes the spoils of global commerce highly unevenly – both within and among countries. In short, prevailing structural inequalities have led to increasingly unsustainable patterns of consumption and production.

Since everything is connected to everything else, this story continues, we cannot understand environmental degradation unless we see it as a symptom of this wider social malaise. The way humans degrade and destroy the natural world is merely an indicator for the way they treat each other, and particularly the weaker members of society. The logic that allows us to fell thousands of square kilometres of rainforests, to dump toxins in waterways, or pollute the air is precisely the same logic that produces racism, misogyny and xenophobia.

The heroes of the profligacy story are those people who have managed to see through the chimera of progress in advanced industrial society. They are the ones who understand that the fate of humans is inextricably linked to that of Planet Earth and that, in order to halt environmental degradation, we have to address the fundamental global inequities. In short, the heroes of the profligacy policy argument are those organizations of protest, such as Earth First!

What, then, is the moral of the profligacy story? The tale urges us to adopt a strict version of the precautionary principle: unless policy actors can prove that a particular activity is innocuous to the environment, they should refrain from it. The story therefore calls for drastic cuts in carbon dioxide emissions; since the industrialized North produces most of these emissions, the onus is on advanced capitalist states to take action. Yet none of these measures, the story continues, is likely to be sufficient. Those in the affluent North will also have to fundamentally reform their political institutions and their unsustainable lifestyles. Rather than have professionalized bureaucracies and huge centralized administrations, the profligacy story suggests we should decentralize decision making down to the grassroots level. Rather than continuing to produce ever-increasing amounts of waste, we should conserve our fragile natural resources. Only then can we meet real human needs – the needs of Planet Earth.

Earth First! (2002) provides a telling example:

> To avoid co-option, we feel it is necessary to avoid the corporate organizational structure so readily embraced by many environmental groups. Earth First! is a movement, not an organization. Our structure is non-hierarchical. We have no highly-paid 'professional staff' or formal leadership … Earth First! has survived attacks by moderates, would-be leaders and the agents of the system, remaining the most diverse, passionate, committed, and uncompromising group of environmental activists.
>
> Earth First! is a priority, not an organization. It is the name of our journal, and the slogan of our emerging tribe, but it is a tribe without chiefs. The only 'leaders' are those temporarily working the hardest and taking the most risks. New ideas, strategies and crucial initiative come from individuals, and all decisions are made within affinity groups based on preferred tactics.

And this is how Earth First! sees the problem:

> Not only is the blitzkrieg against the natural world destroying ecosystems and their associated species, but our activities are now beginning to have fundamental, systemic effects upon the entire life-support system of the planet – upsetting the world's climate, poisoning the oceans, destroying the ozone layer which protects us from excessive ultraviolet radiation, changing the $C0_2$ ratio in the atmosphere, and spreading acid rain, radioactive fallout, pesticides and industrial contamination throughout the biosphere.
>
> Clearly, the conservation battle is not one of merely protecting outdoor recreation opportunities; neither is it a matter of elitist aesthetics, nor 'wise management and use' of natural resources. It is a battle for life itself, for the continuous flow of evolution. To put it simply, the earth must come first.

From this perspective, the solution seems clear:

> While many environmental groups are members of the American political establishment and essentially adopt the anthropocentric (human-centered) world view of industrial civilization, we say the ideas and manifestations of industrial civilization are anti-Earth, anti-woman, and anti-liberty. We are developing a new biocentric paradigm based on the intrinsic value of all natural things: Deep Ecology. Earth First! believes in wilderness for its own sake. Lobbying, lawsuits, letter writing and research papers are important and necessary.

> But they are not enough. Earth First!ers also use confrontation, guerrilla theater, direct action and civil disobedience to fight for wild places and life processes.

Similar opinions propel citizens' groups such as Ecodefense, Greenpeace, World Social Forum and International Forum on Globalization.

Lack of global planning: a hierarchical story

Our second story opens with a view on the limits to economic and population growth. In an older rendering, a tale told some 30 years ago, these limits were the dwindling resources of oil, gas and coal, which – scientific studies had proven – would not be sufficient to sustain the world's economic growth forever more. Nowadays, after a 30-year period in which 'proven reserves' of fossil fuels have continuously risen, different limits to growth are being highlighted. Rather than be afraid of natural resources running out, we should be concerned about the continued use of oil, gas and coal. Such irresponsible behaviour, due to its long-term effects on the world's climates, would eventually wreak havoc on the ecosystems on which humans depend.

The operative term in this policy story is 'long term'. Although greenhouse gas emissions have already started to affect ecosystems, there is still time to remedy matters. The hierarchical script does not include the line that the world is about to come to an end unless we radically change our wicked capitalist ways. Enough time is left to plan a gradual change towards technologies and resources that do not emit greenhouse gases. Unfortunately, the 'long term' also plays a less benign role in this tale. The consequences of climate change lie far into the future, and are spread across the globe: way beyond the temporal and spatial kens of most citizens and enterprises. Moreover, each single contribution that households, companies, and even countries could make to the prevention of climate change is so small as to be insignificant. It therefore makes no sense for anyone to unilaterally reduce their emissions. What we are faced with, therefore, is a 'tragedy of the global commons'. This tragedy is the setting of the hierarchical story.

The underlying problem is the lack of global governance and planning that would rein in global markets and protect global commons. Singled out for contempt are those individuals, governments and enterprises sceptical of the view that the solution to global issues must consist of global intergovernmental treaties, based on scientific planning and expert advice, and endorsed by the United Nations. In the case of global warming these would include, first and foremost, the Bush Administration, the US Senate, and the Australian government under Prime Minister Howard [between 1996 and 2007, Ed.]. Scientists who argue against the climate change thesis are put down as 'politically motivated', or 'in the pocket of the oil industry'.

The moral of this tale is clear: the only remedy to climate change is for the governments and parliaments of the world to formally agree on the extent to which future emissions should be cut, which countries should do so, how, and when. States should then impose these agreements on the multitude of undiscerning consumers and producers within their borders. This is the logic behind the 1997 Kyoto Protocol, espoused by almost all the governments of the world, UN agencies and the World Bank, as well as by the large mainstream environmental organizations (of which Earth First! is so disparaging).

This story's heroes are those dispassionate scientists, experts, civil servants, NGO representatives and enlightened politicians who have not dedicated their talents to the service of Mammon, but are quietly building the global bureaucratic structures that will rectify the short-termism and greed of global markets, and usher in the non-carbon age in a planned and gradual manner.

Consider the statement of the Club of Rome (2002: 7–8) to the World Summit on Sustainable Development:

> Market forces alone cannot be relied upon to preserve the 'natural capital' of the planet, and to generate adequate substitutes for exhaustible resources. Maximum sustainable levels of use of critical resources and of pollution must be limited in global economic systems … The Kyoto Protocol must be fully implemented, and in respect of the precautionary principle, extended to all anthropogenic substances affecting the climate and ocean circulation.
>
> Governance is at the core of all challenges we are facing. Wherever we look we find political structures with insufficient performance … We need a new 'ethic of human solidarity' to emerge in all global governance frameworks. This requires civil and political leadership and responsibility … Global institutions must be strengthened to ensure the stability of the world economic system and to manage the 'Global Commons' (atmosphere, oceans, the Antarctic etc.).

Business as usual: an individualistic story

Those who belong to more individualistic organizations – the United States' Cato Institute, for instance, or Britain's Institute of Economic Affairs, or *The Wall Street Journal* – tell a very different tale. To them, the ballyhoo over global warming is much ado about nothing – just another attempt at scaremongering by naïve idealists who erroneously believe that the world can be made a better place and international bureaucrats looking to expand their budgets and influence. Such individualistically organized outfits are sceptical that climate change will occur and they are convinced that, even if it does, the consequences will be neither catastrophic nor uniformly negative. We

are, they assert, where we have always been: faced with challenges that, if tackled boldly by a diversity of competing agents, can be transformed into opportunities from which all can benefit. They emphasize the *lacunae* in climate change science:

- Clouds, whose formation is poorly understood but which are expected to be more prevalent in a warmer world, would reflect more sunlight back into space before it reached the earth's surface.
- Human sources of greenhouse gases are dwarfed by natural sources (volcanoes, for instance, and termites) – which means that it is impossible in the short-run to say whether any warming (if it is happening) is man-made.
- The climate models that are being used to predict future changes cannot even accurately chart past changes.

They also point out that a carbon-richer climate would increase agricultural productivity, and that, even if the negative impacts did outweigh the positive ones, we would still need to compare the costs of preventing global warming now to the costs of adapting to higher temperatures a few decades hence. Money not spent on preventing climate change could be used to tackle other, more pressing environmental and social ills. On top of all that, individualistic organizations are open to the view that technological progress may soon render today's fuss over climate change irrelevant. The production costs of renewable energy, they point out, have fallen dramatically over the last few decades, and these new technologies – wind, hydro, geothermal and solar – are becoming competitive with the old technologies of fossil fuels.

The setting of this individualistic story is therefore a wonderfully robust and bountiful natural world, while the villains are those people too woolly-headed to grasp this simple fact, as well as those bureaucratic outfits that misrepresent matters so as to increase their own clout. The heroes are those decision makers who refuse to be intimidated by all this scaremongering, the sceptics in the community of atmospheric scientists, as well as those risk-taking entrepreneurs who will soon make people forget all about climate change by making clean technologies competitive. The moral of this story is: innovative business as usual!

Roger Bate (2001: 12), director of the Environment Unit of the Institute of Economic Affairs, concludes:

> On the whole, society's problems and challenges are best dealt with by people and companies interacting with each other freely without interference from politicians and the state. We do not know whether the world is definitively warming, given recent satellite data. If the world is warming, we do not know what is causing the change – man or nature. We do not know whether a warmer world would be a good

> thing or a bad thing. [The scientific evidence] does not suggest that immediate action for significant limitation on energy consumption is urgently required. Until the science of climate change is better understood, no government action should be undertaken beyond the elimination of subsidies and other distortions of the market.

In providing this snapshot of the current state of the climate change debate, we do not wish to suggest that these policy stances are immobile. On the contrary, we perceive policy discourses as being in flux, with the antagonists forever reformulating, revising and updating their preferred policies in light of the criticisms received and the changing (perceived) circumstances. Yet, however much the specifics of policy proposals may vary, we also contend that these continuously changing stances remain underpinned and separated by invariant alternative assumptions regarding nature, human nature, governance, justice, blame, risk, and so on.

Again, the climate change debate provides an apt illustration. Today, as we have seen, the Club of Rome (2002) espouses the view that humankind is being threatened in the medium to long run by the build-up of greenhouse gases in the atmosphere that is caused by the continuing use of fossil fuels around the globe. This is almost diametrically opposed to the Club's views of the early 1970s (Meadows et al. 1972), which held that the world's long-term prosperity and stability was under threat from the depletion of fossil resources. The Club of Rome has, therefore, clearly shifted position during the last 35 years – a period in which proven reserves of fossil fuels have steadily increased, something that has often been pointed out by the Club's critics, such as economist Julian Simon (1998). Yet both the Club's underlying assumptions (that unregulated citizens and nations are too selfish or shortsighted to realize that they are slowly but surely undermining their own prosperity) and its ultimate governance ideals (more global, top-down, expert planning to rein in global markets) have remained hierarchical.

It is only by teasing out these sorts of policy arguments, and their changes over time, that we can understand the social constructions of needs and resources: how they are generated and transformed, and how they shape the policy process. This understanding has important normative implications:

- The three stories tell plausible but conflicting tales of climate change. All tales use reason, logic and science to argue their points. None of the tales is 'wrong', in the sense of being implausible or incredible. Yet, at the same time, none is completely 'right'; each argument focuses on those aspects of climate change for which there is a suitable solution cast within the terms of a particular form of organization.
- These three policy discourses are not reducible to one another: none is a close substitute for the others. Nor are any of the stories' proponents ever likely to agree on the fundamental causes of and solutions to the global

climate change issue. In addition, since these stories implicitly convey a normative argument, namely that of the good life (in either egalitarian enclaves, hierarchies or markets), we cannot, in any scientific sense, prove or falsify policy stories (Thompson and Warburton 1985).

- These stories also define what sort of evidence counts as a legitimate fact and what type of knowledge is credible. The profligacy story dismisses economic theory as the obfuscation of social inequalities and rational management as the reification of social relations The tale of individual entrepreneurship views holistic eco-centrism as bogus science and pours scorn on the naïve belief in benign, central control. Lastly, the global governance story both rejects *laissez-faire* economic theory as dangerously unrealistic and questions the scientific foundations of more holistic approaches.

This leaves us with a dynamic, plural and argumentative system of policy definition and policy framing that decision makers ignore only at their cost: for three reasons. First, each policy story thematizes a pertinent aspect of the climate change debate while ignoring others. Any global climate change policy based on only one or two of these stories will therefore merely provide a partially effective response. Second, each of the stories represents a political voice in the policy process. Ignoring any of these voices, within democratic polities, inevitably leads to a loss of legitimacy. What is more, in democracies, dissenting voices will eventually force their way into the policy process (as we have seen, for instance, with the World Trade Organization in Seattle and the G8 riots in Genoa). Neither the cost of acrimonious political conflict nor the loss of public trust experienced by those who suppress dissenting voices are particularly attractive. The former often leads to policy deadlock; the latter may well result in a legitimacy crisis in the polity as a whole. Lastly, even though these are contradictory perspectives on policy, none of them can be effectively implemented on its own. Only innovative combinations of bureaucratic measures, risky entrepreneurship and technological progress, as well as frugality and international solidarity, can be successful.

The failure of the Kyoto Protocol

The failure of the Kyoto Protocol illustrates this latter point. Although the treaty finally entered into force in February 2005, it remains beset by many problems. These stem from the fact that the treaty represents merely a single way of perceiving the problem of climate change.

The 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change binds 'Annex B' countries (basically the OECD member

states, minus Mexico, but plus the Eastern European countries) to reduce the 1990 level of their greenhouse gas emissions by 5.2 per cent between 2008 and 2012. These cutbacks are so small as to be well-nigh insignificant. Most scientists involved believe that a reduction of at least 50 per cent in the worldwide release of greenhouse gases is needed by 2050 in order to stabilize the world's climate. If the original version of the Kyoto Protocol were fully implemented, then only 8 per cent would be chewed off of a 'business-as-usual' scenario in which greenhouse gas emissions would quadruple in the next hundred years. At this snail's pace, we would need 30 Kyoto Protocols to stop global warming (Malakoff 1997).

This original aim has been halved in attempts to convince the governments of Japan, Australia, New Zealand, Russia and Canada to ratify the Protocol. During a string of international conferences, these governments were promised that they could off-set their emissions of greenhouse gases by preserving their forests and agricultural lands. Trees and certain soils soak up carbon dioxide (the main greenhouse gas) from the air, and thereby curb global warming. It could therefore be argued that preservation of these so-called 'carbon sinks' contributes to preventing global warming. It was agreed that Japan, Canada, Russia, Australia and other industrialized countries could count preservation of existing trees and soils towards their reduction goals – even though they harboured few plans to cut their forests in the first place. This form of creative accounting has in effect lowered the commitments of industrialized countries to a 2 per cent cut in their collective emissions of greenhouse gases (Pianin 2001). And this figure rests on the false assumption that the United States will abide by the Kyoto Protocol. Without the participation of the United States, implementation of the Kyoto Protocol may amount to a 10 per cent *rise* of collective emissions (den Elzen and de Moor 2001).

Nevertheless, even these concessions did not immediately induce the governments of Russia and Australia to sign up. The Kyoto Protocol could only come into force when ratified by any combination of industrialized countries whose combined greenhouse gas emissions add up to 55 per cent of the world's total. Given the refusal of the US Senate and Administration to ratify the treaty, this meant that the accord could not enter into force without the participation of (in particular) Russia. In October 2004, and mainly in order to ensure Russia's future entrance into the World Trade Organization, the Putin government finally gave up its opposition to the Protocol.

Unfortunately, almost none of the countries that have ratified the Kyoto Protocol are implementing it. The European Union, for instance, at the time of writing, is not on track towards meeting its obligations under the treaty. The greenhouse gas emissions of the countries that have ratified the treaty have gone up, rather than down, during the last five years (UNFCCC 2005).

Lastly, it is highly doubtful whether the Kyoto Protocol could ever be expanded. This is because any expansion would depend on the willingness of a

very large number of governments to cooperate. Its supporters have defended the Protocol as a 'first step'. But making that first step took 13 years, and subsequent steps seem actually to be harder to make. Further steps would have to include the United States (the largest current emitter of greenhouse gases) as well as developing countries (their emissions are expected to rapidly rise in the near future). But almost all developing countries have refused to accept any hint of future obligations, whereas the United States' Senate has repeatedly stated that it will not support any treaty that leaves developing countries off the proverbial hook. Underlying the tensions between the government of the United States and the governments of the Group of 77 (G77: developing countries) are not only huge financial interests, but also opposing moral perspectives on who is responsible for the global inequalities in wealth, and what should be done about this (Thompson and Rayner 1998b). The American government has taken a more individualistic stance, according to which countries themselves are responsible for their plight. The G77 has viewed the world economy in more egalitarian terms, in which structural power inequalities combine to make the rich richer and the poor poorer. In particular, Brazil's government has frequently taken the latter stance, viewing the issue of climate change as an opportunity to reduce income inequalities around the world. It is therefore not surprising that the head of the diplomatic team from one of the most influential developing countries confided that 'there will not be a second commitment period' (interview with lead author, Marrakech, 4 November 2001). This is Protocol-Speak for saying that further international agreement will not be possible.

In sum, the Kyoto Protocol has tiny goals, which are neither being reached nor are likely to be renewed or surpassed. The Protocol has been doomed from the beginning, being based on the assumption that the prevention of climate change is an expensive and global 'public good' that can only be provided through a formal treaty between all the world's governments and parliaments (Gerlach and Rayner 1988). This purely hierarchical perspective has suffered from at least three flaws. First, the Kyoto Protocol has been fiercely resisted by those parties that have espoused a more individualistic stance on the issue of global warming: the US Senate, the Bush Administration, the government of Alberta, the Australian government, and (until very recently) President Putin. Whatever 'financial interests' one believes might be lurking behind these policy positions, all these bodies have publicly defended their anti-Kyoto stance with individualistic arguments. They have maintained that the scientific evidence is not complete, that the treaty ignores technological change and gives too much leverage to international bureaucracy, and that curbing climate change now is too costly and is best left to the more prosperous future.

Second, according to the hierarchical logic underlying the Kyoto Protocol, curbing climate change is a very expensive affair (see, for example, Roehrl and Riahi 2000). (If this weren't the case, then there would be no need for

binding international treaties). This means that – according to the Kyoto rationale – governments need to legally bind themselves to imposing high costs on their citizens in a coordinated attempt to stem an uncertain environmental threat from probably happening in the not-so-near future. And all of this while many of these governments also have to deal with other, more pressing environmental challenges, and have few resources to draw on. As long as the issue of climate change is cast in these terms, it is hard to see how it will be solved. Very few, if any, costly, global inter-governmental treaties have ever been ratified and implemented.

Lastly, the Kyoto Protocol is a typical example of the traditional diplomatic route to international agreement. Along this route, the diplomatic missions of the countries involved must first agree on, and sign, an official treaty. Thereafter, the treaty needs to be ratified by the parliaments in these countries. Only when a large number of such ratifications are in can the treaty enter into force. Then the process of monitoring starts. Usually, this hierarchical route to international policy is a painstakingly slow process (Rayner 1991). It also assumes that both the governments and parliaments of more than 180 highly diverse countries can agree on the solution to a deeply complex, future ecological threat. Furthermore, it assumes that once governments have agreed on international measures, they will be able to impose their will on the myriad of producers and consumers within their borders. These are shaky foundations. Attempts to reach agreement on such global treaties, due the vast ideological differences between governments and the financial interests that are perceived to be at stake, usually get quickly bogged or watered down.

At this point, two counter-arguments could be raised. First, it could be argued that the Kyoto Protocol does not represent an entirely hierarchical project, since its body of scientific advisors – the Intergovernmental Panel on Climate Change (IPCC) – invites 'sceptics' to its meetings, and since the treaty clears the way for trading of permits to emit greenhouse gases. Second, it could be objected that the Kyoto Protocol is only one part of a wider policy regime to prevent climate change, and has acted as a catalyst for domestic policies and renewable energy programmes. In other words, even though the Protocol itself may be a strictly hierarchical project, it has stimulated many other initiatives – at lower levels, and by governments, enterprises and NGOs – that cannot always be classified as hierarchical.

The first counter-argument overlooks the fact that the critics of the Kyoto Protocol have received a relatively small number of seats at the IPCC meetings. Moreover, the contributions that these critics have been able to make to the IPCC have been ignored during the inter-governmental negotiations about the Protocol. It also overlooks the fact that the trading of emissions permits is a market mechanism in name only. The Kyoto Protocol allows trading of permits to emit greenhouse gases between governments, as well as between companies at a national or regional level. The aim of these trading systems

is to reduce the overall costs of implementing the Protocol by making it possible to cut back greenhouse gases where it is cheapest to do so. *Prima facie*, emissions trading appears to work with the grain of the market. However, this ignores the fact that emissions trading rewards economically unsuccessful countries and companies, while punishing successful ones. This is due to the initial allocation of permits among countries and companies, which either has to be based on past (or present) economic performance, or on expected future achievements. As a result, countries or enterprises with low growth are rewarded for their poor economic performance with the opportunity to sell unused pollution permits. Economically successful nations and corporations are punished by having to acquire more pollution permits. For instance, under the Kyoto Protocol the distribution of permits among governments has been based on the size of their countries' economies in 1990. Since then, the Russian economy in particular has imploded, and its emissions of greenhouse gases have fallen sharply. As a result, Russia cannot avoid meeting its emission standards under the Kyoto Protocol even if it tries to do so, and will have many emission permits on offer. If foreign governments decide to buy these permits (as now looks highly probable, since almost no country is on course to meeting its targets), then the Russian state will receive tens, maybe hundreds, of billions of dollars for which it will not have undertaken any measures against global warming (Victor 2001). A similar problem sprouts from the initial allocation of permits between companies that is foreseen in the European Union. This distribution will be based on the emissions of companies in the past, which will allow unsuccessful companies to shore up their financial position through selling 'left-over' pollution permits to successful companies. It also means that newcomers to industries will have to acquire permits from established companies. A market mechanism that punishes the economically successful and helps the unsuccessful is not a market mechanism. Furthermore, emissions trading will come with substantial administrative costs, since the companies and governments involved will need to constantly monitor how much greenhouse gases the companies are releasing. The European Commission (2000) has estimated that the compliance costs of its proposed EU trading system would come to 6–9 billion euros annually.

The second counter-argument rightly points out that many domestic policies and renewable energy initiatives have been justified on the basis of, and sometimes made possible by, the Kyoto Protocol. However, this also implies that such policies and initiatives are not only enabled, but at the same time also constrained, by the goals in the treaty. And since the goals of the treaty have been unambitious, the domestic policies and initiatives have also remained correspondingly small. This explains why domestic climate change policies and renewable energy policies have been so inadequate, and why almost no affluent countries have significantly reduced their emissions. Furthermore, this counter-argument is based on an invalid comparison – namely between having a policy regime that includes the Kyoto Protocol

on the one hand, and not having a policy regime at all on the other. Indeed, proponents of the Kyoto Protocol often argue that: 'there is no alternative' (Muller et al. 2001). Fortunately, there is one, a clumsy one.

Curbing climate change the clumsy way

The logic underlying the Kyoto Protocol overlooks the remarkable decline of the production costs of renewable energy sources (such as solar, water, geothermal, biomass, and wind energy) during the last few decades. A wide variety of organizations and professionals – including the US Department of Energy (1999), the International Energy Agency (2000), UNDP, UNDESA and the World Energy Council (2004), the Fraunhofer Institute for Solar Energy Systems (Luther 2005), the Renewable and Appropriate Energy Laboratory at the University of California at Berkeley (Herzog et al. 2001), Vijay V. Vaitheeswaran (2003) and the G8 Renewable Energy Task Force (2001) – have shown that the costs of renewable energy have fallen dramatically. This development has offered many opportunities for combating global warming without global treaties.

State-of-the-art wind plants currently produce electricity at about $0.05 per kilowatt-hour (kwh), or six times more efficiently than in 1980. This means that only the breadth of a hair now separates the costs of wind energy from those of fossil energy. In many parts of the world, water has long offered an inexpensive and reliable source of energy. The latest hydroplants also come in small and medium versions, and can be located in places where they do not severely affect ecosystems, further increasing the attractiveness of water energy. Energy from geothermal sources has steadily become cheaper as well. Its production costs have decreased 25 per cent over the past two decades, and currently come to $0.05–0.08 per kwh. The US Energy Department has pledged to help reduce the costs of geothermal energy to a mere $0.03 per kwh in the next decade. This would make geothermal energy cheaper than fossil fuels (given the stagnant production costs of the latter). Solar energy in both its forms has also come a long way. Since 1980, the production costs of solar thermal energy (which relies on the sun's heat) have come down from $0.40 to around $0.08 per kwh, and are widely expected to keep falling. The costs of generating electricity with photovoltaic solar cells (which use daylight) have been reduced by a factor of seventy *(sic)* during the last 20 years. It is already economical to use photovoltaic energy in many poor, but sunny, areas. This is possible, since the use of photovoltaics enables these areas to avoid constructing an electricity grid. A further three- or four-fold cost reduction will be needed to make solar energy fully competitive for all possible appliances and every possible site. But the tremendous reduction that has already been achieved during the last two decades strongly suggests that this is feasible.

In the transport sector, things have also been moving fast. Most major car companies are planning by the end of this decade to market affordable electric cars that are powered by fuel cells. When fuelled by various forms of biomass, these cars would not contribute to the greenhouse effect. The costs of biomass have been halved during the last 20 years, and are expected to reduce further to the costs of petrol in some 10 to 15 years time (Grassi 2000). And even if biomass were not to work out, other clean alternatives to oil, such as hydrogen, might. Many energy and car companies have started to invest in the production and use of hydrogen (Vaitheeswaran 2003).

We do not argue here that the rise of renewables is guaranteed; nor do we argue that the market will automatically save us from global warming. Many governmental policies need to be implemented, and technological breakthroughs achieved, before renewable energy will become competitive. However, the rise of the renewables has thus far taken place without much support from governments and multinational companies. Over 60 per cent of global energy RD&D undertaken during the last 40 years has been spent on nuclear energy. In sharp contrast, only 6 per cent has been used to support renewable energy (International Energy Agency 2001). This highly skewed allocation of funds still persists. The public and private funds spent on developing new forms of energy actually declined during the 1990s (Dooley et al. 1998). In 1999, in the United States, the Federal Government alone poured about $40 billion into military research, while the private and public sectors combined sprinkled a mere $4.4 billion on energy research (International Energy Agency 2001). Even when starved of funds, renewables have already gained considerable ground, suggesting that with more extensive governmental and corporate support they will bloom.

This possibility opens up alternative ways of curbing climate change than through formal, global treaties (Rayner and Malone 1997; Sarewitz and Pielke 2000). Governments, companies and NGOs that are particularly concerned about global warming could take the lead by focusing on making renewable energy competitive. Besides increased RD&D, this requires numerous activities: enterprises to undertake risky investments; governments to adapt infrastructure, change tax systems and provide financial incentives; universities to update curricula; engineers and architects to familiarize themselves with new processes and materials; consumers to get informed about new products; grid operators to find solutions to the problems caused by the intermittency of some renewables; and environmental groups to remain vigilant about the ecological downsides of renewable energy. In the short term, the governments and corporations at the forefront of these developments might be at an economic disadvantage. However, over time these investments would be bound to pay off, given the many opportunities to make renewable energy competitive. Increasingly, governments (such as those of

Germany, Spain, the United Kingdom and Japan) are realizing that it makes economic sense to promote their renewable energy sectors.

Not all governments and companies would have to be involved in this drive to make renewable energy competitive. Only nine countries carry out more than 95 per cent of the world's energy research (Dooley et al. 1998). Once it became clear that certain companies and countries were close to developing clean technologies and energy resources that are cheaper than existing dirty alternatives, then it would become imperative for sluggish competitors to scramble onto the bandwagon – for clear-cut financial reasons. Moreover, these efforts would not require any official, global treaties. The governmental policies needed mainly consist of domestic programmes that induce firms to invest in renewable energy. Limited forms of international coordination would of course be helpful, as would transfer of climate-friendly technology to poor countries, but these could be undertaken through existing channels and would not need global accord.

The measures advocated here combine all available policy styles. They mix creative market forces with governmental planning; they also open up many possibilities for local and civic action. As such, these policies allow for flexibility and strategy switching (O'Riordan and Rayner 1991). In addition, these measures would satisfy the normative criteria of all ways of life. Individualism prioritizes the importance of economic growth, efficiency, and individual opportunity. Using regulatory measures to spark a gale of creative destruction in the energy sector would achieve exactly those goals. By assisting innovative companies in their quest to make renewable energy cheaper than fossil fuels, these policies would not only combat climate change, but would also spur economic growth and facilitate entrepreneurship.

Hence, they would even constitute a 'no regrets' strategy, if the current concerns over climate change turned out to be exaggerated. Hierarchy privileges order, security and predictability. An effective set of measures could ensure these values more successfully than the Kyoto Protocol. Egalitarianism favours equity, solidarity and local sovereignty. The policies proposed would redress global inequities thus: (1) through motivating companies and governments from rich countries to develop novel energy sources that are cheaper in many developing countries than elsewhere (as these forms of energy could pre-empt the need for a electricity grid in rural areas, and as many developing countries have abundant sunshine, which makes solar energy cheaper to produce); and (2) through development aid in the form of technology assistance. A shift to renewable energy would also fortify local sovereignty. Oil, coal and gas reservoirs are located in a relatively small number of places around the globe, and are easily transportable. Daylight and wind, however, reach every square metre of the earth's surface. Markets for renewable energy therefore tend to be more decentralized. Renewable energy allows, and sometimes favours, local production and consumption – an old egalitarian ideal.

What's new?

Several questions may have arisen by now: what is different about this approach to social and political science as well as governance? What are the limits of cultural theory? We have already mentioned a first difference, namely that cultural theory holds – contra rational choice and other approaches – that there is more than just a single, basic way of behaving and perceiving, while also maintaining – contra post-structuralism and constructivism – that there are clear limits to the number of ways in which the world can be (socially) constructed. A second difference is that the theory attempts to go beyond ontological claims, while refusing to take sides in many of the conceptual debates raging within social and political science. Often, these debates have taken place at the ontological level, such as those about whether people are driven by self-interests or social norms (rational choice theory versus constructivism); whether states can or cannot engage in meaningful cooperation (neo-realism versus neo-liberalism); whether society is the outcome, or the source, of individual predispositions and actions (methodological individualism versus functionalism). Many of these debates have remained at a generic level in not specifying which selves, interests, rationalities, norms, and so on, can be expected to prevail in different social settings (Sen 1977; Douglas 1987; Hirschman 1992).

Instead of taking sides, cultural theory is an effort to outline which combinations of interests, norms, perceptions, time horizons, strategies and emotions prevail in which particular social settings. As such, it is not in disagreement with approaches postulating that actors strategically use their power resources to satisfy their desires. Rather, it is an attempt to spell out which strategies, desires and power resources are available to actors in different social settings.

A case in point is President Putin's recent decision to relinquish his opposition to the Kyoto Protocol in exchange for European Union support for Russia's entry into the World Trade Organization (WTO). It could plausibly be argued that President Putin's decision was motivated by a desire to serve the economic interests of Russia. Yet, this also entails assuming that President Putin did not buy into the egalitarian construction of nature and society, according to which global capitalism is wreaking economic, social and ecological havoc on us all. If President Putin had believed this, then he would have found it in Russia's (and everybody else's) economic interests to try to close down the WTO. It further implies that President Putin was probably not convinced of the hierarchical construction of climate change, according to which it is not only a moral obligation, but also the most rational course, for policy-makers to solemnly support global planning as the sole remedy to this momentous threat. For instance, we can note here that after a particular deal had been struck in the Kyoto negotiations,

Margot Wallström, the European Union's Commissioner for Environment, declared that 'I think we can now go home and look our children in the eyes' (Kirby 2001). Moreover, President Putin only found himself in a position in which he could extract concessions for Russia's ratification of the Kyoto Protocol because the European Union was attempting to tackle global warming through formal, global agreement. This made it imperative for the European Union to secure Russia's cooperation. If, instead, the emphasis had been on promoting the competitiveness of renewable energy at the national level, then the Russian government would have found itself with very few bargaining chips – given the dependence of Russia's economy on oil and gas exports. Hence, cultural theory does not deny that people act strategically or rationally, but seeks to go beyond that statement by specifying the alternative strategies and rationales that appear plausible in different social settings.

A third difference pertains to the implications for the analysis of governance and policy. When using cultural theory, policy analysts can neither *a priori* accept any single definition of what the issue at hand is and how it should be resolved, nor reason from a single normative point of view. In outlining a clumsy way of combating climate change, we explained how these policies would satisfy the concerns and wishes of proponents of all the ways of perceiving the issue. In contrast, many other social and political theories either explicitly advance a particular political agenda (for example, public choice theory, Marxist approaches, critical theory), or do so implicitly through adopting one particular definition of an issue. For instance, in the case of climate change, the bulk of political science and public policy analyses have unquestionably accepted that climate change is occurring and that the Kyoto Protocol is the only reasonable solution (Paterson 1996; Luterbacher and Sprinz 2001).

Nevertheless, we do not believe that the theory of socio-cultural viability is without its limits. First, following Durkheim (1985), the theory traces the influence of social relations on the perceptions, norms and emotions of people. This leaves out various other influences on people's thought and behaviour, such as gender and individual character. Second, distinguishing between only four ways of organizing and perceiving will not always be sufficient to answer extremely detailed research questions. The theory holds that the levels of social stratification and group solidarity are determining factors of collective thought and behaviour. Yet to answer highly specific research questions, the exact form and content that stratification and solidarity have taken on in particular times and places will in addition sometimes be crucial. Lastly, cultural theory may be most applicable to social domains in which people meet, argue, communicate and justify themselves in regular, face-to-face interaction (Mars 1994; Dake and Thompson 1999). Although the theory is clearly applicable at multiple levels of analysis, we feel that it is neither a good instrument with

which to capture the totality of an individual's behaviour and thought, nor may it be the most suitable candidate for describing large-scale, historical macro-changes.

The case for clumsiness

The three policy stories about global warming have important normative implications for policy and risk management:

- *Endemic conflict*: in a policy process where politics matters (that is, in any policy process), there will be at least three divergent stories that frame the issue, define the problem, and suggest solutions. Thus conflict in policy-making processes is endemic, inevitable and desirable, rather than pathological, curable or deviant. Any policy process that does not take this into account does so at the risk of losing political legitimacy.
- *Plural policy responses*: we have seen that each story tells a plausible, but selective, story. Any policy response modelled solely in terms of just one or two of these tales will be, at best, partial and, at worst, ineffective or even counterproductive.
- *Quality of communication*: since policy-making is inherently conflictual, and since effective policy responses depend on the participation of all voices, policy outcomes crucially depend on the quality of the communication within the debate. If the 'rules of the game' permit or even force policy actors to take seriously different types of stories, then what Sabatier and Jenkins-Smith call 'policy-oriented learning' can take place (Sabatier and Jenkins-Smith 1993). If this is not the case, then the policy debate will be an unconstructive dialogue of the deaf.

Thus far, we have not mentioned fatalism much. The 'whatever will be, will be' attitude characterizing this way of life includes no rationale for getting involved in the political process. According to the fatalistic perspective, there are no heroes, only (barely distinguishable) victims and villains – and those upon whom Lady Luck happens to smile temporarily. Life is without rhyme and reason, and, hence, no policy story is worth telling (or listening to). Yet, this 'non-story' also contains a kernel of truth. Sometimes, a pressing social ill may simply be unsolvable; in fact, any attempts to address the issue may make matters worse. In those cases, the resignation that fatalism induces might provide much-needed wisdom and relief. Therefore, any truly clumsy solutions will also be based on a careful consideration of the counsel of despair – the non-story – that fatalism offers.

Summarizing the above, we have at one extreme an unresponsive monologue and at the other a shouting match among the deaf. Between these

extremes we occasionally find a vibrant multivocality in which each voice formulates its view as persuasively as possible, sensitive to the knowledge that others are likely to disagree, and acknowledging a responsibility to listen to what the others are saying. This is the condition – clumsiness – we must strive for if we value democracy or, as is the case with many regulatory agencies, we are mandated to develop and implement policy on behalf of a democracy. Getting there and staying there is, of course, not easy.

At the monologue end of the spectrum the policy process is seductively elegant and reassuringly free (it would seem) from the defiling intrusion of politics. Here we find the mind-set characterized by single-metric rationality. At the other extreme we wallow in the incoherence of complete relativism. The cultural theory typology presented here suggests that between these extremes there is the possibility of constructive dialogue. It will often be a noisy, discordant, contradictory dialogue, but this is the clumsy beast that democratic policy-makers and regulators must seek to harness and ride – in each and every specific situation.

Clumsy institutions are those institutional arrangements in which none of the voices – the hierarchical call for 'wise guidance and careful stewardship', the individualistic emphasis on 'entrepreneurship and technological progress', the egalitarian insistence that we need 'a whole new relationship with nature', and the fatalist's asking 'why bother?' – is excluded, and in which the contestation is harnessed to constructive, if noisy, argumentation. Clumsiness emerges as preferable to elegance (optimizing around just one of the definitions of the problem and, in the process, silencing the other voices) once we realize that what looks like irreconcilable contradiction is, in fact, 'essential contestation' (Gallie 1956–57). From the reflexive vantage point that is afforded by our typology, and with the benefit of hindsight, it can be seen that many of our public institutions – Britain's former Ministry of Agriculture, Fisheries and Food, the World Trade Organization, the Intergovernmental Panel on Climate Change, and most national overseas aid agencies, to mention but a few – are insufficiently clumsy and, in consequence, erosive of democracy. Many policy tools (single metrics such as cost–benefit analysis, probabilistic risk assessment, quality adjusted life years, general equilibrium modelling) and policy precepts (the insistence on a single agreed definition of the problem, the clear separation of facts and values, and the focus on optimization) are similarly flawed.

It may be clear by now that clumsiness concerns both the effectiveness of attempts to tackle major social problems and the legitimacy of this process. Our clumsy hypothesis links the two, since it states that it is possible to generate widely accepted and successful solutions to social ills by constructing institutions in which all the voices are both heard and responded to. The second part of this injunction highlights that not any compromise, or combination, of alternative ways of life may constitute a clumsy solution. The quality of the interaction between advocates of alternative views – the

extent to which the actors are able to forge courses of action that are creative, successful combinations of their preferred ways of organizing and perceiving – counts for much as well.

All this raises a pertinent question: given cultural theory's assumption of 'constrained moral relativism', what should count as successful? People have always disagreed, and will continue to do so, about the priority that different social ills should receive, the extent to which they occur at all, what might have caused them, the manners in which they should be resolved, and who should most benefit from this. But few are those who have seriously argued in favour of wholesale destruction of ecosystems, increasing world poverty, unleashing famines, creating massive flows of refugees, promoting corruption and nepotism, and so on (apart, perhaps, from provocative attempts to establish freedom of speech, or as unavoidable sacrifices to reach higher goals, or as means to achieve extremely nationalist, racist or religious aims) (Doyal and Gough 1991; Sen 1999; Nussbaum 2001). Hence, one simple measure of 'success' (or lack thereof) is whether combinations of public policy, entrepreneurship and citizens' activities have contributed to the alleviation of pressing, practical collective problems – without having caused the deterioration of any other such social ills. This is the definition that we adhere to, and it allows us to recognize a clumsy solution when we see one. Clumsy solutions are creative, flexible mixes of four ways of organizing, perceiving and justifying that satisfy the adherents to some ways of life more than other courses of actions, while leaving no actor worse off. As such, they alleviate social ills better than other courses of actions do.

In the end, the case for clumsiness rests on the idea that a limited number of collective ways of organizing and thinking exists, each with its particular strengths and weaknesses, none of which should ever be allowed to gain the upper hand. This is an old view going back to at least Weber (Weber 1972) and Mill (Mill 2001); indeed, even to Aristotle (Aristotle 1995) – here complemented, and made more practical and policy-relevant, by a theory that spells out *which* collective ways of organizing and perceiving typically abound, and clarifies *how* they are dependent on each other. All this does not entail that the notion of clumsiness can be invoked to uncover the one, true solution to a social controversy. Often, various clumsy solutions may exist, each with different distributive consequences. Sometimes, it may not be possible at all to find, or reach, any clumsy solution. Ultimately, as Emile Durkheim put it: 'The science of opinion does not create opinion, but can only clarify it and make it more conscious of itself' (Durkheim 1985: 439–440).

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