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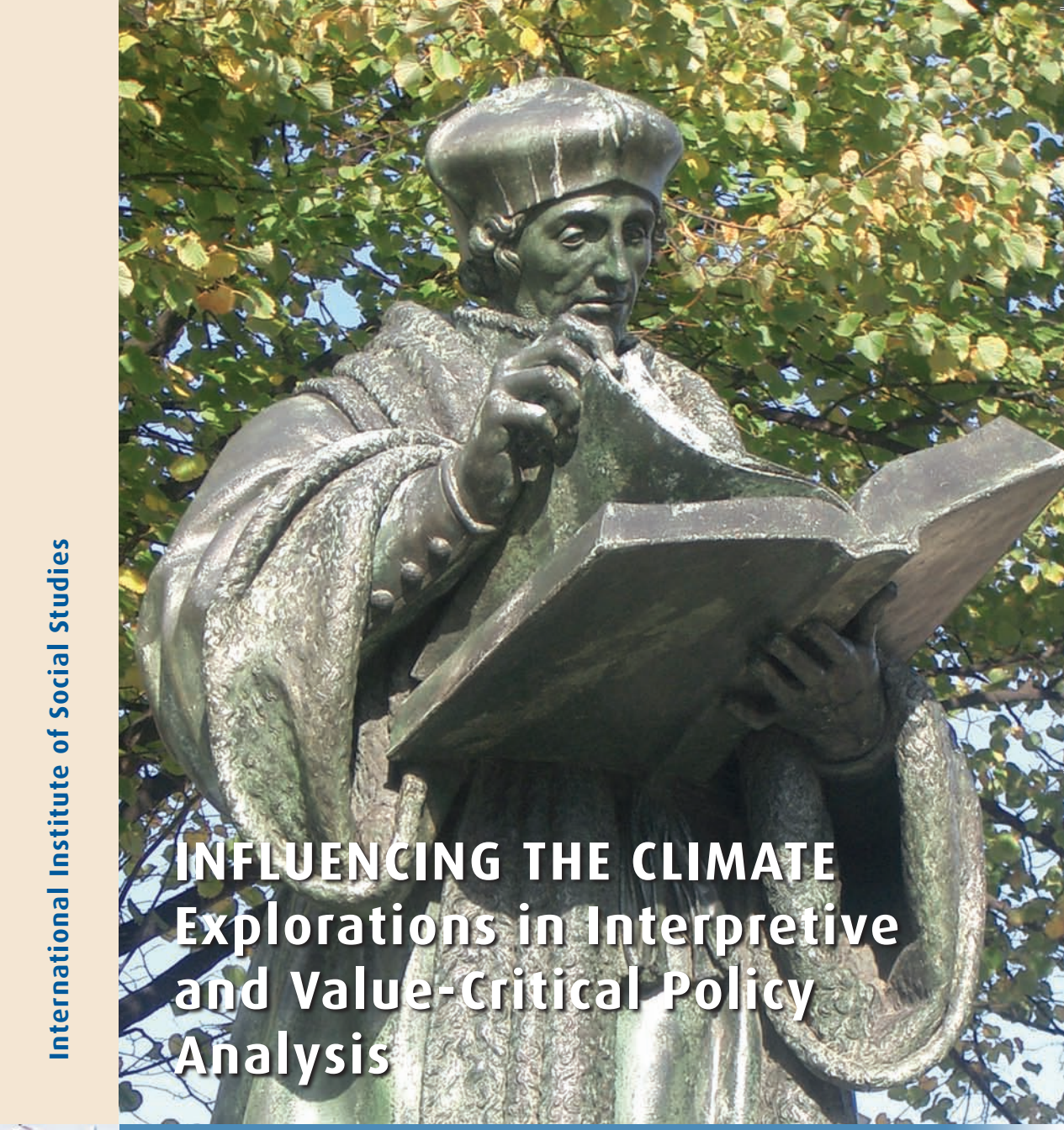

INFLUENCING THE CLIMATE
Explorations in Interpretive and Value-Critical Policy Analysis

Inaugural Lecture 16 December 2010

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Inaugural Lecture delivered on the 16 December 2010, upon the acceptance of **the Endowed Chair of Human Development, Development Ethics and Public Policy**, established by the EUR Trust Fonds, at the International Institute of Social Studies, Erasmus University Rotterdam.

Introduction

My academic work is located at the intersection of public policy analysis, ethics and international development studies. I begin the lecture by saying something about that combination and intersection. Then I will illustrate it, through a look at current discussions about responding to anticipated global climate change: 'the craziest experiment mankind has ever conducted' according to a recent editorial in *The Economist* newspaper (25 Nov. 2010).

The conventional definition of politics – who gets what, when and how – was enunciated by Harold Lasswell in the 1930s (Lasswell, 1936). We need to problematize the 'who' and the 'what' in that definition, not take them for granted,. The 'who' in politics is the assumed set of groups and set of identities: what we can call 'the cast of characters' in the story that is perceived or proposed. The 'what' concerns the valuables that are at stake: not only money, material goods, and status; but also meanings, identity, tradition, recognition, respect, and achievement of ideals. Both the 'who' and the 'what' are partly fluid and socially constructed. As put by Murray Edelman, we must look at what influences this who and what: 'what [people] want, what they fear, what they regard as possible, and even who they are' (Edelman, 1964:20). Further, adds John Forester, politics involves 'not simply..."who gets what", but transforming capacities and identities, "who can do what" ' (2009:10). Investigating these complexities leads us into interpretive policy analysis, which recognises, in Dvora Yanow's words, that 'public policies are modes for the expression of human meaning' (Yanow 2003: 229; Yanow, 2000).

Unless we problematize the who and the what around which politics revolves, and similarly problematize the how and the where, we will fail to adequately understand events and will be limited in our ability to influence events. Approaches which take for granted the nature of the who—seen as a set of given, overwhelmingly self-interested and self-enclosed individuals, or as a set of given, overwhelmingly self-interested and self-enclosed nation-states—can often mislead us in both explanation and public action.

Interpretive social analysis connects closely to value-critical policy analysis, where we think about the value choices faced in public action and the value priorities embodied in policy frameworks (e.g., Rein, 1976). Interpretive and value-critical approaches are not identical, but are commonly partners. For interpretation involves intellectual choices—selection of areas of attention, choices of emphasis, choices in conceptualisation, and so on—which express or imply value priorities. Values do not enter only at a stage of explicit comparison of action alternatives. This is one of the reasons why conventional welfare economics has been unsatisfactory for considering the valuative argumentation involved in policy analysis. Value-critical analysis includes explorations of several types. First, there is philosophical examination of explicit value alternatives

and value choices, as around different conceptions of equity—the sort of exploration done for example by Amartya Sen. Second, linking to interpretive analysis, investigation of what people, organisations and disciplines actually do when dealing with values and valuative argumentation, including by exploring meanings, worldviews, and interpersonal interactions. Third, not only looking at the choices and maneuvers of the powerful, but looking at the situations, interests and perspectives of the marginal and disadvantaged, out of human solidarity and decency and in order to both learn and assist. This is the agenda of critical policy analysis and critical discourse analysis.

My long-term academic interest has thus been in the styles and forms of argumentation in discussions of public policy and policy-related social science, including the roles played by different ideas about values and the choices, conscious and unconscious, of guiding values. Over the years the concern with forms of argumentation has broadened to a concern also with other aspects of discourse and rhetoric. I try to apply and contribute to the perspective of interpretive analysis, in various research areas and in teaching. In my talk I'll illustrate this type of approach with some current discussions in the area of climate change, especially on how to respond to foreseen changes in climate. The analysis of discourse—of our choices of language and how they structure attention and action—can lead to interesting hypotheses; for example that the summary label 'carbon' that has been used so much in thinking about climate change (carbon markets, carbon capture, carbon sinks, carbon tax, decarbonisation, and so on) has directed attention excessively towards carbon dioxide emissions and away from other vital and maybe more tractable aspects of the climate problem (cf. Prins *et al*., 2010).[1]

This lecture grows out of current cooperation with scholars in Norway and the USA, but the work is at an early stage. Correspondingly, my central aim is to say something of wider relevance about doing policy analysis in international development studies, rather than to claim to make advances in the analysis of climate change or the design of climate change policy. Development studies, or international development studies, is an ambitious field as seen in terms of contemporary conventional university categories. It represents a revival of what we can call the transdisciplinary approaches in earlier phases in the social sciences – the style of Adam Smith, John Stuart Mill, Karl Marx, or Max Weber. We can also call it humanistic, in several of the senses in which that word has been used: first, looking closely at varied human experience; second, reviving an earlier, classical, tradition that exemplified this close investigation of varied experience, not staying limited only to the knowledge prescribed by current authorities; and third, underlying the approach, an ethical concern for humanity as a whole.[2] [3]

Let's begin with an example that fits a lecture about interpretive analysis and climate change: academic dress. The sorts of robes that professors wear on such

academic occasions date from the Middle Ages in Europe. They draw on church traditions, including traditions of the symbolism of authority and hierarchy; as well as on the medieval absence of central heating. Here's a passage from a publication from Harvard University written to explain the tradition:

> The origin of academic dress dates from the earliest days of the oldest universities. When those long-ago centers of learning were taking form during the twelfth and thirteenth centuries, they were under the jurisdiction of the Catholic church, and the first true scholars were clerics, members of the literate class. Their careers, their teaching, studying—their entire lives—were conducted in the underheated buildings of medieval times, and their clerical robes were needed as much for warmth as for distinction. (Rossano, 1999).[4]

Elaborate forms of hood and robe emerged for senior scholars, the professors, along the lines of those for senior clerics. During the so-called mini-Ice Age of approximately the late 16th to mid 19th centuries, the period when universities in Netherlands were emerging in Leiden, Groningen and Utrecht, these robes were no doubt very comforting. Now that the Earth has become somewhat warmer, and especially now that central heating has arrived, the message conveyed by redfaced scholars is perhaps less dignified than it used to be. Many of us will be redfaced too if there proves to be no global warming.

The stickiness of traditions and of academe is germane to my topic. Styles that fitted previous eras or types of problems but that do not fit new times or new problems are hard to change. There are mental habits as well as physical habits, robes of conventional authority. Once we have invested so much meaning in a particular set of symbols, how can we switch? To some people academic robes even epitomize a stance that lectures to the rest of the world rather than listens, and that may not yet see itself as part of one world. However, enveloped in such robes today, I would like to draw upon, in contrast, the humanistic, cosmopolitan and exploratory spirit of Erasmus of Rotterdam – a scholar who is of course usually portrayed extremely well protected against the cold.

The topic of climate change calls for inter-disciplinarity, transdisciplinarity, humanism, cosmopolitanism and exploration in order to improve our understanding and responses. I find it interesting to review some of the many major recent studies and reports, and to identify and consider their intellectual choices—selection of areas of attention; choices in conceptualisation, choices of sources, choices of emphasis, and so on—and the expressed or implied value priorities. We can look at their framing, their values, their cast of characters, their forms of argumentation and rhetoric. In today's lecture I make an introductory foray into this territory, looking for possible lines for later more detailed investigation.

Climate Change

The hypothesised structure and scale of the problem

A standard picture of the field of anthropogenic global warming via greenhouse gas (GHG) emissions presents it in terms of five hypothesised stages or steps.[5]

1. Emission of GHGs:- Human (and natural) activities → GHG emissions

2. Retention of GHGs:- Emitted gases are absorbed, transformed or retained via the processes in the 'carbon cycle', etc. → Rising GHG levels in the atmosphere

3. Effects on temperature:- Increased GHG levels → Global warming

4. Effects on environment:- Warming → Diverse changes in climate and environment (e.g., increased variability, more storms, spread of malaria vectors)

5. Effects on persons:- Changes in climate and environment → Impacts on human activities and health.

We should add a Step 6. Humans will not just absorb effects, they will react and respond. This step has been examined perhaps the least: 'the body of literature looking at the actual implications of climate change is relatively small' declares a study from the Center for Strategic and International Studies in the US (Campbell *et al*., 2007:13). We come back to this later.

Steps 2 and 4 seem essentially beyond human influence, yet alone human control. Step 3 has long been considered the same, but nowadays aspirant geo-engineers have proposals for avoiding global warming while allowing ever-higher GHG emissions and/or levels. Most policy attention has been on step 1, aiming for 'mitigation' of human-induced emissions, and on step 5, with a focus on human 'adaptation': adjustments to try to cope with changed climates. These two steps are subject to human control, at least in principle.

Major complexities, lags, and uncertainties exist regarding each of the five links. The IPCC, which is presented in the climate sceptic blogosphere as a cabal of panicked bureaucrats, seems instead to have responded to the uncertainties by being cautious and conservative in its estimates for each of the steps. Increased urgency in climate discussions in the last few years reflects worrying new evidence.

Regarding Step 1: "emissions are growing substantially faster than previously thought" (Stern, 2010: 22), even than was thought in 2006 when Stern presented his Climate Change Review to the UK Government. Regarding Step 2, ocean temperatures are reportedly rising several times faster than was expected (Giddens,

2009: 18), and the carbon-absorption capacity of the oceans is estimated as lower than was thought a few years ago. Thus Kyoto GHG levels in the atmosphere are rising considerably faster than previously expected. However, in Step 3, the impact of rising Kyoto GHG concentrations is partly counteracted by the emission of certain other gases. We receive disturbing reports and analyses about actual and expected Step 4 changes in many local climates and their Step 5 human impacts (see e.g. Stern, 2010). Changed global averages will involve far more dramatic and varied local changes - wetter conditions away from the tropics but far drier in much of the tropics and semi-tropics, leading to more forest die-off and forest fires; greater variability—'global weirding' in Friedman's words (2009: 173); and much warmer conditions near the poles, increasing the likelihood of feedback effects that will enormously increase the release of GHGs.

Indeed, 'since the mid-1990s...almost all the scientific evidence has caused increased concern that 3 degrees [rise] will not be tolerable', according to John Holdren, President Obama's chief science advisor (quoted by Friedman 2009: 164): ice caps are melting faster than foreseen, and the impacts on agriculture and the undersea food chain will be considerably worse than thought earlier.[6] Even the previously supposedly safe temperature rise of 2°C will risk dangerous impacts. And, under the radar, it will 'kill a lot of poor people' according to the Director of the UK's Tyndall Centre for Climate Change Research (Kevin Anderson, cited by Hamilton, 2010:194). In contrast, the World Bank's World Development Report (WDR) 2010 remains very restrained in describing the expected impacts in this sort of scenario:

> Warming of 2°C could result in a 4 to 5 percent permanent reduction in annual income per capita in Africa and South Asia, as opposed to minimal losses in high-income countries and a global average GDP loss of about 1 percent. These losses would be driven by impacts in agriculture, a sector important to the economies of both Africa and South Asia (map 1). It is estimated that developing countries will bear most of the costs of the damages—some 75–80 percent. (p.5)

We need to distinguish, first, estimates from before the 2007 IPCC Report, that have informed much of the economics literature such as the Stern Review; second, the 2007 Report itself, which gave a more worrying picture; and third, studies based on more recent data, which are more worrying still. IPCC estimates have always been conservative, perhaps even unwisely so, to try to maintain consensus amongst scientists and credibility amongst sceptical audiences of politicians, businessmen and others. Arguably, the IPCC has modelled its various scenarios within a family that can be called 'minimum plausible impact', to test whether even the minimum sensible family of estimates show impending crisis – which they now do. Conceivably, this strategy has soft-pedalled the issue so that insufficient urgency has been felt, until a stage when there is a danger that it could already be too late. (Scientists say in return that some of the policy dis-

cussions on end-targets for CO_2-e ppm levels have misunderstood the atmospheric science discussions, since cumulative emissions are what matter.) Estimates in the last four years or so about the various linkages are far more worrying than even the estimates published in the 2007 IPCC assessment. But conversely, it remains possible that the IPCC interpretation is mistaken.

The IPCC Report of 2007 reported a likely warming of between 2.4 and 4.6 degrees worldwide (much more in some locations) by 2100 if GHG emissions continue to grow as at present (Hamilton, 2010:7). The studies based on newer data indicate that the processes at work are leading us outside even the most pessimistic IPCC projection. A new report from UNEP shows that if all pledged emissions reductions are implemented the picture for global warming is now about the same as in the previously expected business-as-usual scenario.

> Unep's analysis shows that even if governments implement all they have pledged to do, that would "...imply a temperature increase of between 2.5-5 degrees C [from pre-industrial times] before the end of the century". As the global average temperature is already about 0.7°C above pre-industrial times, this implies that anything up to 4°C during the coming century is possible.[7]

The current picture from large numbers of climate scientists appears grim. Many now consider that such temperature rises (perhaps even a two degree rise), are probably more than enough, except in a very favourable case, to gradually melt the Greenland icesheet and raise sea levels worldwide by seven metres (Hamilton, 2010:198). The West Antarctic icesheet could follow suit, with a similar additional impact. Once the melting of these icesheets gets firmly underway, it becomes almost unstoppable, given the nature of the processes involved.[8] The densely populated deltas of the world would be doomed (Campbell *et al*., 2007: Scenario 3). Rather than talking with Stern of a 500 ppm GHG target (including perhaps 440 ppm CO_2) and a near 3 degrees temperature rise, some scientists argue that any sustained carbon dioxide level above 350 ppm (the present figure is 390) may eventually melt the ice caps, with an increasing probability of doing so the higher is the temperature (James Hansen, cited by Dyer 2010:66). Thus most climate scientists would advise nothing more than a 1.5°C rise above pre-industrial temperatures, reports Dyer (2010:270). We are already half way there, and most of the further acceptable warming is already in the climate system pipeline.[9]

One likely factor contributing to the rapid obsolescence of the IPCC projections is that in the 2007 report 'The risk of climate feedbacks is generally not included' (Working Group III Report, IPCC 2007:173): for example the danger that the carbon embedded in Siberian permafrost—'more than currently resides in the atmosphere' (Woolsey, 2007:83)—will thanks to warmer temperatures be released as methane, greatly accelerating the greenhouse effect. Evidence has

started to mount that some of these Step 3 and Step 4 feedbacks that reinforce and accelerate global warming could have begun, 'much earlier than expected' (Dyer, 2010:3). The 2007 CNA study uses models that includes some—not even all—of the feedbacks in order to justify its third scenario, 'Catastrophic Climate Change' (Gulledge, 2007: 39; see sources cited there).[10]

Hamilton's recent book *Requiem for a Species* calculates that :

> ..even with the most optimistic set of assumptions—the ending of deforestation, a halving of the emissions associated with food production, global emissions peaking in 2020 and then falling by 3 percent a year for a few decades—we have no chance of preventing emissions well above a number of critical tipping points that will spark uncontrollable climate change. The Earth's climate would enter a chaotic era lasting thousands of years... (Hamilton, 2010: 21-2).

The critical changes include 'the disappearance of summer sea-ice in the Arctic, the melting of the Greenland icesheet, the melting of the West Antarctic icesheet, the release of carbon from melting permafrost [in Siberia], and large-scale die-back of the Amazon rain-forest' (ibid.:25). '...even with urgent and sustained global action it seems unlikely that we will be able to keep the Earth's temperature from rising by anything less than 3ºC' (ibid.:8). This could eventually trigger a relatively rapid 'tipping' of the whole climate system, many climate scientists fear.[11] The picture contrasts with the comforting scenario of an 'environmental Kuznets curve': the idea that economic growth becomes clean in later stages and generates the resources to clean up after itself. That scenario assumes that we do not reach any tipping points in nature before the time that we get round to cleaning-up our act.

Hamilton's projections are those of a disillusioned Green philosopher. But a leading voice in contemporary capitalism, *The Economist* newspaper, wrote somewhat similarly in a lead editorial a few weeks ago, noting how small has been the world's appetite for reduction of greenhouse gas emissions: 'Even if the currently moderate pace of emissions reduction steps up, the likelihood is that the Earth will be at least 3°C warmer at the end of this century than it was at the start of the industrial revolution' (25 Nov. 2010, editorial). Remember that 3 degrees was the figure given last year by both Nicholas Stern and President Obama's chief scientific advisor as beyond the range of reasonable risk. One recent survey suggests that 'more than half of climate scientists now believe that cutting emissions will no longer be enough to avoid the worst and [that] we will be forced to pursue the radical and dangerous route of engineering the global climate' (Hamilton, 2010:5).[12]

So, a 3-4°C rise is perhaps now seen as the realistic expectation or attainable target by most climate scientists (Hamilton 2010:192), rather than the 2 degrees that was for long the hope, and for good reason, the target. An *average* of four

degrees warmer means far higher rises in the polar areas and across land areas. As with the human body, a few degrees temperature rise can be fatal, proposes Dyer (2010:44), since for example it takes many crops in many parts of the world outside of their range of temperature tolerance.[13] We are talking not only about Africa and South Asia. Steven Chu, the US Secretary of Energy, is quoted as saying: 'We're looking at a scenario where there's no more agriculture in California [and] I don't actually see how they can keep their cities going' (5 Feb. 2009; Dyer, 2010: 181; see Fuerth, 2007, for similar views).

From all this: What are social scientists to do? We don't fully understand the natural science, which anyway remains subject to considerable uncertainty even within the mainstream, and the mainstream is liable to refutation. And we seem to be confronting processes—both natural and social—of such immense momentum and/or inertia that they could be beyond human powers to sufficiently understand or manage. In answer to the scientific uncertainty, Thomas Friedman's version of Pascal's wager makes sense to me: there are numerous major needed reforms that can counter greenhouse-gas induced warming and that are strongly desirable on other grounds too. In response to the possible relevance or irrelevance of social science: that is part of what we need to study and reflect on. Regardless of whether the earth is entering a phase of dangerous warming, or as some insist instead gradually oscillating towards the next Ice Age, or neither, climate change and variability will be on the human agenda. I think that several themes of this talk will remain relevantin this and other policy areas:- first, that the rich cause far more damage and are better protected against both that damage and natural events, while the poor cause far less damage yet are far more vulnerable to harm; second, that the rich know less than they think, and need to listen to the poor, including also to establish a basis for cooperation; third, that the rich are less invulnerable than they often think, and are likely to be damaged too if they seek to marginalise rather than accommodate the poor; and fourth, that humanistic skills of interpretive analysis, including of discourse analysis, are central to this listening, learning and cooperation.

Overview of responses to anticipated climate change

Hulme (2009:161 ff) identifies three main families of proposed responses: market-based solutions, applying principles of justice, and transforming lifestyles. Later he gives a modified classification, replacing the justice-based response by 'ecological modernisation' that stresses investment in green technologies. Hybrid positions are of course also possible. I will use instead a set of underlying dimensions for comparison. First, is the challenge of climate change seen as a routine, though complex, policy challenge, requiring a routine even if huge response through mobilization and application of existing conventional policy tools, or, is it seen as unprecedented, requiring a transformational response? Of course these issues concern continuous dimensions rather than either-or choices. To convey something of the spectrum, Figure 1 allocates some studies

that I have read, across three categories in each dimension rather than just two. We see a fairly strong tendency to follow the diagonal, which suggests that correlation in the two dimensions is high. However there is also a conservative tendency: in other words in several cases we see a fairly radical diagnosis combined with a less radical response. These are in the cells shaded grey.

Figure 1: Challenge and response – some leading recent climate change policy studies

	ROUTINE RESPONSE	**Intermediate response**	**TRANSFORMATIONAL RESPONSE**
ROUTINE CHALLENGE	Stiglitz 2006 WDR 2010		
Intermediate challenge	Stern 2007	Stern 2010 Hulme 2009 Hartwell 2010	
UNPRECEDENTED CHALLENGE		UNDP 2008 (= HDR 2007-8) Giddens 2009 T. Friedman 2009 Campbell et al. 2007	Jackson 2010 (post-growth) Dyer 2010 (accepts geo-engineering) Hamilton 2010 (both those)

For example, Anthony Giddens in his book *The Politics of Climate Change* recognises that we face an exceptional challenge, not least because of what he christens 'Giddens' paradox': that because negative effects are long delayed and uncertain in detail we don't do anything about the behaviour that causes them until the effects become manifest, by which time it will be too late. He also calls this the teenage smoker principle. It rests on our limited 'telescopic faculty' and/or on what we can call our limited self-solidarity. For climate change that is a partly misleading analogy: nearly all the negative effects of our actions concern other people, mainly in future generations, so the problem may instead lie in lack of empathy and solidarity. Giddens' formulation may reflect an implicit national or regional perspective: the 'we' is a rich nation wondering how far it can maintain its current lifestyle. Speaking though of the global 'we', we have reached the stage where negative effects of climate change have already begun. They are likely to substantially affect most people now alive, sometimes enormously, so that in this sense the teenage smoker analogy is at least suggestive.

Having identified a profound difficulty, Giddens rejects and even resents many transformational response proposals, including for a Green lifestyle revolution. Writing as a member of the British House of Lords, Giddens shows no orienta-

tion to Southern experience and the hazards endured by ordinary people there. He rejects the Precautionary Principle, disliking its conventional oversimple wording. We face risks in whichever direction we move, so we cannot choose by a principle of avoiding risks. But Giddens may miss the core point, suggested by John Holdren as follows: 'we're driving in a car with bad brakes in a fog and heading for a cliff. We know for sure now that the cliff is out there, we just don't know exactly where it is. Prudence would suggest that we should start putting on the brakes' (quoted by Friedman, 2009: 160). An analogy and a story-form can convey a message more vividly, and in some ways more richly and insightfully, than many abstracted formulations. The story conveys concrete aspects that we struggle to capture adequately in a generalised rule such as the Precautionary Principle.

The second main dimension of comparison concerns whether we can understand climate change issues using mechanical methodologies – as if we are trying to understand a complex system of machinery – or whether we also require interpretive methodologies, fitted to understanding innovative, creative systems of meaning-makers. Third, is the viewpoint that from a Northern metropolitan centre of power or is it more global in perspective, awareness and sympathies? Figure 2 uses these dimensions.

Figure 2: Responses classified in terms of viewpoint and methodology

	MECHANICAL METHODOLOGY	**Intermediate**	**INTERPRETIVE METHODOLOGY**
NORTHERN VIEWPOINT	Stern 2007	Giddens Friedman	Hulme Jackson
Intermediate	Stiglitz World Devt. Rep. 2010 Stern 2010		Campbell et al.
GLOBAL VIEWPOINT	Human Devt. Rep. 2007-8		Hamilton Dyer

The distributions in the two tables show some similarities, which suggests a possible pattern:- the less mechanical and more interpretive the methodology, and the broader the source of perceptions that steers it, the more serious is felt to be the challenge posed by climate change and the more fundamental the required response. As a result I will make an ideal-typical contrast between three types of response: a 'Northern technocratic orientation'; a 'Northern political orientation'; and a 'global political orientation'. Correspondingly, I take three authors in more detail, while referring to several others. I highlight Stern and Hulme,

both very prominent currently, and Dyer, who explicitly tells stories and whose book is thereby the most vivid of the set.

Stern and his critics

Nicholas Stern is a distinguished development economist who has become a major contemporary figure in the climate policy debate. He in some ways represents the evolution of mainstream development economics better than anyone else. An early elaborator of economic cost-benefit analysis, he was the invited author of the *Economic Journal*'s survey article on development economics in 1989 and spoke out there against basic needs approaches when they had become unfashionable (Stern, 1989). A dozen years later when Chief Economist of the World Bank, he championed basic needs approaches when they had returned to favour in the Millennium Development Goals. He has remained faithful always to a type of economics centred around understanding and compensating for 'market failures', as seen already in his 1960s cost-benefit analyses. As head of the UK Government's review of climate change in 2006 he boldly applied cost-benefit analysis to the future of the species, claiming that mitigation of global warming was a very attractive investment (Stern, 2007). His calculations provoked furious reactions from some economists who considered that a discount rate that reflected a commitment to perpetuation of the species was an arbitrary inserted value as opposed to accepting a discount rate based on market interest rates which reflected the revealed preferences of actually existent (monied) humans. I focus here on Stern's new book, *A Blueprint for A Safer Planet*, rather than on the Stern Review: it presents some new arguments and responds to comments and criticism.

Stern's diagnosis and proposal, and Giddens' critique

Stern uses the five-step picture of the problem structure of climate change which we saw earlier. He adds his standard diagnosis: we face a market failure, indeed climate change is deemed the biggest market failure ever. Market-based economics thus guides his elaboration of the problem-structure and suggests part of the indicated response: improve the system of markets. But he does not use economics to determine an optimum level of pollution, unlike for example William Nordhaus. A ceiling level of acceptable pollution (GHG concentration) is set based on understandings from outside economics, including a commitment to tolerable climate conditions for all people around the planet and in generations to come. Stern still likes to describe this as the 'economics of risk'—adopting emissions ceilings set in light of our knowledge of the links from emissions to climate change—which is then to be partnered by the 'economics of cost', ensuring economic efficiency by using markets to allocate emission rights (2010, Ch.6).

Stern applies standard policy economics to devise a set of instruments—'carrots' and 'sticks' (Bemelmans-Videc *et al*., 1998)—to induce, motivate, and oblige behaviours that may efficiently attain the intended emissions path. He combines incentives for creation and adoption of suitable technologies, regulations about required performance standards and maximum permissible emissions, and auctioned tradable emissions quotas within overall annual ceilings on emissions. He prefers emissions permits over a carbon tax, which he considers too unreliable in guaranteeing the required behaviour.

According to sceptical observers (see e.g. Prins *et al*., 2010), Stern's implied cast of characters are taken from an economics textbook, not from real markets. He believes that cap-and-trade schemes will be genuine, rather than a manipulators' paradise of notional carbon offsets. In contrast Thomas Friedman believes in the past rather than in abstract economic models for informing us about how corporations will behave in the future (Friedman, 2009:327): often by illicitly buying support and by being economical, with the truth. Stern's characters are thin in another sense too: they communicate through monetary signals rather than also centrally through attention-altering actions and assertions. Stern may thus miss the semiotic significance of a carbon tax, the clear message it gives about need for a 'change [in] the perception of the challenge we are facing' (Friedman, 2009: 312). What people perceive and accept and respect as carrots and sticks depends on their frame of reference and, to use an old term, their 'moral economy'; so too does what they perceive and accept as a relevant and feasible ideal, an inspiring idea, or a binding commitment.[14]

Stern moves on in his Ch.8 to design a 'global deal' to operationalise his approach: trying to attain the required emissions reductions while sufficiently accomodating the interests of each nation. The features of such a proposed deal are now widely familiar. Rich countries must commit to rapid large GHG emissions cuts (20-40% by 2020, and at least 80% by 2050) and must invest in developing new technologies. After a grace period that respects low income countries' needs to grow economically and their lack of responsibility for past accumulated emissions, those countries should after 2020 also adopt binding (lesser) targets for emissions reduction, provided that rich countries have met their commitments and that support is available to help the poorer countries pay for adaptation to climate change. Stern envisages that such costs can be covered by the flows associated with a global carbon market.

For Giddens, Stern's blueprint (in the 2008 version that preceded the book) is naively apolitical:

> Extraordinarily, there is no mention of politics in Stern's discussion, no analysis of power, or of the tense nature of international relations. It as if the 'global deal' will be reached as soon as the nations of the world see reason. 'All must play their part' – yes, but who is there to implement the

> 'must'? Stern places an enormous amount of faith in carbon markets, yet they depend upon prior political support. (Giddens, 2009:201)

Giddens correspondingly called his own book *The Politics of Climate Change*. He finds Stern's global deal, like the whole Kyoto treaty model, too unitary and universal and too cumbersome (pp. 192, 220). Preoccupied with setting targets for everyone, it cannot work in face of all the real constraints. We need instead to focus on myriad diverse fora, initiatives and experiments, and to move ahead through coalitions of the willing.

Underlying 'Giddens' paradox' are not only selfishness ('I'll be gone'), pessimism ('It's too late already') and weakness of 'telescopic faculty' and self-solidarity (the teenage smoker principle), but in addition the competitive dynamics of election politics in mass societies. His Chapter 4 records in detail the hesitation of politicians to intervene in the unending expansion of undertaxed air travel. He concludes that without perceptual shifts, changes in frames of reference, there will never be much progress.

For this, like Thomas Friedman in the best-seller *Hot, Flat and Crowded*, Giddens stresses use of perceptual and material carrots not perceptual sticks. He holds that we will get nowhere by only arguing that being Green is ethically good and involves obligations to cut-back for the sake of others. Instead we need to seek and present appealing visions that show that Green is good *for you*, the individual consumer, by emphasising its contributions to energy security, further economic advance, and well-being improvement.[15] Contrary to examples of responses in wartime, Giddens backs the generalized claim that people respond favourably to perceived opportunities and not to threats. He is even, unlike Friedman, 'hostile' (Giddens, 2009:106) to exhortations and recipe-books for changing one's lifestyle; not for the reason Hamilton gives, that they still focus our minds on forms of consumption, but because he considers them counterproductive and over-demanding. He similarly opposes carbon rationing, as 'impractical and unfeasible' (p.158), and supports additional taxes only if they are hypothecated to support specific Green expenditures or otherwise have a directly visible beneficial impact (p.106), not if they are only intended to discourage activities deemed to be damaging.

While interested in reframing issues, Giddens does not go far in problematizing the 'who' and the 'what' in politics. He seems to think only of the short-term. His characters are not subject to change. In fact, Stern in his recent book offers a reply, of a sort, to Giddens, even though a rather surprising and incomplete one.

Stern tacitly accepts that motives of narrow self-interest, that guide responses to policy sticks and carrots, will not be enough for an environmental transition. We need attention also to other types of motivation and of behaviour-change. He devotes three chapters to 'how to motivate action' (2010:124), including

in effect through use of what we can call 'sermons and dialogues' (Sinha and Gasper, 2009). He looks at the use of special national fora to generate ideas and commitment; at campaigns to influence attitudes and practices; and, now warming to the requirements of influencing the climate, he eventually appeals for 'a spirit of collaboration', 'commitment and communication', to be inspired by the examples of Gandhi and Mandela (pp. 181, 182, 182-3) ! Having moved beyond economic cost-benefit analysis for answering questions of objectives, using instead cost-effectiveness analysis to see how to move towards objectives selected for (in effect) human rights reasons, Stern now tries to combine his orthodox public economics with the humanistic outlook of the leaders of two great liberation struggles.[16]

We see thus two, unintegrated, parts of Stern's story – roughly, Gandhi plus a new path for economic growth. He also mixes two images of persons and motives: the sort of altruistic image used by global change movements and in literature on social entrepreneurship, and the sort seen in mainstream economics textbooks. Is he tacitly referring to different groups in a society and/or to different arenas of action? We see the same dualism in much other writing. Let me say a little bit about, first, growth, and, second, Gandhi. The two topics are perhaps not as distant as they may appear. In both cases some commentators detect a religious strand. And in both cases we can engage in some preliminary discourse analysis: looking for the rhetorical trump cards that different authors use, and for their key assumptions, including about principles of value and about who are the characters in their storyline and what characteristics they bear.

The valuation of economic growth

Stern, like Giddens and Thomas Friedman, is committed to endlessly ongoing economic growth in rich countries. Friedman still emphatically believes in continuing economic growth as potentially welfare-giving. Stern and Giddens are perhaps more reticent here, but see growth as at least politically unavoidable. Stern assumes repeatedly and explicitly that, to get political support for any national or international deals, growth must be seen to go on and on. This forces his projections of the required cuts in emissions-intensity (the volume of GHGs generated per unit of national or global output) to be so ambitious: 80% cuts worldwide by 2050 (Stern, 2010:41), merely to maintain a 500 ppm GHG level. The *World Development Report 2010* reassures us that 'there is no reason to think that a low-carbon path must necessarily slow economic growth' (World Bank, 2009:7) – *no* reason.[17]

One underlying factor, says Tim Jackson in his book *Prosperity Without Growth*, is the structure of a capitalist economy. Zero growth or negative growth will mean more unemployment, loss of government revenues, increase of social security payments, budgetary crisis and possible generalized economic crisis. As

on a treadmill, one must keep running in order not to be swept away. There are ways to try to redesign the economic structure to avoid this bind. The agitation engendered by such discussions of phasing-out growth is so great that many authors diagnose in addition underlying political, psychological and cultural sources: there is a 'social logic' of permanent growth as well as an economic treadmill. The past one or two generations have seen in rich countries the emergence of a huge social world of individuals who define themselves through new purchases (Jackson, 2009; Hamilton, 2010).[18]

We see recurrent severe confusion in political, business and media discourses between the terms wealth, well-being, output, and growth. Thomas Friedman, perhaps the most prominent journalist in the world, illustrates this. For him 'energy and resource productivity means—more growth from less stuff' (p.232). He should say 'equal value of output from less stuff', but the word 'growth' seems to function as a talisman of the good. He keeps on repeating it. For example, we must keep 'innovating better ways to drive growth with fewer and fewer electrons' (p.232). Our already existing wealth is not enough. We must 'find a way to create wealth—because everyone wants to live better—without creating toxic assets in the financial world or the natural world that [will] overwhelm us', says Friedman (2009:9). We must have more: we want it, and, by assumption, economic growth is the only way for even rich countries to live better.

Friedman's journalistic ear makes him better than Giddens and Stern at periodically catching other tones. Within his book's 500 pages we find appeals, mainly, to the can-do spirit of U.S. engineering, the magic of the market, and American nationalism. At a few points though he adds that 'Without an ethic of conservation...the availability of abundant, clean, reliable, cheap electrons would turn into a license to rape our natural world', an intensified orgy of consumerism (p.236); without a love of nature, money values alone will never bring conservation (p.370). And deeper, without our *paying attention* to nature, being aware and appreciative, none of the other policy tools will suffice (p.372). Yet Friedman's Green ethic soon returns to: More, More, More – the goal of an 'environment in which you, your company, and your community are constantly thinking about how to generate more growth, more mobility, more housing, more comfort, more security, more enjoyment, and more packaging from the most innovative use of the cleanest electrons and fewest resources' (p.380). This chant connects to his dominant nationalism: greening is presented as 'the best way to re-energize America, rebuild its self confidence and moral authority' (p.391).

Often, economic growth is presented as an essential part of modern identity: the source of hope, meaning, and self-profiling, at the level of individuals and especially of nations. It becomes the token of national strength, virility and vitality, 'the symbol of life itself' (Hamilton, 2010:64; Gasper, 2009). 'Growth is the name of the game', in the words of former US Secretary of State and Secretary of the Treasury, George P. Shultz (interview on CNN, 14.11.10). Arguably it becomes

a channel for religious feeling, a source of ultimate orientation that cannot be questioned; 'religious value seems now to be invested in the most profane object, growth of the economy, which at the individual level takes the form of the accumulation of material goods' (Hamilton, 2010:33).

This accumulation is supposedly so important that some months of foregone economic growth outweigh the costs of stabilizing the climate, in the judgement of certain leading economists. The 2007 IPCC report's maximum estimate for the cost of reducing emissions to 450 ppm CO_2-e in 2050 was 5.5 % of world GDP. 'Most models show lower costs' (Hamilton, 2010:50). Of course the resources to be mobilised must pass through some organisations' budgets and be ceded by others, and represent enormous sums, but Hamilton attempts to put them in perspective. Even the IPCC maximum estimate is equivalent to only two years' foregone growth, foregone in order to greatly reduce chances of disaster. In the case of the Stern Review, the estimates for achieving 450 ppm and thus avoiding destabilising the world climate were a bit over a year of foregone growth. This was judged to be too expensive. 'It is acceptable, according to Stern, to ask people to wait an extra five months for their incomes to double but it is too much to ask them to wait a little more than a year' (Hamilton, 2010: 54). Taking serious additional risks with our future, by instead going up to 550 ppm, was deemed the proper balance.

The leading climate economist William Nordhaus calculates that market valuations imply that the economically optimal path will be 'to set the global thermostat at 2.6 degrees C [warmer] for the end of this century, rising to 3.5 degrees C [warmer] by 2200', while most climate scientists think that this risks catastrophe, says Hamilton (2010:61). According to Hamilton, these sorts of economic cost-benefit approaches to climate policy are part of a conception in which humans are seen as 'radically separated from the world around them, and can therefore regard it [exclusively] as a realm that provides goods and services for human benefit' (Hamilton, 2010:54).[19] Earth's climate system is seen as 'like a central heating system that can be smoothly adjusted to a desired temperature' (p.62). The complexities of the climate system, including the various potentially disastrous feedback effects, make this conception crazily inappropriate according to many observers. The gulf between the approach of some economists and that of apparently the majority of climate scientists seems disturbingly wide.

The World Development Report on climate change, published last year, presents the Stern Review as on the pessimistic side, even though most of its assumptions have since proven too optimistic. The Report uses economic cost-benefit analysis as a guide, and respectfully cites Nordhaus's calculations (Box 3, p.8). It adds though that these indicate that the extra costs of keeping warming to 2.5 or 2 degrees rather than 3 or 3.5 degrees are relatively small, since reduced adaptation costs largely offset extra mitigation costs. 'The results therefore suggest that the cost of precautionary mitigation to 550 ppm is small' (p.8) – less

than half a per cent of economic product, which is presented as a reasonable cost for climate insurance.[20]

Mentioned in one sentence in the WDR's huge Overview chapter are an extra three million deaths per year from malnutrition due to crop failures in the business-as-usual scenario leading to 5 degrees warming (p.5). Even in the optimistic 2 degrees warming scenario: 'Between 100 million and 400 million more people could be at risk of hunger. And 1 billion to 2 billion more people may no longer have enough water to meet their needs' (p.5). Such deaths carry little weight in economic cost-benefit analysis if they occur amongst the global poor.

The spirit of Gandhi and Mandela ?

Stern invokes the spirit of Gandhi and Mandela, but does not expound it. The notion has become part of a conventional rhetorical repertoire; Mandela and Gandhi are nowadays marketing icons. But what was their spirit? Tactically, Gandhi and Mandela had exceptional skills in mobilising diverse groups around a new shared agenda. These skills of re-framing, to build unity, were not mere marketing tricks but were tied to an ethical agenda. The substance of the agenda was radically humanist and, in the case of Gandhi, radically anti-consumerist. In the case of Mandela, the example that is widely used to show his reframing skills, his response to the murder of Chris Hani, was precisely to maintain unity across divides (Carlin 2009; Kahane, 2010). Mandela is not an anti-consumerism campaigner, but his career exemplifies commitment to others and, as he declared in his Rivonia trial speech, not priority to his own comfort (Mandela, 1995: 395). His commitment to the oppressed in his own group relied on and reinforced his universal sympathy, eloquently expressed in his realisation that he needed to help free South Africa's whites too, from hatred and narrow-mindedness. He perceived a potential for sympathy and decency in everyone, even his jailors (Mandela, 1995: 749-751).

Viewed critically, one might interpret a combination of Gandhi and the growth ethic as showing incoherence (see Gasper, 2010a). Gandhi and Mandela are invoked as icons, magicians who will reconcile the irreconcilable. Viewed kindly, one might say that eclecticism is part of an attempt at bridge-building, across inevitable gaps between different intellectual communities, different climates of opinion, using whatever 'boundary objects' are available for trying to span particular gulfs. At some sorts of interface, such as those served by the Stern Review, economic cost-benefit evaluation is a mutually understandable and tolerated language. Discourse analysis attempts to understand discourses in this way, situating them in their social contexts, and to better understand the contexts through examining their discourses.

The invocation of Gandhi and Mandela reflects also an awareness that action depends on emotions, not only reason. Hulme remarks (2009:202) that most peo-

ple's affective systems have not yet been triggered by climate change dangers, even if their analytic reasoning systems may recognise a serious issue. The issue though is not how to market a correct economics-based solution to an emotional herd. The economics-based solution is not adequate. An analysis based exclusively on self-interest will not provide an adequate response to problems of public goods, including global public goods; it is always liable to be undermined by free-riding, corruption of the regulators, and other inroads of self-interest. Public goods rely also on public spirit, a sense of solidarity and identity with a larger community. That is the spirit of Gandhi and Mandela.

The building of systems of wider solidarity is a long story. In standard economics, we usually tell detective stories: intricate plots with rather simple characters. Precisely because the characters are relatively simple we can, by exact analysis, predict what they will do and deduce what they have done. The characterisation is simple in several respects. First, the motives are relatively simple – maximization of some utility function, typically self-interest, sometimes even self-interest seen only in a monetary sense. Second, the cast of characters is relatively restricted: there are not many types of people, instead all have this same sort of utility function, even though its exact content varies: some like coffee, some like tea, which contributes to the scope for mutual gain through exchange. Third, the characters stay the same, they don't change much during the story. Some may get richer, some poorer, but their personalities and views do not fundamentally change. A detective story is not a Bildungsroman, a story of the evolution and maturation of a personality. But in much of public policy, and not least when considering development ethics and human development, we are talking Bildungsroman. In a reductionist telling of public policy as if it was just a detective story, a technical puzzle, then in John Forester's words 'the transformations of done-to into doers, spectators and victims into activists, fragmented groups into renewed bodies, old resignation into new beginnings, are lost from our view' (1999:115). Certainly those transformations were what occupied Gandhi and Mandela.[21]

Certainly too, something was missing from the ingredients that went into the 2009 Copenhagen COP conference, one year back.

The Copenhagen debacle

Gwynne Dyer (2010) describes how the parties in the Copenhagen COP process seriously sought an agreement but how their assumptions and habits got in the way.

> When we examine the strategy and tactics of various players at and before the Copenhagen conference, there will be much to criticise, but it is important to remember that almost everybody there was genuinely

> concerned about global warming, and wanted to achieve an agreement that addressed the problem seriously. (pp.190-1)
>
> ... a number of Western countries, including the United States, the United Kingdom and the host of the conference, Denmark, calling themselves the 'circle of commitment' were secretly working on a draft proposal that would replace the whole Kyoto process with a new treaty that obliged developing countries to make emissions cuts in return for financial aid. The draft also envisaged that even in 2050, the permitted emissions per person should be almost twice as high in developed countries as in developing countries. (p.200)

This is like holding a meeting on 'global justice' that never addresses the justice of the global economic and political system, and only looks at the global judicial system and how to administer the existing economic-political system in a more orderly way.

> ... [Further] The 'Danish text' in effect sought to put...three types of aid together, and turn them into a lever by which the rich countries could force the poor to reduce their emissions [which they had been exempted from in the 1997 Kyoto accord] (p.201). [*Dyer explains elsewhere the three types of aid: 1. conventional development aid, offered on a basis of solidarity, mutual benefit and historical obligation; 2. aid to contribute to climate change adaptation – such aid is an historic obligation of rich countries to poor countries, since the rich have caused nearly all of the problem and the poor have to suffer the greater part of the consequences; and 3. aid to contribute to climate change mitigation. These three types have quite different justifications and to try to tie adaptation aid – which the North owes the South – to Southern agreements on mitigation was, he considers, both immoral and stupid.*] To imagine that such a change could be successfully foisted upon the poor countries at Copenhagen was simply breathtaking in its ignorance and arrogance. Equally detached from reality were the proposals in the 'Danish text' to establish a two-tier world of different emissions rights for rich and poor countries [see above], in effect institutionalising current inequalities, and to give control over the choice of who gets climate-related aid to the deeply unloved, Western controlled, World Bank. The document was presumably intended to be sprung on the conference at the end, when all the world leaders were assembled and the negotiations had reached deadlock, but it was (of course) leaked before the conference even began, and caused huge anger among the intended victims. (p.201)

This disastrous approach by rich Western governments was not the only problem. None of the big emitters who had previously been excluded from and/or rejected and/or ignored commitments under the Kyoto accord – the USA and some of its allies like Canada; plus China, India and Brazil – were willing to

accept specific targets for reductions. At China's insistence even the long-horizon targets that had long been part of the Kyoto process – that the world needs to reduce emissions by 50 per cent by 2050, as part of which the rich countries must reduce emissions by 80 per cent – were eliminated, perhaps because China expects to be a rich/developed country by 2050 (p.205). But, suggests Dyer, this retrogression emerged in reaction to the selfish and manipulative Western tactics seen in the 'Danish text', which provided the opportunity for growth-gives-strength elements in the Chinese ruling elite to win, despite widespread awareness in that elite of climate change and its huge present and future impacts in China, such as the rapid shrinking of the glaciers that feed its rivers.

So the Kyoto process was in effect abandoned. The Copenhagen conference produced no agreement on a follow-up, only a statement from the big emitters which was almost rejected by the conference and was in the end merely 'noted' (Dyer, 2010:209). Even if all the offers on the table had been confirmed, it would have matched a scenario of 3°C warming. Thank God for geo-engineering, concludes Dyer. He himself likes the notion of reflecting back solar radiation by creating clouds, rather than the current favourite of seeding the atmosphere with sulphate aerosols. Such measures will only bring interim relief; they cannot compensate for eternally rising carbon dioxide levels, which will make the oceans too acidic to support life. But they might be needed to provide space for adjustment.

Let us proceed to a survey of perspectives on climate change that essays greater interpretive depth than found in Stern, Giddens, or 'the Danish text'.

Hulme – Why We Disagree About Climate Change

Arguably, the cleverest people make the worst mistakes in front of complex problems, problems that exceed any single person's capacities, for they are more likely to overestimate themselves and fail to consult and cooperate. One version of this insight comes from James Watson. He and Francis Crick identified the structure of life –the double-helix structure of DNA– at Cambridge University in 1953. Years later Watson reflected on why they won that scientific race. The reason, he said, was because they were *not* the cleverest in the race. As a result they did not rely on their own brilliance alone; instead they consulted intensively. We can call this the Watson principle. By happy coincidence Watson is the name of Sherlock Holmes' less than brilliant companion, Dr. Watson, so the principle is easy to remember. The Watson principle applies also in public affairs and policy analysis. Amongst social sciences, economics may have made the worst mistakes. Neglecting its own principles of gains from trade, it for too long sought, mercantilist style, only to export its products and not to import enough. Geography has not had this problem, and many of the best synthesisers in social sciences and development studies seem to come out of geography.

Mike Hulme is a British academic geographer, who founded the Tyndall Centre for Climate Change Research. His 2009 book *Why We Disagree About Climate Change* diagnoses weaknesses in the perspectives on responding to climate change that are associated with the Kyoto Protocol and the Stern Review. In each chapter Hulme explores a further reason why people disagree about climate change.[22] Very similar views are expressed in *The Hartwell Paper* (Prins *et al*., 2010), produced by a group of which Hulme was a member, consisting of fourteen rich country experts under the coordination of Gwyn Prins and Steve Rayner. It proposes a 'radical re-framing' of climate change and climate change policy.

Hulme and Prins *et al*., like Giddens, criticize Stern and the Kyoto process for in effect following the standard engineering-derived model of policy analysis: specify a problem structure, a problem tree, and then reverse it to define a solution structure: a solution tree and a corresponding series of required actions. That approach tends to hide many of the value choices involved in defining problems and selecting solutions. The issue of climate change is too multifaceted and disputed in nature to be addressed in this fashion, as if there is a single and omniscient decision maker, or one able to command and control others. Implicitly it is a government-centred approach, that leads the issue to the United Nations to coordinate action around the supposedly single correct interpretation of the problem. Climate change belongs however to the genus of 'wicked problems' identified by Rittel and Webber (1973). It has too many aspects, too many causes, too many effects, and relatedly too many uncertainties, too much culturally- and ideologically-contingent interpretation, too many alternative problem formulations and too many possible relevant responses to be helpfully approached in a technocratic engineering style. To do so leads to the specification of supposed 'solutions' that have unmanageable coordination demands and are unimplementable. No authoritative shared interpretation is possible; too many countries are involved to get an international consensus, and most national governments are not able to, or simply do not, fulfil their promises. The outcome is: minimal change. Lack of interpretive nuance leads to lack of practical effectiveness.

Instead, argue Hulme and the Hartwell Paper, we must proceed step-by-step on innumerable different fronts, all treated separately rather than bundled together into an unnegotiable grand package. There should be an emphasis on learning through experimentation and debate, without expecting or requiring a consensus map of the terrain and plan of action. People can agree on an action for variety of different reasons; and even when they do not agree on actions different groups can each proceed with different but complementary actions. Like Giddens and Friedman, the Hartwell Paper stresses that this process involves finding compromises around feasible next steps, by identifying synergies with other priorities: economic development, basic needs fulfilment, health, energy efficiency and energy security. That can build a foundation of cooperation that

will ease other initiatives later. The Hartwell paper sees much scope for example for progress on controlling temperature-forcing agents other than CO_2, such as black carbon (soot) which may have contributed much to recent Arctic ice melt; and they advocate a politically feasible low carbon tax, not designed with immediate punitive deterrent intentions but instead dedicated to funding research on alternative energy sources. This offers a path forward that is both feasible and, in time, inspiring. 'Securing access to low-cost energy for all, including the very poor, is truly and literally liberating' (Prins et al., 2010:35).

Despite this concluding flourish, something important is absent in the Hulme and Hartwell analyses: sufficient perspective from and for the South. In that sense they retain something in common with the hierarchist worldview that they argue led to the Copenhagen fiasco. Prins and Rayner have been campaigning for some years to replace the Kyoto conception by the promotion of mixed approaches, with a focus on adaptation not on a unified blueprint for mitigation. Whether adaptation is as feasible and adequate for poor people in the tropics as for the affluent in the temperate zones requires attention.

Here I consider Hulme's 400 page book, a full statement that gives ample oportunity to show his worldview. Hulme notes that which risks get stressed depends on who has voice. He claims that those who exercise 'voice' are the Green affluent classes in the North (Ch.6: The Things We Fear). Not highlighted as lacking voice are the poor in Africa, South Asia and the Pacific, nor are their risks highlighted. Later he quotes Steve Yearley's view that 'we are concerned about climate change not so much because of any substantive dimunition of human or non-human welfare that might ensue, but because of the strong element of symbolism involved' (Hulme, 2009:343). The 'we' here evidently encompasses rich Northerners, rather than Bangladeshis, Ethiopians or Pacific islanders.

The prospective costs discussed in Hulme's chapter on valuation concern the loss of bits of the natural environment and associated aesthetic values (pp. 114-5, 134): what is 'the worth of a songbird', he asks (p.134) ? The examples are not about retaining one's life and health. Yet, to recall the World Development Report's projection, business-as-usual warming might bring another three million deaths per year from malnutrition. Rights-based arguments against global warming concern present generations in the South, not merely the unborn, for the negative impacts would not arrive only in 2100. Bangladeshi babies today face lives of seriously increased risk of fundamental dangers. Hulme outlines arguments for a high discount rate, that give no weight to the chance that future generations (those in Bangladesh, more than those in Britain) may be at risk of devastation, not merely of reduction of a super-affluence far above present day standards (p.122). His discussion of chances of disaster (pp.123-4) does not ask disaster for whom. Its examples are airport security and the risk of

a cooker malfunctioning; not drought or flood or famine affecting poor families who are unable to cope with them.

The culture wars in the North preoccupy him instead. As a careful geographer, he is irritated by the sometimes sweeping claims and vague backing offered by deep Green activists, 'deep ecologists' (p.134), 'radical deep ecologists' (p.132). When he comes to distinguish views on sustainable development—'market envíronmentalism', 'ecological modernisation', and 'environmental populism' (pp.256-8)—only the last of them receives a pejorative (and inaccurate) title. The fears that deep ecologists express, for 'the basic functioning of the planet' (p.134), are not unique to them but are shared by many climate scientists and environmental scientists, as we saw earlier.

Hulme treats 'development' in a separate chapter. After noting that issues look different from 'Dacca' (p.252), he spends the chapter on a re-run of the Bruntland-and-beyond debates on 'sustainable development', in other words on territory covered under different labels in earlier chapters, not on an attempt to see how the world looks from Dhaka. (The name of the capital of Bangladesh was changed in the early 1980s. Giddens likewise repeatedly misspells Darfur, as Dafur; 2009:205.) Bangladesh is a leading centre for the movement around climate justice, and for preparations for adaptation against prospective sea level rises, increased rainfall variability, increased glacial melt, and more frequent tropical storms. It is not mentioned in Hulme's twelve page index, nor in his Preface's list of countries visited.[23] Forty years ago, during a famine in Bangladesh, the philosopher Peter Singer raised the profile of the field of global ethics by arguing that response-ability implies responsibility. Rich individuals and rich countries have a moral obligation to help if they can, even if they have no immediate causal responsibility for the famine, he proposed. Climate change raises less disputable claims: the actions of rich countries that affect the climate in poor countries and jeopardise the lives and livelihoods of their peoples imply obligations to avoid, prevent and compensate for damage caused.

> From now on we need to have a system where, for every 10,000 tonnes of carbon you emit, you have to take a Bangladeshi family to live with you. (Atiq Rahman, in *The Independent* newspaper, June 20, 2008; quoted by Dyer, 2010:56).

Hulme expresses scepticism over the hopeful (Bildungsroman) perspective from evolutionary psychology presented by Jonathan Haidt, that suggests that our moral attitudes can evolve relatively quickly towards a global perspective (Hulme, 2009:175-6), and scepticism too over the notion of 'climate justice', remarking that it is subject to numerous and conflicting interpretations (p.164). The same point applies for the notion of justice in general, and in any area of attempted application. It does not end the discussion. Much room exists for reasoned compromises and coalitions; but Hulme does not pursue the matter.

His interest lies elsewhere. Hulme and Hartwell still present the world as viewed from the rich North, looking down on or simply overlooking 'Dacca'. This might be imprudent as well as indecent, suggest the authors whom we consider next.

Stories of Climate Wars or of Global Justice and Common Security

With Dyer's book on *Climate Wars* we move closer to the real world, and not only as seen from London or Washington but as observed on the ground in diverse locations. Dyer remarks that the climate models and projections 'stay well clear of any attempt to describe the political, demographic and strategic impacts of the changes they foresee' (Dyer, 2010:3). And most of the projections produced by international organisations assume, in effect, that there will be no surprises – which would itself be an enormous surprise, for reasons we will come to. They thus fail to become convincing scenarios. The future forms of so-called 'adaptation' will be far more than simply building dykes. We come to the necessary but typically underdeveloped Step 6 in the models of climate change. So one answer to what can social scientists do about climate change is to think about the possible human impacts and reactions. If climate scientists and social scientists do not study these possibilities enough, military planners worldwide are doing so, as in a recent American study called *National Security and the Threat of Climate Change* (CNA, 2007).

What Step 6 scenarios suggest is: first, the 'magnification of [the] physical effects by likely political and social responses' (Dyer, 2010:16). Second, that 'nonlinear climate change [occasional rapid shifts] will produce nonlinear political events' (Fuerth, 2007:72). And third, unlike 'the kind of approach that is often taken in public policy, which is that you only need to do THIS, and the problem will be solved now and forever', we should instead 'Expect that any solutions you apply are likely to disturb the system, leading to an infinite series of surprises' (Dyer, 2010:21; interview with Leon Fuerth). We might call this the narrative approach to public policy: stories will keep on unfolding, with periodic surprises.

Reviewing the historical record of human responses to environmental crises, the historian J.R. McNeill notes how troubles beget troubles. Disasters fuel mutual suspicions and religious zeal. People under pressure often get nasty. More elegantly stated: 'Restraint and civility can quickly perish when confronted with imperious necessity. This much has been obvious to observers since Thucydides's analysis of the Corcyran Revolution. .. [Political] reaction to shocks often [in history] took the form of scapegoating minorities and foreigners' (McNeill, 2007:29). McNeill's analysis comes in a study called *The Age of Consequences*, from the Washington DC Center for Strategic and International Studies. In a sister chapter Gulledge warns against the myth that 'climate change will be smooth and gradual. The history of climate reveals that climate change occurs in fits and starts, with abrupt and sometimes dramatic changes rather than gradually

over time' (Gulledge, 2007:37). So the social impacts and forms of 'adaptation' could work out differently than suggested by the smooth curves in the international reports.

The Age of Consequences builds three climate scenarios. To start with the least worrying, Scenario 1 traces the impacts of the IPCC's main projection, through to 2040. 'It is a scenario in which people and nations are threatened by massive food and water shortages, devastating natural disasters, and deadly disease outbreaks. It is also inevitable.' (Podesta and Ogden, 2007:55). East Africa is the region with the highest risk of conflagration, because of the combination of expected intensity of climate fluctuations and the fragile and contentious political situations. The various component crises 'are all the more dangerous because they are interwoven and self-perpetuating' (p.56). Scenario 2 adds the early impacts of the dangerous feedbacks that were explicitly not included by the IPCC 2007 Report. It envisages warming of 2.6ºC by 2040. 'Agriculture becomes essentially nonviable in the dry subtropics' (Fuerth, 2007:71). More generally, human systems worldwide will come under major stress, and 'massive nonlinear events in the global environment will give rise to massive nonlinear societal events' (p.76). Scenario 3 in effect follows this story through to a world in 2100 that is 5.6ºC warmer and where the sea level has already risen two metres.[24] The study then traces the possible diverse human impacts of these climate scenarios, as people and organizations react, leading to an infinite series of surprises.

Dyer extends the approach. Let us take two of his eight imagined scenarios, remembering that scenarios are not predictions. 2010 has seen the Pakistan floods (they are not yet over), an extraordinary environmental disaster, due to exceptional rains apparently related to a La Nina event in the Pacific. Pakistan figures prominently in Dyer's book. It has the largest contiguous irrigation system in the world, a system that relies on river waters from the Himalayas. The shrinking of the Himalayan glaciers, which is proceeding rapidly, is envisaged to eventually cut off Pakistan's winter water supply and lead to intense tensions with India, from where several of Pakistan's major rivers come. Pakistan, a country of 170 million people, with nuclear weapons, is already the world's university for armed Islamic militants. A fast growing population of unemployed young men could continue to provide recruits like the perpetrators of the 2008 Mumbai massacres.

Here is the gist of Dyer's Scenario 4:

> ..[It] had been widely predicted for decades: first the glaciers will melt, overfilling the rivers every summer—and then they will be gone, and the rivers will run dry in the summers. ... [Eventually] it was life-and-death crisis for Pakistan... At least three-quarters of Pakistan's food was grown on land that was irrigated by the Indus river system.[25]

Leaders of the latest military coup in Pakistan look for ways to cement support. They demand that India renegotiate the Indus Water Treaty that allocates the waters of the Indus and its tributaries. Confrontation escalates. A Pakistani guerilla attack on the turbines at the giant Bhakra Dam in India leads to a hardline nationalist government in Delhi, which seeks to force Pakistan to disarm terrorists. The military government in food-rationed Pakistan learns of Indian preparations to disable Pakistan's nuclear delivery system. Pakistan secretes enough of its missiles to launch a successful large-scale nuclear attack on India when the Indian strike comes. India manages to retaliate.

Scenario 5 concerns a Bangladesh subject to ever more frequent and destructive cyclones. It finally threatens to unilaterally 'upload a million tonnes of powdered sulfates into the stratosphere—in order to cut incoming sunlight and drop the global temperature unilaterally—if there were not swift global agreement on doing it by less noxious means' (Dyer, 2010: 161-162). This scenario has a happy ending. Not all the plausible scenarios for Bangladesh are like that. A country with a population almost equal to Pakistan's, it is probably more subject to environmental vulnerability. First from the overflow of rivers, fed by global warming that increases energy circulation, warms the oceans, boosts rainfall, and melts glaciers. Second from rising ocean levels that endanger a large part of a country already more than twice as densely populated as the Netherlands and with far less economic capacity to protect itself or adjust. Contrary to the common picture in Western literature and newspapers of feckless Southern nations that are responsible for their own problems—the picture given by John Rawls in *The Law of Peoples* or by Garret Hardin—Bangladesh has been exemplary in development innovation. Its own picture is that it is the home of Grameen, BRAC, Proshika, and a great new textiles sector, for example, but will suffer, indeed is already suffering, from environmental damage caused by others' actions. It is subject to serious international restrictions on its exports, just as when ruled by Britain, who prevented Bengal textile exports and instead obliged opening up to British imports. Under British rule local subsistence entitlements were lost as Bengal was incorporated into global market systems. In contrast to the relatively effective pre-British responses to climate-related food crises, British rule saw a series of massive famines (Sen, 1981; Davis, 2001). Given Bangladesh's combination of historic, current, and impending damage and grievance, security planners worldwide (e.g., Campbell et al., 2007) ponder scenarios in which the country becomes a second Pakistan, a second university for armed militants.

The relevance of these sorts of scenarios does not depend on whether the causes of climate change are natural variation or greenhouse gas emissions or other human activity. They do not depend on whether some particular global average temperature is reached or not. Issues of Step 6 human adaptations to climate changes—including changed variance, more frequent extreme events, particular local climatic and environmental quirks—demand our fuller attention.

Strengths and weaknesses of the narrative form with specific reference to climate change are a topic for investigation in a new project that I participate in, coordinated by the University of Bergen. We are looking now at arguments about qualities of the narrative form, in its diverse versions, that are made in the literatures about other issues and contexts than climate change (see e.g., Whiteman & Phillips, 2008). The story form has a number of advantages when considering human trajectories. First, it provides descriptions that are not only more vivid but often more insightful. Documents like the Stern Review and the World Development Report have a rather limited cast of characters: for example, in some analyses just 'developed', 'developing', and 'emerging' countries. They lack specifics, and, related to that, we will see, they miss some of the resulting dynamics. Narratives and scenarios bring us to the concrete particularity, the actual strange combinations, contiguities and coincidences that can and do occur. So, second, because stories can better respect complexity, they are better in giving understanding. A standard piece of advice in interpretive policy analysis is the Goldberg Rule: don't ask people what's the problem, ask them what's the story. One will get deeper that way, including in identifying the real problems (Forester, 1999). Or one can ask the sister versions, 'How has this issue come into your life?', or 'What did you do when that happened?' (Forester, 2009). People respond not with theory or speculation but with revealing narratives.

Third, stories are sometimes better for prediction. They show intelligently calculated, emotionally driven reactions. They do not shy away from considering the interactions between environmental, economic, social and political impacts that are beyond our ability to formally model. The Stern Review when costing possible impacts in rich countries does not include the feedback effects from economic crisis in 'poorer countries who are more vulnerable to climate change..., with increasing pressures for large-scale migration and political instability' (Stern, 2007:139). The Review recognises a whole series of such omissions (pp.169-73) but has no methodology for dealing with them. Centrally, stories think about 'the diverse potentials of complex interactions... [and reveal] risks, possibilities and opportunities that can otherwise be overlooked. .... Scenarios help people to perceive connections and possibilities that their mental frames, routines and authority structures normally screen out' (Gasper, 2010a:23). Stories consider the highly improbable combinations that could occur and that, if they do occur, would change everything. While any *particular* such combination is highly improbable, the chance of occurrence of *some* such world-changing improbable combination is much higher. Yet social science has too little interest in such 'Black Swan' events, argues Nassim Taleb (2010), since it cannot model them. So, fourthly, stories may be better in promoting preparedness even where we cannot predict.

Fifthly, stories can have strengths in promoting ameliorative action, though they also have many dangers. In interpretive policy analysis, telling one's story,

showing one's reasons, has the potential to establish a party as a recognised actor in the eyes of the other parties, and to provide information and mutual awareness that open up previously unseen possibilities in the mutual relationships (Forester, 1999). Faced with clearly conflicting espoused values of different parties, there is little point in addressing the conflict head-on. Instead it becomes essential to explore the worldview, history and humanity of each of the parties, to create the degree of mutual understanding and acceptance and to find enough pragmatic handles to be able to move forward. The stories of one's interlocutors reveal that they are more multi-featured persons than in one's stereotypes. Thus 'when we face value- and identity-based disputes, we need to mine stories, not sharpen debates' (Forester, 2009:71). Telling personal stories is important in global-scale issues too (Schaffer & Smith, 2004), given 'the power of personal narratives to displace stereotypes and expectations' (Forester, 2009:126).

Sixthly, stories and even scenarios can motivate us better. They feel more real and so have advantages in capturing attention, being remembered, and connecting to action. They engage our emotions, which reinforces those advantages. They bring us closer to the lives and minds of other people, and show us the human significance of abstracted projections and generalized trends (Gasper, 2010a; Raskin et al., 2002). Through stories we are emotionally educated, made both more knowledgeable and more sensitive in relation to others (Forester 1999, Ch.2). Abstract talk cannot do most of this work.

Much of the climate literature warns that doomsday scenarios can generate resignation, disbelief and rejection, or strengthen individualist responses, including seeking self-esteem through money, image and status (e.g., Hamilton, 2010). Stories need to move us beyond focussing only on problems: past, present or future. So scenarios planning exercises typically seek to identify plausible desirable paths too. Scenarios work shows how some of the benefits from inclusive story-making at micro-levels can be extended to much greater scales of operation. Much more work is needed on which types of narrative and scenario may be helpful for which tasks and contexts.

Exchanging stories is one part of the repertoire of potentially helpful steps for dealing with differences that we find from the literatures of interpretive policy analysis and planning. Three others, following Forester (2009:129), are, first: Steer people towards joint inquiry, rather than attempting to bargain a 'deal'. 'Deal' is Stern's term for his 'blueprint for a safer planet'. The language of 'global deal' fits a detective-story type of analysis: people have fixed motives, from which we calculate the implications. We saw that his new book at the same time begins to try to transcend this oversimple and restrictive approach. Second: Focus on the future and on opportunities for cooperative actions. Such a focus tries to counter our 'limited telescopic faculty', and connects to scenarios think-

ing. Third: Generate options and then focus on identifying information gaps and uncertainties, to be examined through the processes of joint inquiry.

Erasmus wrote that he spent his money on books, and then if he had some over, on clothes and food. To some observers the modern world seems, in contrast, to have embarked on an institutionalised permanent orgy, hoping that Mother Earth will still tidy up the effects, or that Superman will geo-engineer them away, risklessly, or that the poor of Bangladesh and elsewhere will quietly pay whatever price has to be paid. Some of the projected consequences will hit only in fifty or a hundred or more years time. But probably already some of the poorest face resulting malnutrition, famine, disease, war and displacement—the Horsemen of the Apocalypse and their fellow-riders. The Darfur crisis, for example, appears partly triggered by population movements related to the drying up of Lake Chad, and is reported as the first of the Climate Wars.

Dyer's climate wars scenarios thinking leads him to the conclusion that a form of cosmopolitan egalitarianism would be not only fair in some abstract sense but the only arrangement that could ensure long-term global peace and survival. The only plausible sustainable basis for a 'global deal' would be, he suggests, not a calculation of 'what is the most we need to concede' but a principle that conveys equality of esteem, such as that propounded by the Global Commons Institute: that 'everybody on the planet is entitled to the same basic personal allocation of greenhouse gas emission rights, and that those who exceed that allocation must compensate those who use less than their allocated amount' (Dyer, 2010:72).

Interestingly, morally myopic thinking may tend to induce explanatory myopia too. A focus only on one's own interests can be associated with a shortage of attention to, understanding of, and flow of reliable information from other people. It may bring an underrecognition of interconnections that bind even the strong to the weak in a globalized world. Giddens (2009: 213ff.) considers that enlightened self interest provides solid arguments for rich countries to help poor countries to adapt to Northern-induced climate change. He notes the failure of the Bush-Cheney attempt at a 'realist' foreign policy regime of brusque use of military and economic power to enforce its own interests. In Friedman (2009)'s view this testosterone-driven *folie de grandeur* has proved to be the opposite of realism: reinforcing rather than reducing American reliance on imported oil, and boosting often anti-American autocrats and dictators in oil- and gas-exporting states plus Islamism worldwide (Friedman's 1st Law of Petropolitics). Storytelling helps to make this web of connections clearer than do regressions alone.

No man is an island, and security can only be common security, worldwide. In a letter to a friend, Erasmus once wrote: 'That you are patriotic will be praised by many and easily forgiven by everyone; but in my opinion it is wiser to treat men

and things as though we held this world the common fatherland of all.'[26] Wiser, as well as nicer. Human security theory tries to organise and present these understandings, in ways that can bridge between different relevant disciplinary worlds and between academe and practice (Gasper, 2005; 2010b; Gasper and Truong, 2010). It has a person-level focus in evaluation and explanation, which leads it to a narrative orientation. It takes the spirit of development ethics, of Gandhi and Mandela: to consider the poor, to understand their vulnerability, and listen and learn; and also to try to understand the vulnerabilities of the rich and deal with their fears.

Conclusion

My conclusion can be brief. First, with reference to understanding and responding to climate change, the lecture has presented many assertions, some of them by me, most of them from a series of significant contemporary authors. I hope to explore some of these assertions in greater depth, and particularly the systems that they form, in cooperation with colleagues and students during the coming period.

Second, in terms of approach, I hope to have indicated in this lecture a type of humanist interpretive and value-critical analysis and to apply it in more detailed fashion in the future work. A humanist approach links to the themes of human rights, human development and human security, which have to be extended to connect to approaches in policy research and policy analysis, policy design and evaluation. Such an approach requires interpretive sensitivity, a focus on human meaning-making, that problematizes the who and the what in politics, and the where, when and how. It also involves openness to and concern for humans everywhere, not only according to size of bank balance or nature of passport. Ethical humanism strengthens the methodological humanism, the interpretive orientation, for as we have seen moral near-sightedness tends to bring explanatory short-sightedness. Listening to the stories of people, ordinary people, worldwide, is both decent and wise.

The case for listening-oriented global-oriented transdisciplinary work is the case for international development studies as a distinctive intellectual space. Development studies can add global perspectives that counter epistemic parochialism and ethical parochialism. A global orientation reflects human interconnections both in terms of impersonal cause-and-effect systems and in terms of our affective links and moral sentiments: the two faces of human interaction studied by Adam Smith, in his *The Wealth of Nations* and *The Theory of Moral Sentiments* respectively, or by Amartya Sen, in his *Poverty and Famines* and *The Idea of Justice* respectively. These are the themes of development studies at its best: to look at important interconnections across sectors, disciplines, and national boundaries, guided by a concern for people everywhere and in following generations too. Such an approach, broad in scope and perception and broad in senti-

ments and sympathies, provides the rationale of a school of international development studies, and is why I am grateful to be a member here.

Afterword

I would like to thank several people. First and foremost, my family: my wife and life partner Shanti George, my mother, and my daughter Anisa, for their loving support and companionship. Second, the senior management of Erasmus University Rotterdam and of this Institute, for establishing several special academic chairs at ISS, including this one. Third, my colleagues past and present at ISS and elsewhere; including especially colleagues in the Public Policy and Management team and in the Staff Group on States, Societies and World Development. And fourth, some intellectual partners: Raymond Apthorpe, who brought me to ISS and who introduced me to interpretive analysis; Thanh-Dam Truong, who introduced me to a human security perspective and has generously brought me into her work on migration; Sunil Tankha, with whom I teach policy analysis, who has stimulated me to move further into environmental policy questions; and Asuncion Lera St. Clair at the University of Bergen, with whom I work on development ethics and climate change. Finally, my thanks to you all for your attendance today and your attention. With this, I conclude in the traditional way: ik heb gezegd.

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Endnotes

1 For example, Prins *et al*. identify tropospheric ozone as a serious contributor to warming and cause of much other damage, which could be cost-effectively attacked through air pollution regulation.

2 Humanism, as the concept emerged in Europe in the 14th and 15th centuries, meant the study of not only sacred Christian texts but of classical Greek and Roman texts too, and use of insights from those classical sources to enrich understanding and practice both of Christian religion and contemporary living. Renaissance humanism involved also rigorous attention to language, grammar, and original texts, notably the Greek originals of Christian texts. In the 18th century a further meaning was articulated:

> In 1765, the author of an anonymous article in a French Enlightenment periodical spoke of "The general love of humanity . . . a virtue hitherto quite nameless among us, and which we will venture to call 'humanism', for the time has come to create a word for such a beautiful and necessary thing." [Quoted in Wikipedia entry on Humanism]

3 So, formulations of the scope and orientation of development studies by authors like Hettne (1995) have emphasised: an interest in understanding and helping to influence long term social and economic change and in informing current action; explicit value-concerns broader than economic growth alone; and a global perspective, including an emphasis on global interconnections.

4 See also, e.g.: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2316875/pdf/brmedj06263-0030.pdf, http://www.academicapparel.com/caps/Early-Academic-Dress.html,
http://oxford.emory.edu/audiences/current_students/commencement/history-of-academic-dress.dot,
http://www.tamiu.edu/commencement/documents/CommencementprogSpring09.pdf

5 I draw here on Stern (2010) and Gasper (2010a).

6 Giddens (2009:20) even claims the Arctic ice cap is less than half the size of 50 years ago, and that some average temperatures in the Arctic have reportedly risen 7 degrees.

7 http://www.bbc.co.uk/news/science-environment-11813578, 23 Nov. 2010.

8 Hamilton (2010: 197-8) with reference to Prof. Pier Vellinga of Wageningen University. Areas near the Poles experience much greater changes in average temperature than those near the equator.

9 'The warmest point of the [previous] interglacial period...was about 1ºC warmer than the present global average temperature [thus about 1.7ºC above pre-industrial levels]

for only a few centuries, yet saw an average sea level 4 to 6 metres higher than at present' (Gulledge, 2007:41).

10 Hamilton goes further: 'A planet 2.5 degrees warmer means most of the ice eventually melts, leaving the oceans 50 metres higher than they are today' (2010: 193-4).

11 Greenland warmed by 10ºC in fifty years at end of the last ice age, about 12,000 years ago, claim researchers at the University of Copenhagen (as reported by Friedman, 2009:157). Recurrent mass extinctions in the past have been through climate cycles; only one was through an asteroid.

12 Hamilton cites a survey reported in http:www.independent.co.uk/environment/climate-change/climate-scientists-its-time-for-plan-b-1221092.html.

13 'A planet four degrees warmer would be hotter than at any time since the Miocene era some 25 million years ago. The world was virtually ice-free then' declares Hamilton (2010:192).

14 The WDR 2009 reports, but doesn't build on, how consumers often respond to notions of norms rather than to prices, e.g. they reduce their electricity consumption when they are informed how it ranks relative to others.

15 So Giddens is wrong to talk of 'over-development' (Giddens, 2009:72) for that concedes the term 'development' to mere growth of economic activity. One must show instead that it can bring mal-development. Elsewhere he adopts the sensible term 'uneconomic growth' (p.52), which has been shown repeatedly (by ISEW and other measures) for life in the US and UK since the 1970s.

16 Stiglitz comes in effect to the same point. For how to motivate his plans for counteracting global market failures, he turns at the end to the principle of universal human rights (2007:292).

17 Fig. 8 in the WDR (p.15) assumes a huge CCS contribution in order to ensure a 2 degree maximum rise trajectory. 'Storage capacity of 1 billion tons a year of CO2 is necessary by 2020 to stay within 2°C warming' (p.16), yet the Report observes that present storage is 4 million tons a year.

18 Many purchases are not used. One survey found Australian households spend on average $1200 p.a. on goods they do not use, 'more than total government spending on universities or roads' (Hamilton, 2010:75).

19 Contemporary airports, airplanes and shopping malls are privileged sites of endless ingestion that exemplify the divorce from nature.

20 The WDR 2010 tries hard not to locate itself too far from any powerful groups with respect to 2°C warming (p.3): 'Immediate action is needed to keep warming as close as possible to 2°C. That amount of warming is not desirable, but it is likely to be the best we can do. There isn't a consensus in the economic profession that this is the economic optimum. There is, however, a growing consensus in policy and scientific circles that aiming for 2°C warming is the responsible thing to do. This Report endorses such a position. From the perspective of development, warming much above 2°C is simply unacceptable.'

21 The German language has also a category of *Entwicklungsroman* (development novel), a story of general growth rather than self-cultivation (Wikipedia entry on *Bildungsroman*). Planned value change – reframing – was a topic (ch.9) in Stern's 2005 book that presents his theorisation of development. Its 500 pages had no discussion of climate change (other than a minor illustration on p.58).

22 There is no mention of the funding provided by corporations and individuals with immense stakes in the fossil-fuel economy.

23 Bangladesh is mentioned once, with reference to an NGO project to help 'vulnerable delta communities' (Hulme, 2009:258).

24 Current temperatures equal those of 3 million years ago. 'Sea level then was about 25 meters higher than today' (Woolsey, 2007: 83), but melting of the ice caps may take very long.

25 Dyer mis-dates the event in the 2030s, perhaps on the basis of an error in a WWF report that was repeated by IPCC 2007.

26 From Wikipedia entry on Erasmus, 25 Sept 2010 - Cited as from letter 480, to Budé' (ed. Allen).

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Cover photo: Statue of Desiderius Erasmus in Rotterdam by Frank Versteegen, Rotterdam