


# Climate change, Responsibilities, and Defeatism and Complacency

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# Climate change, Responsibilities, and Defeatism and Complacency

Thomas Heyd[1]

*Paradoxically, knowledge of the increasing certainty about climate change, and of the severe consequences of this phenomenon for large portions of the world population, may lead individuals and communities to fall into a paralysing defeatism. Such defeatism, even more paradoxically, may be accompanied by complacency, due to assumption that, on the basis of our societies' institutional, scientific and technical capabilities, we can wait until problems really become evident. Both the defeatist and the complacent attitude may lead to failure in the application of entirely feasible mitigation and adaptation measures, with consequent much increased probabilities of economic, human and ecological costs. In view of the degree to which these attitudes are present in our societies we may wonder whether inaction may be justifiable on our part despite awareness of stringent responsibilities. Here I argue that, even if it may appear that, under these conditions, we cannot take direct action on our responsibilities regarding climate change, we still have responsibilities to act at another level.*

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# 1. Introduction

In the light of the very limited progress and achievements at the latest rounds of the UNFCC in Durban (2011), Cancún (2010) and Copenhagen (2009) there remains little optimism about the prospects of our societies in changing course regarding the causes and remedies concerning climate change. Neither thoroughgoing mitigation nor new, substantial, adaptation measures seem to be in the offing. Increasingly the "rational pessimists," who see global society surpassing the 2ºC above pre-industrial levels by 2100, are seen to be winning the day.

Paradoxically, knowledge of the increasing certainty of human-induced climate change, and of the severe harm that it may bring to large portions of the world population, seems to be leading individuals and communities into a paralysing *defeatism*. Such defeatism, furthermore, increasingly is accompanied by *complacency*, due to the assumption that, given our societies' institutional, scientific and technical capabilities, we can simply wait to address the problems posed by climate change until they actually become troublesome in our proximate, local, environment. As a result, even individuals, who are aware of their responsibilities toward future generations, may feel that *apathy* may be justified since, if not enough individuals and states pull their weight, it would seem useless, and even wasteful, for any one of us to sacrifice our comfort for the sake of an impossible project.

This is the quandary that I intend to begin to address in this paper. Here, I begin by explaining a little further the grounds for taking responsibility concerning climate change. After this, I point out that defeatist and complacent attitudes may interfere with acting on our responsibilities, thereby possibly leading to failure in the application of entirely feasible mitigation and adaptation measures. Next, I note that the result may be significantly greater economic costs and human and ecological harms than would otherwise be incurred. I close by pointing toward some of the ways to address these problematic attitudes, and propose that individuals who are aware of this situation should perceive it as a call to help transform the socio-cultural conditions that generate them.

# 2. Prudence and ethics

A diversity of measures, undertaken by various levels of governments, coordinated nationally and internationally, are doubtlessly necessary in order to create the institutional framework and material infrastructures, and to set the overall course for society, to address climate change satisfactorily through reduction of greenhouse gas emissions, as well as other mitigating strategies, and through adaptation to already inevitable effects (Nihlén Fahlquist, 2009). [2] Though responsibility for action on

[2] Henceforth I will refer to these ways of addressing climate change simply as 'mitigation and adaptation'.

climate change generally has been discussed in relation to the duties of particular nation-states or blocks of nations (the West or Global North vs. the 'developing' nations of the Global South and the 'emerging' BRIC (Brazil, Russia, India and China) countries), there are good reasons to also consider the responsibilities for action of individual citizens, because of their important role in bringing about change in society (see, e.g., Moser, 2007). Active involvement by concerned citizens likely is crucial in several respects: as sources of new civil society initiatives, as pressure on governmental institutions to carry through on measures proposed, and as proof of the realisability of the collective transformation of current patterns of production and consumption.

The *Fourth Assessment Report* of the Intergovernmental Panel on Climate Change (IPCC, 2007) strongly supports the view that climate change processes are accelerating, and that future as well as present generations are going to experience very significant increases in severity of disastrous, and possibly catastrophic, phenomena associated with rapid environmental change, which will bring about significant economic costs and harm to human and non-human beings. Alarmingly, measured trends in the rise in global average temperatures and sea levels are seen to be even exceeding the *worst-case* scenarios of this latest IPCC Report.

One analysis of current trends, published in *PNAS*, states that recent (2000-2006) trends in the growth in greenhouse gas emissions due to increased economic activity, greater carbon intensity, and lowered efficiency of natural sinks 'characterize a carbon cycle that is generating stronger-than-expected climate forcing sooner than expected' (Canadell et al., 2007, p18869, also see Chen et al. 2011 on faster than expected range shifts of species due to climate change). Based on such observations, Will Steffen concludes in a 2009 report for the Australian Government that 'risks associated with the upper range of the IPCC projections of climate change for this century need to be considered seriously' (Steffen, 2009, p4).

So, given that in the middle to long run everyone, and his or her descendants, can be expected to be at risk from at least some of the harmful effects of climate change, a strong case can already be made for taking personal responsibility for reasons of *prudence*. This by itself means that, reasonably, those individuals who are capable of acting should actively support measures directed at mitigation and adaptation, to be implemented both locally and globally across societies and geographical boundaries, and possibly should go even further and develop initiatives to mobilise society about the impending peril (see Garvey, 2008).

There also are very good reasons for supposing that addressing climate change should be considered a matter of *ethical* responsibility. These reasons are diverse, and have been discussed in detail elsewhere (see Gardiner, 2004; Garvey, 2008). They range from taking responsibility for the harmful effects that one causes, to fairness in distribution of burdens; and from assuming responsibility on the

basis of a commitment to a general harm prevention principle, to the humanitarian requirements of solidarity with the more vulnerable. I explain these reasons a bit further here.

Of particular relevance in this discussion is the fact that the industrialised countries have produced most of the anthropogenic greenhouse gases now in circulation, and continue to do so at accelerating rates. This means that they bear a special responsibility from the point of view of justice for the harm that these greenhouse gas accumulations in the atmosphere produce (this may be seen as an application of the 'polluter pays' principle). Moreover, insofar as responsibility can be shared across all those who in some way benefit from, or uphold, a system that causes harm, not just governments but anyone who lives in the Global North, and is a beneficiary of the industrial development brought about by historical greenhouse gas emissions, bears a responsibility for the harmful effects of climate change (Young, 2006), and ought to actively support mitigation and adaptation strategies.

One may also consider common principles of fairness, which, when applied to the capacity to act on urgent matters of common concern, translate into the principle that those who are *more capable* of acting should do *more* (Garvey, 2008). With regard to climate change, this approach means that those who are better off should assume greater responsibility to reduce fossil fuel consumption and contribute more, proportionally, to mitigation and adaptation strategies than those who have fewer means.

Notably, insofar as the financial, technological and organisational capital accumulated by industrialised nations largely has been built from, or with the help of, the resources of the rest of the world, and since a small fraction of this capital would likely be sufficient to soften the impact of climate change for poorer populations, there is, moreover, reason for supposing that, in fairness, the richer countries, and especially the richer individuals who live there, have an important responsibility to assist the poorer in the implementation of adaptation strategies. Importantly, some adaptation strategies also may make the poorer more vulnerable if not carried out in full consultation with, or under the direction of, those most in need. (See Heyd and Mustelin, in preparation.)

Another approach to the question of ethical responsibility draws on the supposition that those who *can* prevent harm from occurring *ought* to do so, out of consideration for the ultimately common condition of vulnerability that we share as human beings (this may be expressed more fully as a general harm prevention principle, cp. Singer, 1979, or as a principle of respect for persons, see Kant, 1785/2002, or as a principle of solidarity). Everyday examples include acts, such as saving a child from being accidentally run over by a speeding car, or rescuing a person from drowning in a nearby pool, but also helping people from dying due to malnutrition, when doing so does not require sacrificing anything of comparable moral value. This means that those of us who are relatively well-off ought to actively address the new risks to present and future human (and possibly to non-human) beings brought on by climate change.

Some may object, however, that, even granting any of the ethical principles suggested (which, to serve as guides in practical life commitment), citizens should rather focus on other issues that supposedly are *more urgent* than climate change. One may ask, for example, why we should invest in mitigation and adaptation while nearly a billion people around the world are malnourished.[3] Similarly, one may ask why finding safe storage for rapidly growing quantities of health-threatening nuclear wastes, which can be radioactive for more than a million years, should not take precedence. Or, why the question of nuclear weapons proliferation should not come first. Or, why the achievement of peace among nuclear armed countries in volatile areas, in the Middle East, the border regions of Afghanistan-Pakistan, Pakistan-India, or India-China, should not take priority (see Homer-Dixon, 2006, for discussion of a 'watchlist' of global stresses).

The key argument in response to such objections is that climate change likely will make most other urgent problems *even more urgent*. As is well-known, a large portion of the world population is vulnerable to food scarcity, droughts, flooding and other effects associated with climate change, and has very limited resilience with which to recover after disastrous incidents. Historically, it is well known, moreover, that environmental factors (be they cold spells or droughts) are often exploited in conflictual situations (see, e.g., Fagan, 2000).

Consequently, food insecurity, safe storage of nuclear wastes in a politically fragile world, the threat of the use of nuclear weapons, the potential for armed conflicts, and so on, are all issues that potentially can become *much more problematic* in conjunction with climate change. Any further delay in committing to thorough-going mitigation and adaptation will foreseeably make many other upcoming problems so much harder to cope with, thereby making climate change an issue that is at least *as urgent as any other*. So, in response to the objection that other matters are more urgent, one may say that, due to the 'multiplier effects' that it entails, climate change constitutes an *especially* important issue to immediately address.

Another objection may be that the call to action on climate change may seem unrealistic, given the priorities of today's world (such as responding to the possibility of another global recession, with all that this entails). There are, moreover, various types of obstacles for people to make their action effective in terms of carbon reductions that individuals face at the psychological level (see American Psychology Association, 2009; Gifford, 2008), the informational level (insofar as people often do not know what to do, see Wolf, 2010), and at the societal-systemic level (insofar as action by individuals is limited by the range of choices available as determined by society at large).

[3] According to the FAO, 925 million people were malnourished in 2010 (FAO, 2011). We may expect the figure for 2011 to be significantly greater, due to the famine in the Horn of Africa.

In response one may note that, though, depending on individual circumstances, it may be difficult to quickly transform agriculture, industry or transportation on a societal or planetary scale, there may be a few things that most people can undertake to get the transformation of our societies started. For example, those who are fairly well-off can take steps to eat, heat, transport, work and build with renewable types of energy, and to re-use, recycle, return and compost used materials. For all of these activities there are enough technical solutions and resources available in most places, at least in the industrialised Global North, to get started immediately.

These steps require matching supportive policies from governments, of course. Those with influence in politics, business or the media should be expected to take steps to remind our leaders of their responsibility to change the structural barriers for action, by lobbying governments and uniting in civil society pressure groups. As a matter of fact, there are a variety of real life examples, such as the Transition Town movement, that demonstrate that transformation of the building blocks of society *is* possible. So, there is little excuse for inaction (even if any adjustment of behaviours requires effort, see Garvey, 2008).

Certainly more detailed arguments concerning the diverse types of responsibility (prudential and ethical) can be worked out on the basis of rational choice theory and from the perspective of diverse particular approaches to ethics, such as utilitarianism, Kant's ethics, Rawls' theory of justice (see Vanderheiden, 2008) or Habermas' discourse ethics (Habermas, 1991). Similarly, the distribution and source of responsibilities, or the assignment of benefits and costs, may be worth considering in significantly greater detail (e.g., see Attfield, 2008, Gardiner, 2004, Garvey, 2008). Here I will, however, forego further discussion of these matters and assume that it is sufficiently evident that there are good reasons to conclude that climate change constitutes an urgent prudential and ethical issue, such that the need for action, in terms of mitigation and adaptation, is sufficiently well established for well-informed ethical reasoners.

## 3. 'All or nothing' and 'wait and see'

As noted, climate change has to be addressed through strong policies, laws and incentives issuing from governments and inter-governmental institutions (Nihlén Fahlquist, 2009), but probably little action can be expected from such institutions without active participation by citizens who take personal responsibility for the state of our world. This means, among other things, that it is important to understand how information on climate change is disseminated by natural and social scientists, how it is moulded by the media and appropriated by opinion-makers of various political stripes, and what citizens come to understand as a result of this process (Moser and Dilling, 2007).

Certainly there is no single way in which people apprehend climate news (Hulme, 2009; Moser and Dilling, 2007) but, strikingly, despite widespread awareness of climate change, this knowledge still has not led citizens to exert sufficient pressure on decision-makers to adopt appropriate policies (as we can see from the mostly disappointing 2009 COP15 and 2010 COP16 meetings, in Copenhagen and Cancún, respectively). One of the most troublesome kinds of reaction to increasingly sobering news about accelerating climate change is a kind of *'*all or nothing*'* attitude, which proclaims that, since we cannot any longer prevent global warming *wholesale*, it may be ignored.[4] This attitude can constitute a powerful impediment to the implementation of mitigation policies, which, as any other insurance scheme, entails costs up front.

The 'all or nothing' attitude seems based on a combination of factual misapprehensions regarding the actual risks associated with further increases in greenhouse gases in the atmosphere (and in the oceans, generating increasing levels of acidification), inappropriate priorities, as well as minimalist habits that recommend inaction despite considerable urgency. Notably, while we are already committed to important climate effects (for example, considerable thawing of on-land glaciers, and increases in droughts and in storm intensities), continued emissions at present rates, however, mean still greater potential commitments, such as the thawing of the Greenland and Antarctica icecaps, with further intensification of linear, as well as hard to fully comprehend non-linear, effects that may be leading to surpassing important tipping points. Therefore, defeatism or 'fatalism' in view of climate change may lead to much worse consequences than already are to be expected.

The complementary attitude to the 'all or nothing' attitude is to 'wait and see' in the expectation that the combined power of science, engineering and financial institutions will be sufficient to cope with national or local disturbances, if and when they occur.[5] A complacent 'wait and see' attitude, however, fails to take into account key aspects concerning capacity to act (also see O'Brien et al., 2006). The climate science consensus clearly shows that, without adequate mitigation and adaptation strategies to limit the extent of climate change and to lower vulnerability and increase resilience, simple coping cannot and should not be relied upon as a satisfactory response to the severe physical,

[4] This attitude may even be found among otherwise apparently well-informed people. See Baron (2006, p146), who speaks of 'a futile war against global warming', and suggests that it may be more 'cost-effective' to devote financial resources to the promotion of the development of poor countries to prepare them for the now inevitable consequences of climate change. There are reasons to be skeptical, in any case, about the value for the poor of many development and adaptation strategies, which primarily benefit already well-to-do minorities. See, for example, Kates (2000).

[5] E.g., see Baron (2006, p146), who speculates that 'it may turn out that new technology will make the war against climate change winnable after all'.

social and political consequences of climate change (IPCC, 2007; also see Adger et al., 2009; Schipper and Burton, 2009).

The 'wait and see' attitude overlooks that even where societies have considerable scientific capacities, technical know-how and financial power, effective coping with severe environmental events generally requires *previous* application of these resources through antecedent adaptation strategies. It also overlooks that mitigation may constitute the best kind of adaptation, since mitigation should lead to a significant reduction of the eventual human harm, as well as decrease the financial costs of adaptation, and of the subsequent costs of coping when actual disturbances occur.

A 'wait and see' attitude, furthermore, ignores that there are very large populations both in the less industrialised parts of the world that lack most of the means to cope with the consequences of climate change, such as increased floods, droughts, and the expected resulting food shortages, greater spread of diseases, and so on. There are, moreover, considerable populations in the industrialised countries, such as poorer urbanites that are homeless or in temporary housing, who are vulnerable to phenomena such as heat waves, severe winter cold, or flooding. (There are multiple cases of significant hardship and even mortality caused by such phenomena in Europe and North America, for example, the 2003 European heat wave, the extraordinarily cold European winter of 2009-2010, the 2005 Katrina hurricane and the flooding of New Orleans, and the flooding of Genoa, Italy this year 2011. Hence, it is reasonable to suppose that, if those who are better-off and have the capability to act forgo vigorous mitigation and adaptation then the more vulnerable will increasingly will be in harms' way.

Both the defeatist 'all or nothing' and the complacent 'wait and see' attitudes may lead to unnecessary, supplementary, difficulties, and bring about important additional costs, because the problems posed by climate change are taken on *too late* in the game (see Stern, 2007). These attitudes may, in fact, play into the hands of those who would rather opt for 'solving' climate change through costly new geo-engineering mega-projects – even if the solutions proposed are untested and may subject world populations to incalculable new risks (Gardiner, 2010).

Hence, allowing for the development of policy under the sway of either defeatist or complacent attitudes may lead to projects that contravene the precautionary principle (widely endorsed by international law), which demands that populations not be subjected to actions that represent *additional* levels of risk (see Gardiner, 2006, also see the 1998 Wingspread Statement on the Precautionary Principle). To this we may add that it is to be expected that species extinction rates will accelerate as climate change proceeds, and that coping activities, even if they involve grand schemes to help in the re-location of some threatened species, can do very little to stem this permanent loss of biological diversity.

## 4. Summation and conclusion

Both the defeatism of the 'all or nothing' attitude, of doing nothing because action supposedly is futile, and the complacency of the 'wait and see' attitude, of inaction until coping is inevitable, mean that human and other living beings will be exposed to increasing, very serious, harm, a large part of which is still preventable. Since addressing climate change will require everybody's participation (see, e.g., Weber, 2006), these attitudes in society should lead to two questions: *how can these attitudes be effectively addressed?*, and, for individuals who are aware of this situation, *what are their responsibilities under these circumstances?* Though there is no space here to speak to these questions in depth, with regard to the first question we may note recent research that suggests that such attitudes are the product of a combination of individual, social and material factors, which may be viewed as 'barriers' or as 'obstacles' to action (see Adger et al., 2009; American Psychology Association, 2009; Gifford, 2008; Leiserowitz, 2006; Lorenzoni et al., 2007).

Notably, defeatist and complacent attitudes may be the result of misapprehensions regarding the facts, troublesome ways of prioritizing aims and objectives, or the behaviour-shaping power of problematic habits, all of which together may be the consequences of the dominance of certain unreflected lifestyle choices and common socio-cultural expectations (see, e.g., Lorenzoni et al., 2007). As such, addressing these attitudes calls for measures such as better modes of communication, greater scientific literacy, and more open debate on policy options.

More specifically, the defeatist and complacent attitudes may perhaps be defused by drawing attention to concrete events with *local* effects, which, as such, are, or may become, available for everyday experience. One way to counter the 'all or nothing' attitude, for example, may be by clearly showing that significant additional, *local*, adaptation costs will have to be incurred by various *proximate* levels of government if mitigation is not taken on, and that, if adaptation is postponed, coping with severe events will be even more costly. Moreover, to address the 'wait and see' attitude it may be useful, for example, to help people recognise that climate change processes are *already* taking place, and *nearby*, through guided tours to nature reserves, where the vertical or latitudinal displacement of species may be observable, or to weather observatories where records of local weather trends are displayed.

Another way to counter these attitudes may consist in creating opportunities for reflection on the fact that vulnerable sectors of our societies, locally and globally, will be directly hurt by climate change. Such facts collide with common humanitarian values that require solidarity with members of the larger community who are at risk and that proactive or remedial actions be taken (see, e.g., Heyd, 2007, ch. 2). Such processes of reflection may help people realise that climate change is an issue of prudential and ethical concern.

With regard to the second question, concerning one's personal responsibilities under these circumstances, we may note that such responsibilities do not, in any case, disappear in the presence of general inaction. Inaction by society should rather be grounds for renewed creative engagement in strategies that will get other citizens involved. As I have argued elsewhere (Heyd, 2011), insofar as inaction is the result of inadequacies in our *cultural frameworks*, addressing it may require a fundamental reassessment of these background conditions, which include the basic beliefs, values, habits, practices and lifestyle choices that control our everyday. Consequently, responsibility to act on climate change translates to responsibility to help *transform* the cultural frameworks that underlie our capacities (or lack of capacities) to take action (see Heyd, 2011). This applies to individuals who understand some of the various barriers and obstacles to action, such as ourselves.

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## References

Adger, W.N., Lorenzoni, I. and O'Brien, K. (eds) (2009) *Adapting to Climate Change: Thresholds, Values and Governance*, Cambridge, Cambridge University Press,

American Psychology Association (2009). *Psychology and Global Climate Change: Addressing a Multi-faceted Phenomenon and Set of Challenges; A Report by the American Psychological Association's Task Force on the Interface Between Psychology and Global Climate Change*, http://www.apa.org/science/about/publications/climate-change.aspx, accessed 17 August 2011.

Attfield, R. (2010) 'Global Warming, Equity and Future Generations', *Human Ecology Review*, vol 17, no 2, pp102-105.

Baron, J. (2006) 'Thinking about Global Warming', *Climatic Change*, vol 77, pp137–150.

Canadell, J.G., Le Quéré, C., Raupach, M.R., Field, C.B., Buitenhuis, E.T., Ciais, P., Conway, T.J., Gillett, N.P., Houghton, R.A., and Marland, G. (2007) 'Contributions to accelerating atmospheric CO2 growth from economic activity, carbon intensity, and efficiency of natural sinks', *Proceedings of the National Academy of Sciences* (*PNAS*), vol 104, no 47, pp18866-18870, doi:10.1073/pnas.0702737104, accessed 17 August 2011.

Chen, I-C., Hill, J.K., Ohlemüller, R., Roy, D.B., and Thomas, C.D. (2011) 'Rapid Range Shifts of Species Associated with High Levels of Climate Warming', *Science* (19 August), vol. 333, no 6045, pp1024-1026.

Fagan, B. (2000) *The Little Ice Age: How Climate Made History 1300 – 1850*, New York, Basic Books.

FAO (Food and Agriculture Organization, 2009) *Hunger*, http://www.fao.org/hunger/en/, accessed 17 August 2011.

Gardiner, S.M. (2004) 'Ethics and Global Climate Change', *Ethics*, vol 114, pp555–600.

Gardiner, S.M. (2010) 'Is "Arming the Future" with Geoengineering Really the Lesser Evil?', in Gardiner, , S.M., Caney, S., Jamieson, D., and Shue, H. (eds) *Climate Ethics*, Oxford, Oxford University Press.

Garvey, J. (2008) *The Ethics of Climate Change: Right and Wrong in a Warming World*, London, Continuum International Publishing Group.

Gifford, R. (2008) 'Psychology's essential role in climate change', *Canadian Psychology/ psychologie canadienne*, vol 49, pp273-280.

Habermas, J. (1991) *Moral Conciousness and Communicative Action*, Cambridge, MIT Press.

Heyd, T. (2007) *Encountering Nature: Toward an Environmental Culture*, Aldershot, UK, Ashgate.

Heyd, T. (2011) 'Ethical and Prudential Responsibilities, Culture and Climate Change' in Nanda, V.P. (ed) *Climate Change and Environmental Ethics*, Piscataway, New Jersey, Transaction Publishers.

Heyd, T. and Mustelin, J. (in preparation) 'Adaptation and Development: Whose Goals and Priorities Count?'.

Homer-Dixon, T. (2006) *The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization*, New York, Knopf/Vintage.

Hulme, M. (2009) *Why We Disagree About Climate Change: understanding controversy, inaction and opportunity* Cambridge, Cambridge University Press.

IPCC (Intergovernmental Panel on Climate Change) (2007) *Fourth Assessment Report*, http://www.ipcc.ch/, accessed 17 August 2011.

Kant, I. (1785) *Grundlegung zur Metaphysik der Sitten*, trans. Wood, A.W. (2002) *Groundwork for the metaphysics of morals*, New Haven, Yale University Press.

Kates, R.W. (2009) ‘Cautionary tales: Adaptation and the world’s poor’, in Schipper, L. and Burton, I. (eds), *The Earthscan Reader in Adaptation to Climate Change*,, London, Earthscan, pp283-94.
Leiserowitz, A. (2006) ‘Climate Change Risk Perception and Policy Preferences: The Role of Affect, Imagery, and Values’, *Climatic Change* vol 77, pp45–72.

Lorenzoni, I., Nicholson-Cole, S., Whitmarsh, L. (2007) ‘Barriers perceived to engaging with climate change among the UK public and their policy implications’, *Global Environmental Change*, vol 17, pp445-459.

Moser, S.C. (2007) ‘More Bad News: the risk of neglecting emotional responses to climate change information’, in Moser, S.C. and Dilling, L., *Creating a Climate for Change*, Cambridge, Cambridge University Press.

Moser, S.C. and Dilling, L. (2007) *Creating a Climate for Change*, Cambridge, Cambridge University Press.

Nihlén Fahlquist, J.A. (2009) ‘Moral Responsibility for Environmental Problems - Individual or Institutional?’, *Journal of Agricultural and Environmental Ethics*, vol 22, no 2, pp109-124.

O'Brien, K, Eriksen, S., Sygna, L., and Næss, L.O. (2006) ‘Questioning complacency: Climate Change Impacts, Vulnerability, and Adaptation in Norway’, *Ambio*, vol 35, no 2, pp50-56.

Schipper, L, and Burton, I. (2009) *The Earthscan Reader on Adaptation to Climate Change*, London, Earthscan.

Singer, P. (1979) *Practical Ethics*, Cambridge, Cambridge University Press.

Steffen, W. (2009) *Climate Change 2009: Faster Change & More Serious Risks*, Canberra, Commonwealth of Australia, http://www.climatechange.gov.au/~/media/publications/science/cc-faster_change.pdf, accessed 17 August 2011.

Stern, N. et al. (2007) *Stern Review on the Economics of Climate Change*, Department of the Treasury, London, UK, http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm, accessed 17 August 2011.

Vanderheiden, S. (2008) *Atmospheric Justice: A Political Theory of Climate Change*, Oxford, Oxford University Press.

Weber, E. (2006) ‘Experience-Based and Description-Based Perceptions of Long-Term Risk: Why Global Warming does not Scare Us (Yet)’, *Climatic Change*, vol 77, pp103–120.

Wolf, J. (2010) ‘Ecological citizenship as public engagement with climate change´, in Whitmarsh, L., O’Neill, S.J. and Lorenzoni, I., *Public Engagement with Climate Change – Behaviour Change and Communication*, London, Earthscan, pp120-137.

Young, I. M. (2006) ‘Responsibility and Global Justice: A Social Connection Model’, *Philosophy and Social Policy*, vol 23, pp102-30.

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