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climate change & the moral agent

Individual Duties in an Interdependent World

ELIZABETH CRIPPS

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For my parents, Harry and Vivien

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Preface

Global climate change raises profound challenges for theories of moral accountability. Traditionally, we are considered responsible for harms we do or could easily have prevented, either as individuals or as members of some collective body capable of acting intentionally. Climate change is undoubtedly harmful, but no one person causes or could prevent it on her own. Nor is it the result of intentionally collective action at the global level. So why should we assume—as a great many of us do—that we ought to be doing something about it? And what does that mean for us as individual moral agents?

These are under-considered questions. Much of the debate in political philosophy has focused on what would be a fair distribution of the burdens of tackling climate change, sometimes only in terms of emissions cuts, but increasingly in terms of the wider costs of mitigation, adaptation, and compensation. There is also a highly developed literature on how theories of distributive justice might be expanded to include members of other states, of future generations, or even of other species. However, important as these debates are, there is an even more urgent question from the point of view of the individual as things currently stand. That is: 'Exactly *whose* problem is this, morally speaking, and—crucially—where does that leave me?'

To answer the question, this book goes back to the moral foundations. It asks whether we can acquire moral duties as neither individuals acting in isolation nor formalized collective entities: as sets of individuals who could organize themselves to bring about some morally salient end. In a globalized world, the limits of our interdependence go far beyond those situations in which we think of ourselves as co-members of a group. Should not our duties to one another expand in the same way? If we have duties to aid the needy at the individual level, do we not also (as some eminent theorists have suggested) have positive duties to organize to prevent serious suffering? And do we not have duties even harder to deny in this case, because the harms brought about by climate change are harms that we, between us, are causing? Such duties would be collective in a weak sense, but there would be nothing weak about their moral salience.

Against such a background, the question for the individual can be reframed. If this is what *we* should be doing, but aren't, what should *I* do? Should I cut my own emissions because that is what a fair collective scheme to mitigate climate change would require of me? Should I attempt to bring such collective action about? Or should I try directly to mitigate the harm or aid the victims of climate change?

These are the core questions for this book. However, it also goes beyond them in two key ways. Although there is an extensive body of work on ecological justice, and on the moral status of non-human animals, there is hardly any on the moral implications of the damage that climate change does to non-humans. Redressing this, at least in the context of my own project, I ask what it would mean for our weakly collective moral duties if we took seriously the moral status of those with whom we share this planet. I also go beyond the question of our individual *duties*—of what we can be blamed or criticized for not doing—to consider more generally the plight of the moral agent in the face of failure to act collectively on climate change. Is there anything we can do, as individuals, that will leave us able to live fully at peace with ourselves in the face of increasingly probable catastrophe? If there is not—if, as I argue, we are marred by the choices with which such collective failure presents us—then does not this, too, give us a duty to act collectively: a duty that we, between us, owe to each of us?

My aim is to contribute to the lively scholarly debate on climate change ethics, as well as the overlapping fields of environmental justice, and environmental and ecological ethics. The arguments should also be of interest to global justice theorists, to moral and political philosophers more generally, and philosophers of social science. However, this is a problem of practical urgency as well as philosophical interest. As such, I hope my readership will stretch beyond academic institutions.

With this in mind, I end this preface with a brief reading guide for non-specialists, to whom some sections will be more relevant than others. Chapter One, section (v), Chapter Two, sections (i) and (ii), Chapter Four, sections (i) and (iv), Chapter Five, section (vi), and Chapter Seven, section (iii) could be omitted by readers who are less interested in engaging with philosophical puzzles for their own sake. A reminder of key definitions has been included at the close of the book, as well as a glossary of some of the general philosophical terms to which I refer throughout. I hope that this will help to make my arguments accessible not only to other researchers but also to those whose predicament was what first inspired me to write this: those many motivated but bewildered moral agents who are struggling, in their everyday lives, with the very real dilemma of how appropriately to respond to climate change.

Elizabeth Cripps
Edinburgh

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Sections (i) and (ii) of Chapter Two draw extensively on my earlier paper, 'Collectivities without Intention', *Journal of Social Philosophy*, 42 (1) (2011b), 1–20. (Copyright: Wiley-Blackwell.) Material is reproduced with permission of John Wiley & Sons. An earlier version of Chapter Three, section (iii) can be found in: 'Climate Change, Collective Harm and Legitimate Coercion', *Critical Review of International Social and Political Philosophy*, 14 (2) (2011a), 171–93. Material is reproduced with permission of Taylor & Francis Group (http://www.tandfonline.com). Parallel points to some in Chapter Four are made in 'Saving the Polar Bear, Saving the World: Can the Capabilities Approach do Justice to Humans, Animals *and* Ecosystems?' *Res Publica*, 16 (1) (2010), 1–22. Material is reproduced with permission of Springer.

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Chapters Two and Three build on my PhD thesis. They have benefited accordingly from the generosity and expertise of my supervisors, Jonathan Wolff and Michael Otsuka, and examiners, Leif Wenar and Susan James. I also received insightful comments on sections of Chapter Two from the Stirling Political Philosophy Group. Chapter Four has been greatly enhanced by constructive feedback from the Edinburgh Political Theory Research Group and at the Climate Ethics Workshop, Oxford, April 2012. I am grateful for perceptive criticism of Chapters Five and Six from my fellow participants in the workshop on Climate Change, Distributing Burdens and Motivating Action, Edinburgh, June 2012; the Climate Justice and Non-Ideal Theory Panel, ECPR Conference, Reykjavik, August 2011; and the British Academy Workshop on Climate Change and Responsibility, Edinburgh, June 2012. Chapter Seven was much improved by discussion at the Governance and Sustainability Research Programme, University of Westminster; the Philosophy Senior Seminar, University of Glasgow; the Stapledon Colloquium, University of Liverpool; and the Centre for Political Theory and Global Justice, University of Sheffield. Particular thanks go to those with whom I had productive discussions at more

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Contents

1

Introduction

> The scientific evidence is now overwhelming: climate change presents very serious global risks, and it demands an urgent global response.[1]
>
> *The Stern Review*

> [O]ver the past few decades, something has changed . . . [O]ur most humdrum activities may harm people in myriad ways we have never thought about before.[2]
>
> Judith Lichtenberg

There are some situations in which it is easy, on most moral theories, to say what should be done. A student could gain thousands of roubles if he attacks and kills two old women. He shouldn't. A businessman could save a drowning child by getting his suit wet. He should.[3] The board of a corporation could save billions of dollars by suppressing evidence that its products are killing its customers. It shouldn't. Of course, the agents concerned might not do this, but that is a different problem.

Unfortunately, our current situation is not one of these. Climate change does very bad things to very many people. It brings with it death, serious illness, starvation, the loss of livelihood, of home, even of homeland. It also threatens mass extinction of plant and animal species. Given this, many of us take it as read that we have a duty, between us, to do something about it. Indeed, there is a highly developed empirical and normative literature on what exactly this *thing* should be—mitigation, adaptation, compensation, or all three—and how the costs of doing it could be fairly allocated between states.

However, on traditional theories of moral accountability, it is hard to explain where this duty comes from.[4] Not, it seems, from our standard thinking about individual responsibility, which focuses primarily on the direct results of individual actions or failures to act. After all, it's not as though any one of us causes climate change on her own. Nor could any individual

prevent (or even perceptibly mitigate) it on her own. We are a very long way from those 'paradigm moral problems' where, as Dale Jamieson puts it, 'an individual acting intentionally harms another individual; both the individuals and the harm are identifiable; and the individuals and the harm are closely related in time and space'.[5] We are just as far from the core case of a positive duty, or duty to aid: where an individual knows she (and only she) could easily rescue some other individual from a significant, identifiable, and immediate threat.

Nor are standard models of collective, corporate, or even political responsibility much better equipped to help, revolving as they do around decisions made intentionally at the collective level, and in particular on the degree to which individual citizens can be held responsible for the policies of their states. There is no single collective body which can be blamed for causing climate change. It isn't even caused by individuals acting together intentionally, each knowingly contributing to some collective act of which this is a foreseeable side-effect. Rather, a great many persons (present and future) face a global-level threat from which we could protect them by organizing ourselves effectively to act together in certain ways, but which instead we are making much worse, through the combination of billions of individual actions.

With this comes a further question, one both theoretically intriguing and, for us as individuals, practically imperative. In the absence of any effective collective action, what should *I* be doing? As a moral agent, my connection with harmful climate change is very different from that I have with the harms I do, or fail to prevent, as an individual. It introduces questions beyond those—widely debated already by moral and political philosophers—of whether temporal, social, or physical distance can affect what one human being owes another.

Climate change is what Judith Lichtenberg calls a 'new harm'. I can't avoid being part of it simply by a few clear-cut omissions: 'Don't kill people, don't rape them, don't attack them, don't rob them.' Rather, I am part of it as part of almost everything I do: 'Every bite we take!' says Lichtenberg, with understandable emphasis. 'Every purchase we make!'[6] What's worse, if I don't take those bites—or limit them to local, vegan products—I can expect to make no difference. Harmful climate change will be unalleviated by my isolated sacrifice. So what should I do? Refrain anyway? Cut my own emissions? Or should I do something else instead? Devote myself to campaigning for collective action? Try to help the victims of climate change? And, in either case, why?

This book is my response to these twin challenges: of specifying what kind of moral duty we have to act on climate change, and of fathoming out what that means, as things currently stand, for the individual moral agent.[7]

My approach is as follows. I focus neither on the duties we acquire as individuals acting in isolation, nor on those acquired as members of established, often formalized, collective bodies. Rather, I argue that sets of individuals—as not-yet-organized collectivities or potential collectivities—can acquire weakly collective duties. These duties require them to organize as necessary to respond collectively to collective problems. (It is worth stressing that the 'weakly' qualifies the sense in which the harm is collective, not its force as a moral duty.) Individual duties, in such cases, are derivative of these weakly collective demands.

I make a fourfold case for a weakly collective duty to take action on global climate change, with the arguments complementary but largely independent. In each case, this is a duty to the victims of climate change, including many who are currently alive as well as future generations. Although the primary focus is on climate duties to our fellow humans, the weakly collective duties can also be defended as duties to non-humans.

The Young (younger generations, globally) have a weakly collective duty to mitigate climate change. This is grounded in moralized collective self-interest. As The Able (the global affluent) we have a weakly collective duty to secure mitigation and adaptation to harmful climate change, no matter who caused it. This is defended by an argument from collective ability to aid. As Polluters, we have a weakly collective duty to mitigate climate change caused by current generations, to enable adaptation to such change as cannot now be prevented, and to compensate (where possible) if neither is achieved in time to prevent serious harm to individuals. This is grounded in an expanded notion of collective responsibility for foreseeable harm. The last, most controversial, argument appeals to self-interest of a different kind: our interest in finding ways to live and act together which enable us to live at peace with ourselves, as simultaneously moral agents and human beings.

At the individual level, it is often thought that being 'green' means doing what we would have to if everyone were cooperating to mitigate climate change. In driving less, turning down the heating, eating less meat, and so on, we aim to reduce our own contribution to greenhouse gas emissions. However, I argue that individual moral agents should give priority to promoting collective action, supplemented by duties to aid victims or mitigate some part of the harm directly (probably as part of a like-minded subset). While we may be required to do many of the things we standardly think of as green, they cannot straightforwardly be defended as what I will call mimicking duties: as required because they are what a fair collective scheme would ask of us. Rather, where a convincing case can be made for such actions, it is generally because they are a means to fulfilling promotional or direct duties, and they do not take priority in cases of conflict with these duties.

In making these arguments, I have, of course, to start somewhere. Accordingly, I clear the ground by laying out five relatively uncontroversial starting assumptions: assumptions about climate science, about human flourishing, and about moral philosophy. On the latter, I take as read two widely accepted individual moral principles. I also assume away one peculiarly problematic philosophical niggle, the non-identity problem, which apparently undercuts any attempt to ground moral duties in avoiding harm to future individuals. I make no claim fully to defend these starting points. However, in introducing them, the following sections will also outline my reasons for accepting them as relatively uncontroversial and, in the case of the moral principles, fill out precise definitions to be adopted here. I then comment on methodology and respond to a potential objection regarding the scope of this project, before closing this introductory chapter with a more detailed summary of what is to follow.

(I) ASSUMPTION 1: CLIMATE CHANGE AND SCIENTIFIC CONSENSUS

The first two ground-clearing assumptions are that climate change is being caused by humans, and that it is bad for them.

I make no claim to engage in detail with climate science: with the ever-increasing understanding of the processes through which we are raising the average temperature of our planet, and through which this climate change has its detrimental impact on human lives. A number of climate ethicists and political theorists have already surveyed this literature, some in considerably more depth than I need to here.[8] My moral arguments begin with only two general—and increasingly undeniable—points. One is that we are causing global climate change through our combined actions: our actions, ultimately, as individuals, whether we are acting *as* individuals or through corporations, states, and other collective structures. The other is that this climate change will do many of us (present and future) very serious harm. Accordingly, this section will spell out my reasons for accepting the first, and section (ii) those for accepting the second of these.

Climate change is happening. The Intergovernmental Panel on Climate Change (IPCC) makes this extremely clear:

> Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level… Eleven of the last twelve years (1995–2006) rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850). The 100-year linear trend (1906–2005) of 0.74 [0.56 to 0.92]°C is larger than the corresponding trend

> of 0.6 [0.4 to 0.8]°C (1901–2000)… The linear warming trend over the 50 years from 1956 to 2005 (0.13 [0.10 to 0.16]°C per decade) is nearly twice that for the 100 years from 1906 to 2005.[9]

The IPCC is equally clear on the anthropogenic nature of this change. It states 'with *very high confidence* that the global average net effect of human activities since 1750 has been one of warming'. This warming is driven by 'changes in the atmospheric concentrations of [greenhouse gases] and aerosols, land cover and solar radiation… [which] affect the absorption, scattering and emission of radiation within the atmosphere and at the Earth's surface'. According to the 2007 report, human activities have increased global atmospheric concentrations of carbon dioxide, methane, and nitrogen dioxide to the extent that they 'now far exceed pre-industrial values determined from ice cores spanning many thousands of years… Most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to [this] observed increase in anthropogenic concentrations.'[10]

Warming already takes a toll on natural systems. The IPCC reports with '*high confidence* that natural systems related to snow, ice and frozen ground (including permafrost) are affected'. Glacial lakes are bigger and there are more of them; there are more rock avalanches; and ecosystems have changed in the Arctic and Antarctic. There is high confidence that hydrological systems are also already affected, with increased run-offs from many glacier or spring-fed rivers, rising temperatures in lakes and rivers, and implications for water quality. The report has very high confidence that changes in terrestrial biological systems, and high confidence that changes in marine and freshwater biological systems, can be attributed to climate change.[11] Recent research by the UK Met Office and the American Meteorological Society explicitly links some of the extreme weather events of 2011 to anthropogenic climate change.[12]

The IPCC conclusions have been robustly supported by a plethora of reputed scientific bodies.[13] In the United States—the heartland of so-called climate sceptics—these include the American Meteorological Society, the American Geophysical Union, and the American Association for the Advancement of Science (AAAS).[14] In 2006 the AAAS stated unambiguously: 'The scientific evidence is clear: global climate change caused by human activities is occurring now.'[15] In 2009 the US Global Change Research Programme produced its own synthesis report, stating:

> Observations show that warming of the climate is unequivocal. The global warming observed over the past 50 years is due primarily to human-induced emissions of heat-trapping gases. These emissions come mainly from the burning of fossil fuels (coal, oil, and gas), with important contributions from the clearing of forests, agricultural practices, and other activities.[16]

In 2001 the national science academies of sixteen countries issued a statement acknowledging the IPCC as 'the world's most reliable source of information on climate change and its causes'.[17] This was reinforced in 2005 by a joint statement from the national science academies of the G8 nations and Brazil, China, and India, citing 'strong evidence that significant global warming is occurring' and calling for a prompt response by all nations.[18] Other bodies supporting the scientific consensus include the International Council of Academies of Engineering and Technological Sciences, the European Academy of Sciences and Arts, the European Geosciences Union, and the Network of African Science Academies.[19]

This reflects overwhelming agreement within the underlying scientific research. In 2004 Naomi Oreskes surveyed peer-reviewed articles on climate change published in scientific journals between 1993 and 2003. None disagreed with the view that most of the observed global warming of the previous fifty years is likely to have resulted from increased greenhouse gas emissions.[20] In 2009 Peter Doran and Maggie Zimmerman surveyed individual earth scientists directly. Of the 3,146 respondents, 90 per cent thought mean global temperatures had generally risen from pre-1800 levels, and 82 per cent that human activity was 'a significant contributing factor in changing mean global temperatures'. Among climate science specialists, these rose to 96.2 and 97.4 per cent, respectively.[21]

As Denis Arnold points out, insofar as there is a dispute about this consensus, it emerges neither in the well-vetted research that makes it into leading scientific journals nor in the summary statements presented by respected bodies of scientists. So where does it come from?[22] From 'opinion pieces in newspapers, blogs, industry-sponsored position papers, and even vanity journals published with the intention of advancing an ideological perspective rather than advancing science'.[23] Even without the widespread concerns about the influence of vested interest groups, such organs are not exactly known for matching the loudness of their assertions with comparable rigour of research.[24]

I am, accordingly, going to take scientific consensus on anthropogenic climate change as a starting point, and the IPCC reports as acknowledgedly authoritative. This consensus extends to some very stark projections.

On current trends (that is, with no more than current climate policies), global temperatures are projected to grow by around 0.2°C a decade until nearly 2030. Depending on the specific emissions scenario (that is, depending on the development pathway taken but assuming no additional climate policies), the IPCC puts global average temperatures in 2090–9 at between 1.1 and 6.4°C higher than 1980–99.[25] The Stern Review, commissioned by the British government to assess the evidence and report on the economics of climate change, reports a 50 per cent risk that a 'business as usual' approach will yield an increase of more than 5°C over the following decades. This, the review

warns, 'would take humans into unknown territory': territory whose extreme dangers are highlighted by the fact 'that we are now only around 5°C warmer than in the last ice age'.[26]

(II) ASSUMPTION 2: CLIMATE CHANGE AND FUNDAMENTAL INTERESTS

Climate change is bad—very bad—for individual human beings. To fill out this assumption, this section outlines a relatively uncontroversial account of fundamental human interests, then returns to the IPCC evidence to show that climate change will deprive very many persons of just such interests. I also briefly explain a subsidiary assumption: that both mitigation and adaptation are required in order to prevent these deprivations.

I am taking it as read that there are certain prerequisites to living a fully flourishing human life: that in order to do so an individual must have the capability, or meaningful opportunity, to enjoy continued life (at least to a normal human length), bodily health, bodily integrity, affiliation (relationships with others), and practical reason. This last includes being able to develop and pursue a plan for her own life, with such education as this requires.[27] These human functionings are so centrally important that it is a serious harm to an individual to be deprived of her opportunity to exercise any one of them. Moreover, they cannot fully be traded off against one another: if one is lost, gains in the others cannot fully make it up to the individual.

To some extent, I am borrowing from the capabilities approach. I draw on the notion, central to that school of thought, of certain necessities for the kind of life that can properly be called human. (A life, as Amartya Sen puts it, that 'we have reason to value'.[28]) The idea is to move away from assessments of well-being that rely on either the satisfaction of potentially adaptive preferences, on the one hand, or a narrower notion of resources, on the other. Individual preferences are not formed in isolation, and so can adapt either to extremely poor circumstances (leading to individuals ranking as acceptable lives where they suffer from severe objective deprivation) or to extremely luxurious ones (the problem, in the distributive justice literature, of expensive tastes).[29] Autonomy, a hard-to-dispute prerequisite for human flourishing, involves more than not being forcibly prevented from pursuing one's immediate goals. (I will return to this point shortly.) However, differences between humans or their social situations are such that two individuals with the same income or wealth, or even the same formal rights and opportunities, can have radically different qualities of life.[30]

However, capabilities theorists tend to adopt a broader range of central human functionings than those listed above. Martha Nussbaum, listing central

capabilities, includes: life; bodily health; bodily integrity; senses, imagination, and thought; emotions; practical reason; affiliation; other species; play; and control over one's environment.[31] Some of these, especially other species, have proved controversial.[32] Accordingly, it is important to stress that I do not, and do not need to, commit myself to her list as a whole. Rather, I am taking as read only those elements which it is hardest to deny are central to human life.

In fact, life, health, bodily integrity, affiliation, and practical reason could all be defended as central human functionings by appeal only to a combination of basic needs—or, as Frances Stewart puts it, means to achieve 'a minimally decent condition of life'—with the conditions for human autonomy, or being what Joseph Raz describes as '(part) author of one's own life'.[33] On even relatively austere accounts, basic needs include nutrition, health, and at least some opportunity for education.[34] Scope to exercise practical reason, some kind of affiliation, and bodily integrity can be defended as basic requirements for an autonomous life. This, Raz has argued, 'consists in the successful pursuit of self-chosen goals *and relationships*' and requires being free from coercion and manipulation, appropriate mental faculties, and an adequate range of long- and short-term options.[35]

However, one thing is explicitly incorporated from the capabilities approach. (I make no apology for this, because it makes the assumption less controversial rather than more so.) This is the distinction between actually exercising some central functioning and having the capability or meaningful opportunity to do so. The claim is not the strongly paternalistic one that an individual cannot fully flourish if she does not choose to enjoy one of these central elements; rather, it is that she is seriously harmed by being permanently deprived of the capability—or meaningful opportunity—to do so. There is a world of difference between the unemployed, poverty-stricken woman, barely able to feed herself, and the rich girl, immortalized by the Britpop band Pulp, slumming it because she wants 'to live like common people'.[36]

Jonathan Wolff and Avner de-Shalit have filled out this distinction, identifying a capability as a genuine, secure opportunity to exercise a central functioning. An opportunity, they argue, is genuine if an individual could exercise it without jeopardizing another central functioning. It is secure if the individual can rely on being able to exercise it going forward: that is, if it is not subject to risk she cannot control.[37] Chapter Two will return to this point, because the argument from moralized collective self-interest relies on this incorporation of some avoidance of risk in the model of human flourishing. However, the arguments from collective ability to aid and weakly collective harm require us only to accept in general terms that we have certain fundamental interests, corresponding to our ability to enjoy continued life, health, bodily integrity, affiliation, and practical reason.

Against this background, let us return to the science. Again, this is very clear. As the Stern Review puts it: '*Climate change threatens the basic elements*

of life for people around the world—access to water, food production, health, and use of land and the environment.'[38] The IPCC report spells out serious implications of climate change for the fundamental interests of a great many individual human beings, present and future.[39]

Expected temperature changes most obviously threaten those least controversial of fundamental human interests: health, and continued life itself. The IPCC puts it starkly:

> The health status of millions of people is projected to be affected through, for example, increases in malnutrition; increased deaths, diseases and injury due to extreme weather events; increased burden of diarrhoeal diseases; increased frequency of cardio-respiratory diseases due to higher concentrations of ground-level ozone in urban areas related to climate change; and the altered spatial distribution of some infectious diseases.[40]

Other fundamental interests are also threatened, especially for those in low-lying and small island communities. The IPCC predicts with very high confidence that floods will affect 'many millions more people than today' by 2080. Those hit hardest will be on small islands and highly populated, low-lying areas of Asia and Africa. Sea-level rise is also 'expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities'.[41]

By undermining whole communities, these changes can deprive individuals of ties essential to affiliation, as well as the ability—central to practical reason—to live in any meaningful sense according to their own plan of life. If environmental refugees are treated as badly as many political and economic refugees, even bodily integrity could be threatened, by depriving individuals of freedom of movement. However, this last is not so much a direct consequence of climate change as—like the increased potential for resource conflict—a likely consequence of human reaction to its effects.[42] Finally, as Breena Holland has pointed out, for many people religious or spiritual practices hinge on interaction with threatened environments.[43] These, too, would be undermined.

Having outlined the rather bleak situation in which we find ourselves, it remains to lay out the basic moral principles which I am also taking for granted. Before doing so, however, I must make a subsidiary but significant point. The arguments of Chapter Three will rely implicitly on the assumption not only that climate change threatens fundamental human interests, but that both mitigation and adaptation are needed to protect them. Again, I do not defend this in detail. However, I should briefly give my reasons for taking it as read.

Let us begin with the IPCC definitions. Mitigating climate change involves reducing total greenhouse gas emissions and enhancing carbon sinks. Adaptation involves '[i]nitiatives and measures to reduce the vulnerability of

natural and human systems against actual or expected climate change effects'.[44] In other words, mitigation involves attempting to prevent the changes to the global environment; adaptation is about changing the way we live in order to stop those changes from affecting human lives too badly.[45] For the purposes of this book, the adaptation required can be taken to be such as will protect fundamental human interests from any climate change which is not prevented by mitigation.

Again, the IPCC is clear. It states with high confidence that 'neither adaptation nor mitigation alone can avoid all climate change impacts'. Adaptation is 'necessary both in the short term and longer term to address impacts resulting from the warming that would occur even for the lowest stabilisation scenarios assessed', while '[u]nmitigated climate change would, in the long term, be *likely* to exceed the capacity of natural, managed and human systems to adapt'.[46] The 2005 joint statement by national science academies calls for action 'to reduce the causes of climate change, adapt to its impacts and ensure that the issue is included in all relevant national and international strategies'.[47] The AAAS is also adamant: 'In addition to rapidly reducing greenhouse gas emissions, it is essential that we develop strategies to adapt to ongoing changes and make communities more resilient to future changes.'[48]

Insofar as there is disagreement on this point, it has its roots not in science but in economics.[49] The counter-argument is that it is better to concentrate on adaptation because it can be secured more cheaply than mitigation. Again, I need not go into this debate, which is well covered elsewhere. I note only that such claims have been robustly criticized on moral grounds: for (implicitly or explicitly) unacceptably discounting the value of future human lives.[50] I am taking these rebuttals, in combination with the above IPCC conclusions, as conclusive.

(III) ASSUMPTION 3: THE NO-HARM PRINCIPLE

Let us turn, then, to the moral principles to be taken as the next two starting assumptions.

Whatever else matters morally, it matters that individual human lives go well, or at least that they don't go very badly indeed. This much, I think, can be taken as read. In beginning with this, I am not denying that other things might also have moral significance. In this context, the most obvious contenders are the flourishing of non-human animals and the preservation of species, ecosystems, or even the 'natural world' as a whole. Indeed, as Chapter Four will discuss, it is highly plausible that the sphere of moral concern should be extended beyond the human being. However, for the purposes of the rest of the book, I need start only with the claim that moral value attaches to individual human flourishing, or—to put it even less controversially—moral

disvalue attaches to the reverse. It is a bad thing if individual humans are seriously harmed.

In terms of what this means for us as individual moral agents (that is, as actors to whom the rules of morality apply), I am taking two widely held moral principles for granted. The first is this:

> *No-harm principle*
> An individual (moral agent) has a moral duty to avoid inflicting serious harm (deprivation of a fundamental interest) on another human being or human beings (moral subject(s)) *at least* if she can avoid so doing without suffering comparable harm herself.

This prohibition is implicit in John Stuart Mill's harm (or liberty) principle: 'That the only purpose for which power can rightfully be exercised over any member of a civilized community, against his will, is to prevent harm to others.'[51] It is explicit in W. D. Ross' duty of non-maleficence, or 'not injuring others', and in Henry Shue's re-statement of 'the liberal no-harm principle': '*It is wrong to inflict avoidable harm upon other people*, and it ought often to be prohibited by law.'[52] In adopting it here, I begin with about as generally acknowledged a moral principle as I could hope to find. Even the most stalwart libertarian would accept at least some version of the no-harm principle. Whatever our positive duties to one another, we have, by virtue of our common humanity, at least this negative one.

Moreover, I have made it even less controversial, in two key ways, than many would accept. Firstly, in limiting 'serious harm' to the deprivation of fundamental interests—to the permanent loss of the capability to exercise some central human functioning—I am being relatively cautious. Clearly, there has to be some limit to the harms prohibited, given the almost infinite range of ways in which even our individual actions can impinge on others. If I buy the only dress on the sale rack, or take the last seat on the bus, there is a trivial sense in which I am harming the next comer, by depriving them of it. However, to prohibit all such actions would be a very unreasonable restraint on my scope to live my own life.

However, many would put the bar lower than I have done. For example, even temporary disruptions of the exercise of central functionings—those which I identify below as 'significant costs'—might be prohibited by the no-harm principle. I am certainly not denying this. However, for the purposes of the argument from weakly collective harm, which takes the individual no-harm principle as its starting point, it is necessary only to rely on this relatively permissive version. Accordingly, I limit myself in this way here simply to make the premises as uncontroversial as possible.

Similarly, the cost condition might be disputed. As Lichtenberg points out, we generally acknowledge *some* limits to what can be demanded of individuals even in restraint from harm: '[d]uress and necessity are defences that mitigate a person's guilt even in violent harm'.[53] However, we also tend to limit

what counts as necessity. For example, on most intuitions, I shouldn't murder a bystander even if this were the only way in which I could save my own life or that of a loved one.[54] Again, I am very far from denying this. However, the arguments of Part One need only this weaker—and accordingly still less controversial—version of the no-harm principle.

Having laid out this first moral principle, I have one further remark to make before moving on to the principle of beneficence. Section (ii) closed with a brief discussion of the need for both mitigation and adaptation. We can now add to this. On most plausible readings, the no-harm principle requires not only that we avoid causing serious suffering, but also that we attempt to make up for it where we have inflicted it: that is, that we compensate for harms for which we are responsible. To make a parallel point to Simon Caney, this is directly relevant to the climate change case.[55]

Adaptation and mitigation are both necessary to protect the fundamental interests threatened by climate change, but would not be jointly sufficient, even if collective action were taken rapidly now, to prevent all harm. It is this danger—or the too plausible possibility of continued failure to act collectively on either mitigation or adaptation—that gives rise to the third category of duty. This is a duty to compensate: to attempt to make it up to the deprived individuals in some other way (or at least, as Caney points out with grim realism, to those among them who aren't already dead).[56] I will come back to this in Chapter Three.

However, as Caney also stresses, it is crucial to retain the distinction between adaptation and compensation. Adaptation enables the fundamental interests to be protected; compensation reacts to their loss. We can make this point at the individual level. Assuming I am aware of the situation, I have a moral duty to refrain from pushing a large boulder so that it rolls down a hill towards you. If I have pushed it, I have a duty to attempt to prevent you from being crushed (perhaps by yelling at you to move). If I do neither, and you are seriously injured, I have compensatory duties to attempt to make it up to you. However, it goes almost without saying that this 'making it up' is always second-best. If you have to spend your life in a wheelchair because of what I did, I can never fully make it up to you, even if I buy you the most expensive wheelchair going.[57]

(IV) ASSUMPTION 4: THE PRINCIPLE OF BENEFICENCE

The second widely held moral principle is the principle of beneficence. Two versions will be used in Part One, one of which is weaker (and so less controversial) than the other.

Weak principle of beneficence
An individual (moral agent) has a moral duty to prevent the serious suffering (deprivation of a fundamental interest) of some other human being or human beings (moral subject(s)) if she can do so at minimal cost to herself.

Moderate principle of beneficence
An individual (moral agent) has a moral duty to prevent the serious suffering (deprivation of a fundamental interest) of some other human being or human beings (moral subject(s)) if she can do so at less than significant cost to herself.

The moderate principle corresponds to that defended by Peter Singer: 'if it is in our power to prevent something very bad from happening, without thereby sacrificing anything morally significant, we ought, morally, to do it'.[58] However, one can accept it without being an act-utilitarian: without thinking there is no more to the rightness or wrongness of our actions than their impact on aggregate (or average) well-being.[59] Thus, for example, Ross defends a duty of beneficence, alongside a duty of non-maleficence, within his pluralist account of moral duties.[60] Moreover, neither of the two versions above goes as far as Singer's strong principle, on which we are required to prevent the 'something very bad' up to the point at which we would have to sacrifice something of comparable moral importance.

The weak principle is very weak: the agent is required to incur only minimal costs. These might be immediately trivial. For example, if I could preserve your life by flicking a switch, then I would have a duty to do so. Alternatively, they might be only minor changes to what I would have to do anyway in pursuit of some end of my own. Suppose I have two choices of route for my run tomorrow morning. By taking one of these—which is only marginally less pretty and almost as good exercise—I could also collect the drugs you need to treat your very serious asthma. Even if the moderate principle of beneficence were denied, so that it would be too demanding to require me to run four miles just to save your health, the weak principle could still require me to do so in this case. I would be running the same distance anyway, so the extra effort is minimal. (I will return to this in Chapter Two, for although the principle in itself is not at all controversial, I will take a slant on it there that some would consider more so.)

The moderate principle is more demanding, but does still impose limits. As phrased above, it immediately raises the question of what counts as a morally significant cost, so I must say something briefly about this. There is a spectrum from comparable cost to the agent, at one end, to trivial costs which even the weak principle would exclude, at the other. There is also considerable shared understanding. For example, it can safely be deemed overdemanding to require me to save someone's life by devoting the rest of mine to reading him the collected works of Charles Dickens, but not to claim that I should spend ten minutes reading to a stranger if there arises some unlikely situation in which my doing so would save him.[61] However, it could be impossible to draw an exact line.

Fortunately, the interests- or capabilities-based model of flourishing lends itself to a plausible working suggestion, which sets the bar between these two extremes. It might reasonably be deemed a significant cost to the agent to do something which seriously interferes, even on a temporary basis, with the exercise of a central human functioning. This is so even if she is not permanently deprived of the relevant capability.[62]

Examples of such costs include a broken limb or a short-lived but excruciating pain. Neither deprives the individual of her ability to live a healthy life overall. However, they do significantly interfere with it in the short term. Similarly, being required to delay her education by a year interferes seriously with an agent's exercise of practical reason, even though it does not deprive her overall of the capacity to plan her own life. Comparable examples arise in other core areas: being separated from one's young child for a week, incarcerated for a fortnight, or exiled for months from one's community.[63] Of course, the period required for such interruption to count as serious will depend on the particular functioning: the kind of good at stake. Not being able to write another chapter of my *magnum opus* today (or even this month) would not outweigh a duty to save the life of a stranger; being deprived thereby of all future opportunity to pursue my plan of life would do so. Even a few moments of agonising, torturing pain might do so.

In retaining the focus on the central elements of a flourishing human life, this avoids appeal to trivial costs. However, it remains considerably less demanding than a requirement to fulfil the principle up to the point of giving up all future capability of functioning in the relevant way. To return to the example above, even if it would save the suffering stranger, I would have no moral duty to abandon my own projects for six months and spend my working days reading Dickens to him instead.

Accordingly, I start with this version of the moderate principle of beneficence. However, it is important to acknowledge one influential rival view. Liam Murphy argues that the cost condition for the principle of beneficence should be set by reference to the number of other duty-bearers. On his compliance condition, no more can be demanded of me in saving others from severe suffering than would be required if everyone else were doing their bit towards the same end.[64] If there are a thousand famine victims and a thousand potential helpers, each of whom could send a little of her own plentiful food to a victim and save his life, then as one of the duty-bearers I am required to do just that: send that bit of food (or more realistically send the money to some charity to supply it). The effort demanded of me should not increase because those around me are failing to do anything.

As I will argue in Chapter Six, there are reasons to question this condition: it seems arbitrarily to put all the cost of a moral default on the victim, rather than also on other potential duty-bearers. Moreover, even if we were to accept it, questions would remain concerning the limits of beneficence where there

are no other (absconding) duty-bearers, or when all are prepared to help. If I am the only person in a position to save your life, how much am I required to give to do it? My own life? One of my kidneys? A thousand pounds? A vial of my blood? A first class postage stamp?[65] However, most of the rest of the book does not stand or fall on rejecting the compliance condition. Even if we accepted it as determining the limits of the demands of beneficence in cases where there are many potential duty-bearers, the general defence—both of the weakly collective duty and of the derivative individual duties—would still follow. (Chapters Five and Six will return to this point.)

Having outlined the moral principles to be taken as starting assumptions, it is worth briefly considering their relation to one another. The principles of beneficence, on the one hand, and the no-harm principle, on the other, are presented as independent but not as mutually exclusive. I leave open the widely held possibility that, if both are accepted, then the individual no-harm principle takes priority: avoiding inflicting serious harm trumps simply preventing it. However, I am not committing myself to the view that, if all three of the arguments for the weakly collective duty convince, there is the same absolute priority at the weakly collective level: in terms either of collective fulfilment of the duty or of derivative individual duties. As Lichtenberg argues, the reasons we tend to think of negative duties as being more stringent—efficacy, integrity, demandingness—become blurred when taken to the weakly collective level.[66]

(V) ASSUMPTION 5: EVADING THE NON-IDENTITY PROBLEM

This brings us to the fifth and final objection. As a philosopher, I am bound to acknowledge one persistent difficulty facing any attempt to ground moral duties in harm to future individuals: Derek Parfit's non-identity problem.[67] The puzzle is this: those same combined actions that cause such suffering to members of future generations also determine who those future individuals *are*. Different behaviour patterns mean children being conceived at different times, perhaps even by different pairs of parents. Since we can safely assume (at a minimum) that changing a conception date by a month or more will result in having a different child, future generations will be composed of different individuals from those who would have made them up had we acted otherwise on climate change. But then, assuming that the lives of those individuals are still worth living, how can we say that we have harmed them? Consider someone born in Bangladesh in 2100. Deprived though she is of fundamental interests as a result of the combined actions which worsened climate change, how can we say that she has been made worse off by them? Had we acted otherwise, she wouldn't have existed at all.