

Climate Change Ethics

Navigating the Perfect Moral Storm

Donald A. Brown

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Climate Change Ethics

Climate change is now the biggest challenge faced by humanity worldwide and ethics is the crucial missing component to the debate. This book examines why a thirty-five-year discussion of human-induced warming has failed to acknowledge fundamental ethical concerns, and subjects climate change's most important policy questions to ethical analysis.

The ethical dimension to climate change is so crucial because the climate change threat is caused by the wealthiest of the world's population putting the most vulnerable at risk. The victims of climate change can only hope that those responsible for it will understand their obligation to the rest of the world and reduce their emissions accordingly. Modern assumptions of civilization are also fundamentally challenged as huge reductions in the use of fossil fuels are required to protect life and the ecological systems on which life depends.

This book examines why ethical principles have failed to gain traction in policy formation and recommends specific strategies to ensure that climate change policies are consistent with ethical principles. Because climate change is a global problem that requires a global solution, and given that many nations refuse participation due to perceived inequities of an international solution, this book explains why ensuring that nations, sub-national governments, organizations, businesses and individuals acknowledge and respond to their ethical obligations is both an ethical and practical mandate. It is the first book of its kind to go beyond a mere account of relevant ethical questions to offer a pragmatic guide on how to make ethical principles relevant and integral to the world's response to climate change.

Written by Donald A. Brown, a leading voice in the field, it should be of interest to policy makers, and those studying environmental policy, climate change policy, international relations, environmental ethics, and philosophy.

Donald A. Brown is Scholar in Residence on Sustainability Ethics and Law at Widener University School of Law, USA.

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Endorsements

Climate change raises some of the most profound ethical issues of our time. And yet, for thirty years our policy responses have evaded comprehensive ethical analysis. This book puts an end to this grave and unjust omission. However, the outstanding contribution of this book is its explanation of how ethical considerations can bring moral responsibility to the forefront of climate policy and action.

Prue Taylor, University of Auckland, New Zealand

Don Brown, navigates the troubled waters of climate change denial. He deconstructs the cynical efforts by vested interests to pollute the public discourse by means of a climate change disinformation campaign. Brown also makes a compelling argument that limiting carbon emissions and mitigating climate change is the ethical imperative of our time.

Michael Mann, Pennsylvania State University, USA

In this fascinating book, Donald A. Brown draws on his vast experience to explore one of the great ethical issues of our time, and provides recommendations about how to bring ethical issues into the formulation of global warming policy responses.

Richard Alley, Pennsylvania State University, USA

Climate change is essentially an ethical challenge to all people in all nations. Donald Brown increases our awareness not only of the ethical dimensions of climate change science, economics, and the allocation of national greenhouse gas targets but also how we might effectively integrate ethical principles into climate policy formation.

Shi Jun, Nanjing University of Information's Science and Technology, China

Professor Brown eloquently reminds us that human-caused climate change is no illusion. Our approaching «moral storm» promises to shipwreck the global community of nations. Can we stem this rising tide of ignorance, poverty, injustice, and human suffering? Yes. Should we? Most definitely, and Brown carefully charts our ethical course out of these deepest public policy waters with vision and courage.

Paul Carrick, Gettysburg College, USA

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I am also indebted to Stephen Gardiner whose book, *The Perfect Moral Storm: The Ethical Tragedy of Climate Change*, provided inspiration for this one. I am not sure Dr. Gardiner would agree with the conclusions here, yet his book triggered some of my thinking about why there has been so little public response to the ethical dimensions of climate change. Dr. Gardiner's book was the first on climate ethics that not only delved into the ethical questions raised by climate change, but also examined the failure of adequate ethical responses.

Preface

About 35 years ago, academic and public policy discussions concerning anthropogenic global climate change (AGW) started becoming more contentious. The best available science indicated that human influences, primarily fossil fuel use and secondarily land use changes, were altering the global climate. Policy choices to slow AGW became fraught with difficult and complicated consequences, e.g. whether, how, and at what cost to significantly decrease reliance on fossil fuels. Added to this milieu of difficulties has been the more recent rise of the so-called “climate change denier” industry—individuals and groups ideologically opposed to recognizing the existence of AGW despite overwhelming scientific information about its existence.

I first met Don at a conference in 1988, where we served as members on the same panel. As is Don’s wont, we immediately began talking about scientific and policy-relevant issues. Our discussion originated during remarks made on the conference panel but spilled into the conference hotel’s bar, where fueled by several beers we continued to talk while waiting for taxis to take us to the airport and our return home. Later, our discussions extended to many international meetings and venues. I mention this personal history because in the intervening years I have learnt a lot from Don, despite my having a natural science background that allows me to understand scientific and public policy aspects of AGW and other environmental problems reasonably well. In short, becoming a student of Don’s work on AGW taught me a great deal and should teach all of us something valuable.

Don “gets something” that many scientists, public policy experts, and philosophers do not. Don recognizes that AGW may, indeed, be the greatest environmental and social threat facing the human community and the planet itself. However, he goes beyond where others have trodden and, as per this book, provides convincing arguments and examples of why solutions to AGW must explicitly be framed, not on abstract and theoretical levels—as too many academics consistently do—but rather on practical levels, so that public policy makers and others understand the concrete value-laden and ethical implications of AGW and simultaneously understand that AGW policies must be understood as having ethical consequences, good or bad, depending on what is embedded in

them. Abstract and theoretical discussions absent embodiment in practical and concrete policy discussions and language are of little use to solving the problem of AGW. In a sense, Don's book demonstrates this and hopefully will serve as encouragement for others to be less abstract and more concrete. By so doing, Don also expresses his firm belief that people and governments' representatives must understand that ethical guidance is needed to overcome opposition to AGW policy formulation, and with such understanding will come a commitment to help solve one of the greatest threats to both humankind and those with whom humans share our fragile planet. And if this understanding is achieved, then hope might prevail over despair, which is always lurking in the background when considering the daunting tasks of solving AGW.

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Part I

Introduction: The Climate Change Debate

Introduction

Navigating the Perfect Moral Storm in Light of a Thirty-Five-Year Debate

The Book's Purpose

This book has been written because although climate change raises many obvious world-challenging ethical issues, there has been a 35-year debate about what should be done to reduce climate change's immense threat. A debate that for the most part, as we shall see when we examine it in detail, has utterly failed to recognize the ethical dimensions of human-induced warming. Unlike most previous literature on climate change ethics, this book is interested not only in what are the ethical issues entailed by climate change but, more importantly, how to make ethical guidance more influential in policy formation. Any concern about the ethics of climate change needs to consider how to assure that ethics is actually taken into consideration when climate change policies are formed. In addition, ethical analysis of climate change must also be sensitive to the actual ethical issues that arise when solutions to climate change are under discussion. As we shall see, the absence of ethical reflection on positions taken on climate change is stunning given the fact that climate change must be understood as an ethical problem.

Climate change has been called the greatest environmental and social threat facing the human community. Of course, there are other grave problems that are competing for recognition as the world's most dire menace, such as terrorism, or social chaos created by the inability of the global economy to produce living wages for billions around the world. Yet, as we shall see throughout this book, the claim that climate change is the most threatening issue facing humanity is entitled to serious respect given that the scientific "consensus" view about climate change holds that: (a) the planet is heating up due to human actions, (b) the consequences of this, under business-as-usual, are dire particularly for some of the world's poorest people in the short- to medium-term, and for most of humanity later in this century, (c) some people are causing this problem much more than others and those who are most vulnerable can do almost nothing to reduce the threat, (d) to prevent great harms, hard-to-imagine global policy responses are required, and (e) the chance of these conclusions being wrong, although not 100 percent certain, is increasingly improbable.

Climate change is an immense challenge to the human race, not only because of climate change's potential catastrophic impacts on human health and the ecological systems on which life depends all around the world, but also because of the hard-to-imagine responses from the human community that are needed to avert extraordinarily harsh impacts if the mainstream scientific view is correct. Climate change is, therefore, both an ominous threat and a hard problem to solve.

As we shall see in the book, the urgently needed policy responses must be understood not only for civilization's self-interest, but are also demanded by basic morality. This is because hundreds of millions of the world's poorest people are most vulnerable to climate change's harshest impacts, and these same people have done little to cause the problem. In fact, climate change must be understood in its essence as an ethical problem for many reasons discussed throughout this book. Yet a review of the 35-year debate about climate change, looked at in this book, reveals that the ethical dimensions of climate change policy are largely being ignored when actual arguments are made concerning what to do about climate change.

This chapter introduces the ethical issues that need to be considered in policy formation in light of a 35-year debate about climate change policy responses. Subsequent chapters review the history of the climate change debate and deduce in more detail the ethical issues relevant to arguments that have been made in support of, or in opposition to, the responses to proposed climate change policy.

This analysis has been motivated by the fact that although climate change raises many civilization-challenging ethical issues, for the most part, the international community, national and sub-national governments, organizations, businesses, and individuals have not responded to or even acknowledged their ethical obligations. Not only have those who have responsibility for greenhouse gas emissions failed to admit that they have ethical obligations, as we shall see during the 35-year debate discussed here, there has hardly been a murmur in the press or in domestic political discussions about the ethical duties of nations to reduce their greenhouse gas emissions. This book explores why this is so and makes recommendations about how to assure that ethical guidance is much more influential in government, organizational, and individual responses to climate change.

One might ask what hope there is that turning up the volume on the ethical dimensions of responses to climate change will make any practical difference. If people around the world are mostly motivated by self-interest rather than ethical obligations, what evidence is there that expressly injecting ethical reasoning into the policy debate will change anything? If the solution to climate change requires massive social change, one might ask whether ethical arguments are capable of successfully contributing to or causing the needed social change. Although these issues are beyond the scope of this book, several things may be said about the potential efficacy of moral arguments to make a practical difference in public affairs.

First, climate change is a problem that requires a global solution. There is little hope of achieving a just solution to climate change unless moral arguments are made. If a global solution is not just, climate change policies will, very likely,

exacerbate existing patterns of injustice in the world, making the poor both poorer and more vulnerable to harsh climate impacts. For this reason, encouraging the world to seek a morally acceptable solution to climate change should be the goal of climate policy, for it is the right thing to do. And so, as long as there is any hope that persuasive ethical arguments could lead to more just solutions to climate change, they should be made.

In addition to making ethical arguments about just responses to climate change because it is the right thing to do, there is considerable evidence that persuasive ethical arguments have been an indispensable ingredient in causing needed social change in successful social movements including civil, women's, and human rights movements around the world, the criminalization of genocide and other crimes against humanity, and in the establishment of fair judicial processes in many countries. In other words, moral arguments have often been influential in bringing positive social change on some issues (Appiah 2010).

However, moral arguments by themselves may need to be supplemented by other social strategies to achieve significant positive change. For instance, Appiah (2010) describes how moral arguments often had to be coupled with strategies to change a culture's understanding of when honors should be bestowed on its members before cultural social norms changed. In making this point Appiah examines the end of dueling in England in the early 19th century; the cessation of the practice of foot-binding women in China at the beginning of the 20th century; and the abolition of slavery in the British Empire. In these cases moral arguments needed to be augmented by strategies to convince people that the dominant social codes of the clan, tribe, or social structure were dishonorable; yet moral arguments made initially by a courageous minority in the culture were indispensable elements in achieving positive social change. And so, if widespread social change is necessary before countries like the United States will adopt climate change policies—which are both sufficient to achieve the hard-to-imagine greenhouse gas emissions reductions necessary to prevent dangerous climate change; and also achieve just solutions—ethical arguments are necessary but perhaps insufficient elements in any strategy designed to achieve social change.

Therefore, greater understanding of the ethical dimensions of climate change policy issues may not make a significant difference in policy outcomes unless ethical argumentation is supported by additional social action. This action might include, for instance: (a) strategies to raise public awareness about the dishonorable behavior of those who oppose climate change policies on the basis of self-interest, (b) acts of non-violent civil disobedience, or (c) other strategies to heighten awareness of the immense human suffering caused by the unethical behavior of some who are causing climate change.

And so discussion of the ethical dimensions of climate change may not alone achieve policy change without organized social action. Ethicists can help those who organize social action designed to achieve acceptance of global responsibilities for climate change, but academic climate change ethics by itself is not likely to achieve social change.

Although a few ethicists were engaged in climate change ethics before 2000, during the last decade there has been a growing scholarly and policy interest in climate change ethics.¹ Yet for the most part the analyses of ethical questions examined in the recent climate ethics literature have been focused on broad ethical questions, such as what is any nation's fair share of safe global emissions. Climate change ethicists have rarely engaged in actual climate change policy disputes as they have arisen in contentious climate change policy debates.

As we shall see, because there has been little acknowledgement of ethical issues in policy debates about climate change, there has been little recognition of ethical duties, responsibilities, or obligations that should be seen as limitations on national, regional, organizational, or individual self-interest in formulating domestic policy climate change policies, or in international negotiations seeking to create a global solution to climate change that are now more than two decades old.

This book both examines priority ethical issues entailed by climate change and makes recommendations on how to make ethical considerations become influential in policy formation. It will explain why those interested in a just climate change solution must engage more directly as policy options are debated and formed. They must focus more on what is ethically problematic with positions taken by disputants in climate change debates rather than on what perfect justice requires of climate change issues. Most of the previous climate ethics literature has focused on ethical analysis of significant climate change issues rather than on ethical problems with specific positions taken by disputants in climate change debates.

In its examination of this long-term debate, the book teases out of policy arguments the most important ethical questions that need to be confronted to overcome opposition to the formation of climate change policy. The book will also demonstrate that ethical guidance has been a crucial missing consideration in actual climate change debates, despite the fact that climate change policy disputes raise many civilization-challenging ethical issues.

In *A Perfect Moral Storm, the Ethical Tragedy of the Climate Change*, Stephen Gardiner (2011) argues that climate change must be understood as a moral problem. Yet Gardiner points out that there are certain features of climate change that make citizens resilient to the pull of moral responsibility. Gardiner and a few other ethicists who have written recently on the subject, have emphasized that climate change must be understood essentially as a moral problem. It is a moral matter because many of the policy issues that need to be resolved to achieve a global solution must look to ethical principles for their resolution. In other words, to resolve such questions as to what levels of greenhouse gas emissions each nation is responsible to achieve a global solution that limits warming to tolerable levels, nations will necessarily have to consider what constitutes each nation's fair share of safe global emissions. The question of "fairness" is not a factual matter that can be resolved by the application of "value-neutral" analytical tools, but can only be resolved by appeal to ethical guidance including principles of distributive and retributive justice.

This book will demonstrate that different ethical issues arise in different stages of policy development. They all can't be understood abstractly in advance of policy making. Even when determining what emissions levels are "safe," ethical questions arise such as safe to whom, what levels of scientific confidence should be acceptable about safety levels, and who should have the burden of proof to resolve uncertainties about what constitutes "safe" atmospheric concentrations of greenhouse gases.

Of course all environmental problems raise both factual and ethical questions. Yet climate change must be understood as a uniquely civilization-challenging ethical problem, because it is a problem caused by some people who are putting others—who have done little to cause the problem—at great risk. Harms to the most vulnerable will likely be catastrophic if significant emissions reductions are not made in the forthcoming decades, and those most vulnerable to harsh climate change impacts may not petition their own governments for protection from climate change. They must hope that those causing the problem will limit their greenhouse gas emissions because they are motivated by duties, responsibilities, and obligations to others. In other words, climate change must be understood essentially as an ethical problem because of the gravity of the problem and the strong likelihood of an inadequate and unjust response if there is a widespread failure to respond to climate change's ethical dimensions.

There are several civilization-challenging ethical issues raised by the formation of climate change policy as discussed in the relevant literature on climate change ethics. They include such diverse issues as how to fairly structure reduction pathways of greenhouse gas emissions, the appropriate role of economic tools such as cost-benefit analysis in climate change policy formation, ethical issues entailed by scientific uncertainty, and the moral dimensions of geo-engineering solutions to climate change, just to name a few. As we shall, each of these ethical issues raises different ethical questions. There is not just one central ethical issue raised by climate change, but different civilization-challenging ethical issues that raise diverse ethical questions which should be considered in global warming policy formation.

Although there is a growing literature on climate change, Gardiner's (2011) recent book is unique in that its major focus is not solely on the evaluation of ethical issues raised by climate change but also on why civil society has thus far mostly failed to respond to some of the obvious ethical questions raised by human-induced warming.

Gardiner's main thesis in this regard is that climate change is a problem having certain attributes, or using the metaphor "storms," that act to encourage moral corruption or the propensity among those who cause climate change to ignore their duties, responsibilities, and obligations, which must be recognized if climate change responses are to be just.

A great portion of Gardiner's book is devoted to identification of the features of climate change that are responsible for the moral recalcitrance that we have seen in the inadequate responses in the world. Gardiner groups the features of climate

change producing the moral storm into: (a) the global nature of the problem, (b) the intergenerational timescale on which climate change takes place, and (c) the inadequacy of current theoretical models, i.e, ethical and political theories that are often called upon to guide public policy on other sustainability issues.

Yet the most important contribution of Gardiner's book may be in explaining why climate change presents extraordinary challenges for those who seek to put climate change policy on a strong moral footing. Some of the many challenges to the morally based climate change policy identified by Gardner include:

- 1 the propensity of those who want to put off action to hide behind the excuse that the worst impacts will not happen in the present
- 2 the inadequacy of our analytical tools that are usually used to frame public policy questions such as cost–benefit analysis
- 3 some scientific uncertainty about consequences
- 4 the challenges entailed by the fact that this problem is very similar to cases that can be described as examples of the “tragedy of the commons” and cases that create a situation referred to in game theory as the “prisoner’s dilemma”
- 5 the separation in time and space of those causing the problem and those who will be harmed
- 6 the complete inadequacy of international institutions to deal with this problem
- 7 the fact that the fossil fuel industry needing to be transformed to solve climate change is deeply embedded in modern economies
- 8 the complexity of the problem overwhelms the application of ethical principles that often can be more easily applied to other less challenging public policy problems.

Another important contribution made by Gardiner's book is a description of how moral corruption about climate change has been made possible by the moral storms discussed in the book. Gardiner defines moral corruption as a state of mind which has been developed through rationalization that casts doubt about the validity and/or structure of moral claims. If people are morally corrupt, their sense of moral duty has been weakened or undermined by rationalization, and thus they follow inclinations to do things in their self-interest rather than acting in accord with moral responsibility.

One limitation of Gardiner's thesis, which Gardiner himself acknowledges in his book, is its relative lack of focus on what should be done in light of the ethical challenges he identifies. In fact, the book could be understood as a very pessimistic assessment of the likelihood that ethical principles will guide the world to a just solution for climate change. That is, Gardiner's book contains few recommendations about what should be done in light of the barriers to ethically based policy formation aptly discussed therein. This is not necessarily a criticism of *A Perfect Moral Storm* because Gardiner himself acknowledges the

need of future climate change ethics work to find a way to make ethics relevant to policy.

Dale Jamieson has also written about features of climate change that make it difficult to draw clear ethical prescriptions. Jamieson notes, for instance:

Climate change is not a matter of a clearly identifiable individual acting intentionally so as to inflict an identifiable harm on another identifiable individual, closely related in time and space. Because we tend not to see climate change as a moral problem, it does not motivate us to act with the urgency characteristic of our responses to moral challenges.

(Jamieson 2007)

And so, several ethicists have argued that the failure of ethics to motivate ethically responsible action on climate change stems from the moral complexity of climate change issues. Such conclusions about the challenges in making moral reasoning more influential in policy formation are worthy of consideration but do little to point the way to what should be done to make ethical reasoning more influential in the development of policy.

We will make the case that the failure of ethics to get more traction in the formation of climate change policy is not primarily due to the challenges entailed by attributes of the climate change problem identified by Gardiner and Jamieson. This book will demonstrate that if ethical considerations are to become more of a guide to policy responses to climate change, ethicists must either become more engaged in policy formation, or find ways of increasing public awareness of the obvious ethical problems with arguments that have been made in opposition to the adoption of climate change policies.

At the very end of his book, Gardiner hints at the way forward to make ethics more influential to policy development by pointing to the need of those interested in just solutions to bear witness to the immense wrongs being done by those causing climate change. We strongly agree that turning up the volume on the ethical harms of climate change is an important ingredient in making ethical considerations become more influential in guiding responses to climate change. However, this book will identify several additional strategies that need to be followed to give ethical arguments traction in climate change policy development. For instance, ethical analyses of positions taken by some in opposition to proposed climate legislation can often lead to a strong ethical condemnation of these positions despite different theoretical disagreements about what perfect justice requires on these issues. And so, although it may be difficult getting agreement about what justice requires in concrete terms about some climate change issues, as Gardiner suggests, achieving strong concurrence that positions taken by some nations, sub-national governments, organizations, and individuals on these issues are ethically bankrupt is often ethically non-controversial. If climate ethics focuses primarily on abstract ethical questions and is not a force in actually evaluating specific arguments about climate change

responses, then climate change ethics is likely to continue to be rarely influential in guiding policy. As we shall see, providing ethical analyses of issues actually in contention as policy responses are opposed, shaped and debated is a key strategy for making ethical guidance a consideration in climate change policy formation.

Furthermore, strong ethical criticisms can be made of arguments that have often been in opposition to government action on climate change. Even on issues about which different ethical theories reach different conclusions about what ethics requires. Thus ethical analyses of climate change policy options can be practically useful in narrowing policy options so that compromises can be made among ethically supportable alternative positions. Yet, as we have seen, it may be necessary to combine ethical arguments with social action before the ethical arguments by themselves will affect policy responses.

For this reason, the analysis argues that it is a practical mistake for ethicists to focus primarily on what perfect justice requires, rather than on identifying the utter injustice of positions actually being taken on specific climate change issues. This book, therefore, seeks to help those who desire to assure that the world adopts morally acceptable responses to climate change by eliminating from serious consideration ethically troublesome opposition to climate change policies. In this way, it is intended to be a map for navigating the perfect moral storm entailed by climate change.

We examine ethical issues most frequently raised by human-induced climate change in light of 35 years of intense controversy about what to do about this civilization-challenging threat to people and the ecological systems on which they depend. The book identifies ethical problems with actual scientific, economic, and political arguments that have been made about whether and how governments, organizations, businesses, and individuals should limit greenhouse gas emissions and thereby respond to the human-induced warming that is already undeniable and which poses huge future threats to tens of millions of people around the world.

The figure of 35 years in the title of the chapter is premised on the date when quantitative predictions about likely impacts of human-induced climate change started to regularly appear in scientific journals. Yet one could make an argument that the international community was adequately warned about climate change much earlier than 35 years ago since:

- In 1824, John Fourier argued that the Earth would be far colder if it lacked an atmosphere, thus bringing scientific attention to the natural greenhouse gas effect (Weart 2008)
- In 1859, John Tyndall was the first to correctly measure the infrared absorptive powers of the major greenhouse gases including water vapor, CO₂, and methane (Tyndall 1861)
- In 1896, Svente Arrhenius published the first calculation of likely global warming from human emissions of CO₂ (Arrhenius 1896)

- In 1938, G.S. Callendar warned that CO₂-induced greenhouse global warming was underway (Callendar 1938)
- In 1958, Charles Keeling accurately measured CO₂ in the Earth's atmosphere and detected an annual rise in atmospheric concentrations (Keeling 1960)
- In 1965, US President Lyndon Johnson was given a report about the threat of human-induced climate change and the need to take action (Report to the President 1965).

Even though an argument can be made that the human community was unambiguously warned about potential climate change threats long before 1975, it was in the mid-1970s that scientists started to make specific quantitative predictions about likely climate change impacts. Predictions that, for the most part, have held up despite thousands of scientific studies since then, billions of dollars of government funded climate change research, and hundreds of skeptical arguments about the mainstream climate change view, which have forced climate change researchers supporting what is generally referred to as the “consensus position” (a subject to be considered in Chapter 2) to more expressly consider in the peer reviewed literature any weaknesses in their original arguments.

The use in this book of 35 years as marking the beginning of serious climate change debate is premised on the fact that on 8 August 1975, Wally Broecker published his paper “Are We on the Brink of a Pronounced Global Warming?” in the journal *Science* (Broecker 1975). In this paper, Broecker correctly predicted “that the present cooling trend will, within a decade or so, give way to a pronounced warming induced by carbon dioxide,” and that “by early in the next century [carbon dioxide] will have driven the mean planetary temperature beyond the limits experienced during the last 1,000 years.” He also predicted an overall 20th century global warming of 0.8°C due to CO₂ and worried about the consequences for agriculture and sea level (Broecker 1975: 460–3).

As we shall see, Broecker's predictions and several other multidecade-old predictions have generally stood the test of time. For the most part, the scientific concern first clearly articulated in the mid-1970s has gotten stronger as climate change science has progressed, sometimes in response to skeptical scientific arguments, and as more sophisticated computers and greater scientific funding has become available.

In 1979 a report issued for the US Academy of Sciences acknowledged that humans were changing the atmosphere and predicted that if CO₂ was allowed to increase to 560 parts per million (ppm), global temperatures would increase by approximately 3°C (Charney et al. 1975). This report found it highly credible that doubling CO₂ will bring 1.5–4.5°C global warming. Thirty years later, despite being informed by the world's best scientists with increasing levels of certainty that human activities releasing greenhouse gases were gravely threatening the planet, the international community has failed to agree on the details necessary to prevent serious climate change in a global treaty that would prevent serious

climate change. And so, three decades after first reported by US Academy of Sciences, the scientific community was still predicting about a 3°C temperature rise if atmospheric concentrations of CO₂ could be stabilized in the atmosphere at the 560ppm level discussed in the 1979 report.

However, the world may be running out of time to stabilize atmospheric concentrations at this level and there is a growing scientific consensus that a temperature rise of 2°C is very dangerous because temperature increases above this level may trigger rapid, non-linear harmful climate responses. Although, some limited progress has been made under the United Nations Framework Convention on Climate Change (UNFCCC 1992), a treaty agreed by almost all countries, the international community has for the most part failed to develop a global approach to climate change that will prevent dangerous climate change. Almost every nation in the world had met at least once a year since 1990 to hammer out an agreement that would give the international community hope of avoiding the harsh climate change impacts that had been discussed for 35 years. Yet by 2012 no comprehensive approach to climate change had been agreed to by the international community.

As we shall see in detail in later chapters, for 35 years, opponents of climate change policies have argued about the science and economics of taking action on climate change. In so doing, many participants in this debate have implicitly, if not explicitly, denied that high-emitting countries, sub-national governments, organizations, businesses, and individuals have obligations, duties, and responsibilities to reduce greenhouse gas emissions. In other words, participants—who have opposed action in the three-decade-long climate change debate—have at least implicitly taken a position on the ethical dimensions of climate change. With this understanding, positions on ethical issues are not new to the climate change debate: they have, however, been unacknowledged as ethical issues but remained hidden in what appear on first glance to be “value-neutral” technical arguments about science and economics.

In fact, as we will see, rarely have the ethical positions of contending parties been expressly identified in these policy debates, because the implicit ethical positions taken by the parties have appeared at first glance to be “value-neutral” factual descriptions of climate change issues.

This book, therefore, explores the urgent practical need to see climate change controversies as ethical problems in light of how the public debate about climate change has unfolded for at least 35 years. The book teases out of three and half decades of climate change controversies the often hidden normative positions of the combatants, and seeks to encourage citizens around the world to see climate change issues as raising profound ethical questions.

The book will demonstrate that spotting the ethical dimensions of climate change controversies may be key to moving forward in light of the barriers to enlightened climate change policy that have frustrated the formation of climate change policy since the mid-1970s. It is also motivated by the belief that humans have failed, for the most part, to frame policy options and their

justifications in a way that encourages deep reflection on the ethical dimensions of these problems. Because of this, the ethical dimensions of climate change remain, unfortunately, practically invisible in public debates about climate change and in media coverage of these controversies. We will see that making the ethical dimensions of the most frequent arguments about climate change policy more explicit could lead to a progress in adopting more responsible climate change policies.

In the United States, for instance, despite a high-profile political debate about climate change, neither the disputants nor the media have identified some of the obvious ethical questions entailed by climate change policy options under consideration, including the idea that climate change triggers duties, obligations, and responsibilities of high-emitting countries and individuals to the poor victims of climate change around the world. And so, those who oppose climate change policies on the grounds of costs to them alone are rarely asked if they acknowledge that they have duties to others to reduce the threat of climate change. Yet it is the very fact that high emitters of greenhouse gases have ethical duties to others that needs to be understood as the basis for adopting climate change policy responses. For this reason, the book seeks to help others to turn up the volume on the ethical dimensions of climate change for practical reasons.

The use of the term ethics here denotes the domain of inquiry that examines claims that, given certain facts, actions are right or wrong, obligatory or non-obligatory, or whether responsibilities attach to human activities. Thus, the book is interested in claims that are made about what should or should not be done about climate change and who has duties, responsibilities, and obligations to take action given likely environmental, human health, economic, and social impacts from climate change.

As we shall see, arguments for and against climate change policies sometimes raise ethical questions about which different ethical theories may reach different conclusions about what should be done and who should do it. In these cases, spotting ethical issues can lead to disagreement about what ethics requires.

Yet the book will also identify ethical conclusions that can be made about some climate change issues about which different ethical theories reach the same conclusions about what should be done and who should do it. On such issues, philosophers sometimes refer to an “overlapping consensus” among diverse ethical theories. Philosopher John Rawls defined an “overlapping consensus” as a matter about which citizens support the same basic laws or justice outcomes for different reasons (Rawls 1987). For instance both utilitarians and Kantians require that the vital interests of all people be considered, regardless of where they live in the world, but base this conclusion on different ethical theories. This book will identify ethical conclusions that can be made about some climate change issues, which are supported by the vast majority if not all ethical theories. Also, there is evidence of cross-cultural agreement on some climate change ethical issues in the form of relevant provisions of international law that all countries have previously agreed on.

Ethical issue spotting about the climate change debate may, therefore, lead to either agreement or disagreement about what ethics ultimately requires about the policy issues in contention.

A third outcome of ethical issue spotting is disagreement on what ethics requires, yet agreement that some positions taken on these issues should be ethically condemned notwithstanding disagreement about what ethics requires. In other words, for some climate change issues, there is an agreement among ethical theories that positions taken on these issues are ethically unsupportable despite disagreement on what ethics unequivocally requires. In these cases, spotting ethical problems raised by positions on climate change can lead to narrowing policy alternatives to ethically acceptable options through elimination of positions that should be rejected on ethical grounds. As we shall see, ethical issue spotting in such matters is the key to navigating the perfect moral storm of climate change.

For over three decades, proponents and opponents of international climate change regimes have made arguments for and against proposed international and domestic regimes on climate change. As discussed later, most of these arguments have been claims and counter claims about: (a) the impacts of human-induced climate change on humans, plants, animals, or ecosystems, (b) the acceptability of costs of taking action to prevent climate change, (c) the fairness of allocating responsibility for climate change, (d) the duties of nations, sub-national governments, organizations, and individuals to prevent climate change and to pay for damages caused by climate change, and (e) funding responsibilities for all of the above.

Since formal international climate change negotiations began in 1990, arguments against effective international climate change regimes, as well as meaningful national action on climate change, have frequently been of two types.

First, as we shall see in a more focused way in Chapters 2 and 3, by far the most frequent arguments made in opposition to proposed climate change policies are economic predictions about the adverse effects of these policies on national or regional economies, such as claims that proposed climate change legislation will destroy jobs, reduce GDP, damage specific businesses such as the coal and petroleum industries, increase the cost of fuel, or is simply unaffordable.

The second most frequent argument made by opponents of climate change policies are assertions that governments should not require costly climate change action because adverse climate impacts have not sufficiently been scientifically proved. Chapters 2 and 4 show that these arguments range from assertions that what is usually called the “consensus view” on climate change is a complete hoax, to the milder assertions that the harsh climate change impacts on human health and the environment predicted by the Intergovernmental Panel on Climate Change and other scientific institutions are unproven.

Both the economic and scientific arguments against climate change policies have argued implicitly that climate change policies should be opposed because they are not in a country’s national interest. The responses of advocates of climate

change policies are almost always to disagree with the factual economic and scientific assertions made in these arguments by making counter economic and scientific claims. For instance, in response to economic arguments that oppose climate change legislation, proponents of climate change action usually argue that climate change policies will create jobs or will stimulate the development of new energy technologies that will be vital to national economic health. In responses to the lack of scientific proof arguments, climate change policy advocates usually stress the fact that climate change will impact harshly upon the environment, people, and ecosystems has been well-settled by climate change science. In other words, advocates of climate change action usually respond to the claims of opponents of climate change programs based on scientific uncertainty, by denying that the science is uncertain.

By simply opposing the factual claims of the opponents of climate change, the advocates of climate change policies are implicitly agreeing with an essential assumption of the opponents that greenhouse gas reduction policies should not be adopted if they are not in national or regional self-interest.

Yet, if climate change raises ethical questions, then nations have not only national interests but also duties, responsibilities, and obligations to others. However, ethical arguments about duties to others, which could counter the national interest-based assumptions of arguments made in opposition to climate change policies, are rarely heard in the climate change debate. And so, this book will argue that the failure of environmental ethics to affect policy making is to be expected given the dominance of certain economic and scientific arguments about climate change policies; the failure of respondents to these arguments to identify ethically problematic assumptions of these arguments; and the mostly abstract theoretical focus of academic environmental ethics.

The book will demonstrate that the scientific and economic arguments, often framing serious public policy climate change issues, are usually understood to be derived from scientific and economic disciplines that are ethically “neutral.” But this assumption will be shown to be deeply mistaken particularly for a problem like climate change that must be understood as essentially an ethical one.

Most policy makers usually assume that scientists and economists simply provide policy-relevant “facts” to decision makers who then apply these “facts” in policy making, the appropriate domain for the inclusion for the first time of ethical considerations. However, both environmental scientific and economic “facts” are not only frequently built on deeply problematic ethical assumptions, these hidden ethical assumptions are often key determinants of ethically inappropriate policy responses.

In light of this, the book will argue that there is a need to integrate ethical considerations into the identification of scientific and economic “facts” about climate change. For this and other reasons identified here, ethicists must find new ways of engaging in climate change policy formation if they hope to be relevant to policy making. Given this, the book will argue that there is an urgent need for an applied environmental ethics that examines specific scientific and economic

arguments and their erroneously assumed “value-neutral” underpinnings if ethicists hope to influence policy formation.

And so there are now three and a half decades of experience at both the international and national levels with arguments made in support of and opposition to climate change policies. These arguments are fertile ground to examine: (a) the priority ethical questions that the international community needs to face to reduce the threat of climate change, (b) the importance of expressly identifying the ethical questions that arise in policy formation, and (c) the opportunity and need for a new applied climate change ethics.

By drawing lessons learned from the three and half decades of experience with climate change policy disputes, the purpose of this book is to: (a) identify the priority ethical questions facing the world on climate change, (b) examine the role that ethical arguments should play in policy formation despite their failure to do so thus far, and (c) describe the features of a new applied environmental ethics that are needed if environmental ethics is going to be relevant to pressing climate change issues.

The Book's Organization

The book is organized into the following divisions and chapters:

Part I Introduction: The Climate Change Debate

Chapter 2 begins a review of the history of the climate change debate since the mid-1970s to identify the dominant arguments for and against climate change laws, policies, and programs. Later chapters of the book will continue to look at the history of the climate debate in regard to specific priority ethical questions that the world needs to face as identified in Chapter 2. The history of the climate debate is reviewed in considerable detail in this chapter because it reveals: (a) how ethical considerations have been stunningly missing in this debate, despite the fact that the issues in contention raise civilization-challenging ethical questions, (b) the frequency of some arguments more than others that have been made in opposition to climate change policies, and (c) only the history of the debate reveals the major causes of the failure of ethics to be influential in policy formation. Those interested primarily in the substantive ethical issues entailed by climate change could skip Chapter 2, yet this history is important for understanding why ethics has failed to affect policy making.

Part II Priority of Climate Change Ethical Issues

Chapter 3 initiates the book's examination of the priority ethical questions identified in Chapter 2 by examining frequent economic and cost arguments made in opposition to climate change policies. This chapter identifies several different economic arguments that have often been made in response to proposed climate