1 Climate change and corporate capitalism

Climate change is the biggest challenge of our time. It threatens the well-being of hundreds of millions of people today and many billions more in the future ... No one and no country will escape the impact of climate change.

Former UN Secretary-General Kofi Annan (2014)

The future looks bleak. As an opening remark, this might seem unduly downbeat; but it is necessarily realistic. Every day we are confronted by fresh evidence that humanity is shuffling ever closer to the abyss. New data and studies are now habitually underlined by dramatic events all around the globe. Fundamental assumptions of our weather, our climate, and our ecosystem are collapsing before our eyes. As environmental activist Bill McKibben (2013a: 745) has argued: ‘We don’t need to imagine the future of climate change, because it is already here.’

Of course, the notion of destruction is hardly novel. Any student of economic history knows the idea has been a grim constant in attempts to characterise the relationship between capitalist dynamism and ever-spiralling consumption. Karl Marx and Friedrich Engels ([1848] 1998) warned of enforced destruction. Joseph Schumpeter (1942) championed a dauntless culture of creative destruction. Yet we now find ourselves in a new and altogether more frightening era of so-called progress: the age of creative self-destruction.

We are destroying ourselves. It is as simple as that. Economic growth and the exploitation of nature have long gone hand-in-hand, but they now constitute the most ill-fated of bedfellows. Climate change, the greatest threat of our time, is the definitive manifestation of the well-worn links between progress and devastation. And as we continue to shamble towards a tipping point from which any meaningful return will be utterly impossible, a familiar message rings out from the corporate world: ‘business as usual’.
This book is about that message. It is about the corporate world’s relationship with climate change; it is about the terrible paradox at the heart of that relationship; and it is about how that relationship affects us all. It is about how such a message could come to be accepted in the face of the steady annihilation of our planet; it is about how we might recognise it for what it is – the most dangerous of fallacies – and replace it with something more in keeping with our increasingly desperate plight.

Understanding corporate responses to climate change

Scientists can pinpoint with increasing certainty humanity’s role in particular climate catastrophes (Lewis and Karoly, 2013). We first began researching corporate responses to climate change for this book in 2008 and in the years since have witnessed a procession of extreme weather events linked to the worsening climate crisis.

- In 2010, Pakistan experienced its worst floods in living memory. An estimated 20 million people were directly affected (Coumou and Rahmstorf, 2012).
- In the same year Russia endured its worst-ever heatwave and drought. Around 56,000 people died as a result (Trenberth, 2012).
- In 2011, the southwestern United States was plunged into the most devastating drought in its history (an ongoing crisis that is the worst drought in this region in 1,200 years (Griffin and Anchukaitis, 2014). At the same time the Mississippi suffered massive floods that matched the ‘great floods’ of 1927 and 1933 (Masters, 2012).
- In 2012, Arctic summer sea ice melted to an all-time low. The decline was so great that scientists now project the Arctic Ocean could be ice-free in only a few decades (NSIDC, 2012).
- In the same year New York was hit by Hurricane Sandy (Barrett, 2012). The resulting images of one of the world’s great cities succumbing to nature proved especially powerful.
- 2012/13 also saw devastating bushfires across Australia during the country’s hottest-ever summer. The heat was so intense that new colours had to be found to depict its severity on weather charts (Steffen, 2013).
- In November 2013, super-typhoon Haiyan hit the Philippines, the most powerful tropical cyclone to make landfall in recorded history, resulting in an estimated 10,000 fatalities (Schiermeier, 2013).
• In 2014, scientists announced the collapse of the West Antarctic ice sheet. This process is expected to result in a sea-level rise of as much as five metres and has been described by glaciologists as ‘unstoppable’ (Rignot, 2014; Rignot et al., 2014).

The increasing sophistication of climate science reinforces the catastrophic implications of ‘business as usual’ for a twenty-first-century world. Global average temperature increases of 3–5°C by the end of the century have been projected, with much of this warming locked in as early as 2020–2030 (IPCC, 2013; New, et al., 2011; The World Bank, 2012). The worst-case scenarios paint an ‘unimaginable’ vision of large tracts of the Earth rendered uninhabitable, the collapse of global food production, the acidification of the oceans, substantial sea-level rises, and storms and droughts of growing intensity – a literal hell on Earth (Hansen, 2009; Lovelock, 2009).

And yet how do we choose to respond? Tangible political action remains limited to rhetorical flourishes against a background of even greater fossil fuel exploitation. While governments and international organisations pledge reductions in greenhouse gas (GHG) emissions and businesses promote ‘sustainability’, global emissions have increased to record levels. Despite heightened political awareness of the problem of anthropogenic climate change, as outlined in Figure 1.1, total GHG emissions have continued to grow and indeed the rate of growth has accelerated in recent years (Global Carbon Project, 2014). There is plainly a substantial disconnect between how we value our socio-economic activities and how we regard what the established body of climate science is telling us (IPCC, 2013; Melillo et al., 2014).

How can we let this happen? There is no doubt that the sheer scale of the problem makes genuinely united efforts difficult, but there are other fundamental reasons for humanity’s alarmingly limited reaction to the spectre of ecological disaster. Insouciance and apathy cannot be dictated by mere logistics alone. In this book we argue that the corporate world’s engagement with climate change represents a profound influence on humanity’s actions – and, more significantly, its inactions – in responding to the fast-unfolding crisis.

Business plays a dual role in climate politics. On the one hand, corporations are the principal agents in the production of GHG emissions in the global economy; on the other hand, they are also seen as our best hope in reducing emissions through technological innovation.
Just as they are part of the disease, we dream corporations will be part of the cure. This dichotomy was neatly summed up by billionaire entrepreneur and ‘green business’ champion Richard Branson when he claimed that ‘our only hope to stop climate change is for industry to make money from it’ (Neubacher, 2012).

We contend that the particular neoliberal variant of late capitalism that now dominates the global economy places humanity at a strategic disadvantage in responding to the threat of climate change. This brand of corporate capitalism frames business and markets as the only means of dealing with the crisis, rejecting the need for state regulation and more local democratic options. In essence, the prevailing corporate view is that capitalism should be seen not as a cause of climate change but as an answer to it. A problem brought about by overconsumption, the logic goes, should be addressed through more consumption. By contrast, we believe the solution lies not in greater capitalism but in a strengthening of the very democracy that this strain of corporate hegemony seems determined to herd to the margins.

Figure 1.1 Global fossil fuel CO₂ emissions, 1850–2012.

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There are a great many books now exploring the different features of the climate crisis, but our focus is explicitly on the role of corporations as central players in the human response to climate change. Unlike popular polemics, our analysis is based on extensive research into the practices, policies, and strategies of major businesses.

Our research involved interviews with more than 70 senior managers, industry representatives, and business advisers from 25 different large corporations in Australia (see Appendix Table A.1), as well as analysis of company documentation, including strategy outlines, policy statements, and submissions to government on climate policy. Our respondents came from a diverse range of industries, including mining and resources, manufacturing, energy, consumer products, retail, banking and insurance, professional business services, transport, and aviation. The corporations involved included some of the world’s biggest multinationals. The insights we were able to derive were therefore global.

From our initial sample we selected five corporations as case studies. These were subjected to a more detailed analysis of their responses to climate change. Further interviews with senior and operational managers were carried out, and an even larger body of relevant documentation was examined. The five corporations chosen were:

- A leading energy producer that was supplementing fossil fuel generation with renewable energy sources
- A large insurer that was measuring the financial risks of extreme weather events
- A major financial services company that was factoring a ‘price on carbon’ into its lending to corporate clients
- A global manufacturer that was reinventing itself as a ‘green’ company producing more efficient industrial equipment and renewable energy technologies
- A media company that had embarked on a major eco-efficiency drive to become ‘carbon-neutral’ (see Appendix Table A.2).

Our purpose in this book is not simply to describe what corporations are doing in response to climate change (a topic which has been documented by others, see, e.g., Hoffman, 2007; Pinkse and Kolk, 2009) but to put this empirical detail into a broader conceptual framework that contributes to our grasp of the response of humanity as a whole. In particular, in the pages that follow we aim to explain the processes
that underpin how business corporations engage employees, customers, industry associations, the media, governments, and citizens on this issue. We believe this approach is vital to understanding the part corporations play in the politics of climate change at multiple levels in society. In particular, we seek to go beyond existing descriptive and normative approaches to develop a more sociologically and critically informed theory of corporate responses to climate change. In doing this we engage with the deeper debates that are now appearing in critical social theory about how and why humanity has been largely unable to muster a meaningful response to the crisis that is engulfing it.

Many have posited that climate change represents an especially ‘wicked problem’ because of its scale, its lack of immediacy, and its intangibility (Giddens, 2009; Hulme, 2009), but we suggest there are more deep-rooted reasons for our collective inaction and that these stem from the basic features of our economic system. Specifically, we argue that the threat of climate change is fundamentally connected with the expansion of global capitalism. Revoking Schumpeter’s concept of ‘creative destruction’ as a source of economic and social dynamism, we characterise the link between economic growth, corporate innovation, and environmental destruction as a process of ‘creative self-destruction’ in which economic expansion relies on the continued exploitation of natural resources. We believe climate change has revealed this underlying dynamic in its starkest form: the potentially cataclysmic trade-off between economic and environmental well-being.

Before we present this argument in greater detail we set out in the remainder of this introductory chapter some necessary contextual information. This includes an outline of climate change’s emergence as a political and social issue and how this has varied around the world and over time. We then provide an overview of the different roles business corporations have played in responding to climate change. Finally, we summarise the structure of the book.

**Climate change: a brief overview**

The science of climate change and global warming hinges on the chemical make-up of our atmosphere and its conduciveness to a habitable environment for life on Earth. The key mechanism is the way in which greenhouse gases such as carbon dioxide (CO$_2$), methane (CH$_4$), and nitrous oxide (N$_2$O) absorb and re-emit infrared radiation from the atmosphere.
Earth’s surface, slowing the passage of energy back to space. The concentrations of greenhouse gases play a critical role in ensuring a balance in the Earth’s energy budget, resulting in stable climatic conditions for the existence of life as we know it (Archer and Rahmstorf, 2010; Hansen et al., 2007).

Earth’s climate has of course changed substantially before. Variations in the Earth’s orbit around the Sun, fluctuations in solar output, volcanic activity, and other factors have all played their part. But the recent rapid rise in atmospheric concentrations of greenhouse gases resulting from human industrialisation of the past 200 years is unprecedented (Archer and Rahmstorf, 2010). Our combustion of large volumes of fossil fuels such as coal, oil, and gas for energy, manufacturing, and transport, as well as the depletion of carbon sinks such as forests and peat lands, has led to shifts of a magnitude and pace seldom witnessed before.

The growing concentration of greenhouse gases has been demonstrated through observational studies such as the famous Keeling Curve, which has charted monthly variations in the concentration of atmospheric CO$_2$ in parts per million (ppm) since the late 1950s, as well as comparisons with ice core samples dating back to many tens of thousands of years (Lüthi et al., 2008). In 2013, CO$_2$ concentrations exceeded 400ppm, a level not seen on this planet for at least 800,000 years and perhaps as much as several million years (Carrington, 2013; IPCC, 2014c) (see Figure 1.2). Moreover the link between dramatically increasing GHG concentrations and a warming climate has been demonstrated by a broad range of scientific investigation, particularly paleoclimatic research and more recent observation of temperature anomalies (IPCC, 2013; Mann et al., 1999; PAGES 2k Consortium, 2013).

While the science underlying the so-called greenhouse effect dates back nearly two centuries (Edwards, 2010; Weart, 2003), its mainstream recognition in policy and government circles did not truly occur until the 1980s. Piqued by the action of individual scientists and international organisations such as the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP), political acknowledgement of climate change became particularly evident in 1988, when, against the backdrop of an unseasonably warm US summer, several related events occurred on the international stage:
Climate change, capitalism, and corporations

National Aeronautics and Space Administration (NASA) scientist James Hansen testified to a US congressional committee that observed temperature increase was clear evidence of global warming. A conference of the world’s leading climate scientists emphasised the need for governments to set enforceable targets for the reduction of GHG emissions. British Conservative Prime Minister Margaret Thatcher described the dangers of global warming and the need for countries to join together in tackling the problem (Andresen and Agrawala, 2002; Weart, 2011).

In the same year this political awareness also found institutional expression with the formation of the Intergovernmental Panel on Climate Change (IPCC), an international agency of experts that assesses the latest scientific knowledge on climate change and the environmental and socio-economic impacts of the phenomenon. In producing regular reviews of climate science, the IPCC has provided a basis for ongoing international negotiations over climate change policy. Its first report, published in 1990, was soon followed by negotiations for an international agreement to limit global warming and, in 1992, a meeting...
of world leaders in Rio de Janeiro – the so-called First Earth Summit (Edwards, 2010; Weart, 2011).

These early political negotiations soon exposed climate change’s fundamentally divisive nature. Taking meaningful action to respond to the threat would require significant reductions in the global production of GHG emissions, which in turn would demand government regulation of fossil fuel use and/or taxation. Thus a classic ‘tragedy of the commons’ dilemma was revealed: economic development based on fossil fuel use benefited individual countries in the short term at the cost of long-term environmental destruction. Not surprisingly, conscious of their individual economic interests, nations diverged markedly in how they approached negotiations. Early opponents of agreed emissions reductions included the world’s pre-eminent economy, the United States; the oil-rich kingdoms of the Middle East; and countries, such as Canada and Australia, heavily reliant on fossil fuels as key sources of energy and export earnings.

The political implications of climate change also laid bare schisms between the so-called developed economies of the global North and the developing nations of the South. The climate crisis was an outcome of historical emissions that had facilitated the developed world’s economic wealth, while many developing economies had yet to enjoy these economic gains and would be the most exposed to future climate change impacts. As Klein (2014: 181) notes, given the lack of funding from developed economies to assist in a transition away from ‘dirty energy’, this legacy has forced even progressive governments in countries like Bolivia and Ecuador to pursue even greater fossil fuel extraction.

These national and regional conflicts over climate change have played out over the past two decades at various UN Climate Change Conferences. The United States, in particular, influenced by domestic political considerations, has had a central role in delaying global action. Neoconservative politicians and fossil fuel interests have waged a relentless campaign against regulation, stressing ‘uncertainty’ and ‘doubt’ about climate science (Dunlap and McCright, 2011; Mooney, 2005a; Oreskes and Conway, 2010). Despite a firming of scientific findings and IPCC projections suggesting increasingly dire environmental, social, and economic impacts, global agreement on a response has remained both illusive and illusory.
Consider, for example, an alleged high watermark in global climate negotiations: the so-called Kyoto Protocol, which resulted from the 1997 UN Conference on Climate Change and committed wealthy, developed economies to undertake significant emissions cuts. Domestic political gridlock meant the United States failed to ratify the agreement – largely on the pretence that it excluded developing countries (Clark and Berners-Lee, 2013) – thereby handing other developed economies an excuse to avoid taking strong action.

Against this political conflict, public awareness and concern over climate change have also soared over the past decade or more. Several factors have played a role. We have seen extreme weather events, including the 2003 European heatwave, which resulted in tens of thousands of fatalities, and Hurricane Katrina, which decimated the US city of New Orleans in 2005 (Van Aalst, 2006). Thanks to films such as *The Day after Tomorrow* (Emmerich, 2004) and *An Inconvenient Truth* (Guggenheim, 2006), climate change has also entered the public imagination through popular culture.

Interestingly, this growth in public awareness, although in general demonstrated by opinion polls (Brulle et al., 2012; Leviston et al., 2011), has varied strikingly from country to country. Citizens in South America have registered the greatest concern, while those in the United States and China – the world’s largest emitters – seem far less worried (Carrington, 2011). Indeed, there is mounting evidence that the media in the United States, the United Kingdom, Canada, and Australia has contributed to public polarisation on the issue (Boykoff, 2011; Painter, 2011).

In the wake of the fourth IPCC report, which was published in 2007 and warned of the serious harm to ecosystems and societies that would result from continued GHG emissions, hopes that the 2009 Copenhagen climate talks would lead to a meaningful international agreement were high. This optimism proved sadly misplaced. The resurfacing of national and regional tensions undermined any multilateral agreement. The so-called BRICS nations of Brazil, Russia, India, China, and South Africa emerged as key players in climate negotiations, staunchly emphasising their national economic interests, while the United States, once again hamstrung by domestic political division, failed to offer leadership (Clark and Berners-Lee, 2013).

The Copenhagen talks were also mired in the confected conspiracy of the so-called Climategate scandal, which questioned the
veracity of climate science and emboldened a resurgent denial campaign (Mann, 2012). Climate change denial has now extended beyond industry-funded social movements and appears entrenched in neoconservative political parties in the United States, Australia, and Canada (Hoffman, 2012; McCright and Dunlap, 2011a). At the time of writing, for instance, neoconservative politicians in Australia have succeeded in winding back the limited regulatory and market initiatives introduced by a previous Labor government to reduce carbon emissions.

The science of anthropogenic climate change has only strengthened in the face of these myriad setbacks. Unfortunately, the science also suggests that the projections of even best-case scenarios are becoming ever more alarming.

According to the most recent IPCC report (2013), as a consequence of GHG emissions from human activities, the Earth’s climate has already warmed on average by 0.85°C from pre-industrial levels. The heating of the planet and other physical impacts (e.g., ocean acidification and sea-level rise) will grow in intensity as GHG emissions continue to increase; moreover, positive feedback effects will accelerate the process, most notably through increasing methane emissions from melting tundra and the reduced albedo of shrinking Arctic ice (IPCC, 2014c; The World Bank, 2014). Both observational evidence (in the form of recorded temperatures and data on sea-level rise and declining ice mass) and climate models provide clear and direct evidence of our plight, and reviews of the cross-disciplinary science for anthropogenic climate change highlight a significant scientific ‘consensus’ (Cook et al., 2013).

What are the likely impacts of heightened warming of the globe? Research suggests these are both diverse and fundamental, including:

- Increasing intensity and frequency of extreme weather events such as storms, floods, droughts, and wildfires (The World Bank, 2014)
- Transformation of the terrestrial and marine ecosystems that form our life-support systems, significant levels of species extinctions, and the demise of most tropical coral reef systems (Hughes, 2011)
- Failure of crops and threats to food supplies (IPCC, 2014a)
- Increased global mobility of large volumes of people from climate-threatened regions (Bogardi and Warner, 2008)
- Heightened regional and geopolitical conflicts over scarce natural resources undermining the functioning of society (Campbell, 2009; CNA Military Advisory Board, 2014; Dyer, 2010).
Obviously, nobody can predict the future with absolute accuracy. We cannot say for sure how terrible the effects of climate change might be. But we can say with reasonable certainty how we might best try to save ourselves; and abandoning the ‘business as usual’ path is among the most crushingly obvious responses.

If nations around the world were to radically reduce their GHG emissions over the next 20 years there is a slim chance that average global warming could be limited to 2°C. Such an undertaking would entail genuinely dramatic change in energy production and the curtailment of all but essential fossil fuel usage (Anderson and Bows, 2011; 2012). As outlined in recent IPCC projections (see Figure 1.3), limited change in emissions or a continuation of current levels would result in estimated warming of 3 or possibly even 5°C by 2100 and even further increases thereafter (Fuss et al., 2014; IPCC, 2013). The 2°C limit has been ratified politically as a level beyond which the impacts would be dangerous for human well-being, but many climate scientists have argued even this would be a prescription for disaster in light of the fact that current projections err on the ‘side of least drama’ (Brysse et al., 2013; Hansen and Sato, 2012).

Policy responses have to date mostly focused on attempts to cut or ‘mitigate’ GHG emissions, as this is the most direct way to reduce the risk of future climate change impacts (IPCC, 2014b). For instance, economic reviews in the United Kingdom (Stern, 2007) and Australia (Garnaut, 2008) have strongly advocated the ‘pricing’ of carbon emissions and the development of a ‘market mechanism’ to encourage a transition from fossil fuels to a low-carbon economy based on ‘renewables’ (e.g., wind, solar, tidal, biomass, and geothermal technologies) and other energy sources (e.g., nuclear). A number of regional economies and nations have launched initiatives to reduce emissions. Among the most notable have been the European Union’s introduction of a ‘cap and trade’ carbon market in 2005; the implementation of a carbon tax in the Canadian province of British Columbia; and proposals in Australia, following the election of a Labor government in 2007, for a fixed carbon price leading to an emissions trading scheme (ETS) (Crowley, 2013; Neuhoff, 2011; Newell and Paterson, 2010; Nyberg et al., 2013).

Most recently, we have seen the introduction of carbon trading systems in a number of Chinese cities and a major climate agreement to reduce emissions negotiated between the United States and China.
Climate change and corporate capitalism

Some governments have also sought to mandate targeted reductions in GHG emissions from sectors such as energy production. Other responses have included attempts to increase the ‘sequestration’ of carbon emissions through expanding forests, as well as expensive and untested ‘carbon capture and storage’ technologies. There have even been proposals to ‘geoengineer’ the climate. One idea is to disperse sulphate particles in the atmosphere to dim incoming solar radiation, increase the reflectivity of clouds or ‘fertilise’ the oceans through encouraging algal blooms (Hamilton, 2013; Keith, 2000). Such initiatives would need to be implemented on a massive scale, and their unintended effects could be catastrophic. Indeed, plans such as these have been compared to chemotherapy for a dying planet (Wagner and Weitzman, 2012).

Irrespective of the long-term responses we choose to adopt, we must also deal with the physical manifestations of climate change that are
already unavoidable. This adaptation might extend from major engineering projects – such as levees and coastal walls to protect against rising sea levels or desalination plants to tackle fresh water shortages – to social and governance responses and even individual restraint in resource use.

There is a need for psychological adjustment, too, to a changed and threatening world (Adger et al., 2009). This, again, is already unavoidable. For the reality is that mitigation and adaptation, regardless of how radical or effective they might be, cannot alter the fact that climate change is happening now. It is all around us. It is here. We rightly fear a climate-changed future, but we forget at our peril that we are living in a climate-changed present.

What role corporations?

While governments, politicians, and scientists figure prominently in the popular discourse of climate change, business organisations are far less apparent. Indeed, even economic analyses of climate change present a largely neoclassical view in which the firm remains hidden from view, responding to price signals dictated by the laws of supply and demand. Missing from such analysis is any concept of corporate power and agency. Yet, our contemporary economy is dominated by large multinational companies which exhibit significant influence over governments, public policy, and communities (Bakan, 2004; Barley, 2007).

The twentieth century saw the rise of ‘corporate capitalism’; the twenty-first century has witnessed its further expansion under the spread of neoliberalism (Harvey, 2007). Business corporations represent around 40 per cent of the world’s largest economic entities, their revenues dwarfing many national economies. Fossil-fuel-based energy giants dominate the roll-call of mega-corporations, with the revenues of the five largest – Royal Dutch Shell, ExxonMobil, BP, Sinopec, and China National Petroleum – equivalent to 3 per cent of global gross domestic product (GDP). Royal Dutch Shell’s reported 2012 revenues exceeded the GDPs of 171 countries, making its 90,000 employees the 26th largest economic entity in the world – ahead of, among others, Argentina and Taiwan (Keys et al., 2013).

As the engines of the modern global economy, large business corporations underpin the production and consumption of an ever-distending
cornucopia of products and services. Fossil fuels and natural resource depletion have been crucial components of economic expansion, with energy supply, industrial production, transportation, construction, and forestry/agriculture among the sectors with the most significant contributions to overall GHG emissions. The result: ever-increasing carbon emissions which in recent years have grown at around 2 per cent per annum and in 2013 reached a record high of 9.9±0.5 GtC (36 billion tonnes of CO$_2$) – some 61 per cent above the level in 1990 (Global Carbon Project, 2014).

The globalisation of manufacturing has also led to a geographic relocation of the production of GHG emissions. China, for instance, because of its rapid economic ascent, is now the world’s largest GHG emitter (see Figure 1.4). Importantly, these emissions result not only from the combustion of fossil fuels for domestic use but also from the huge industrial growth driven by demand from developed economies for cheap manufactured products (Lin and Sun, 2010). Developed economies have thus outsourced not just their manufacturing industries but also a sizeable part of their GHG emissions (Peters et al., 2011).

Although it is often assumed that GHG emissions are largely dispersed across economic sectors, recent research has shown how a relatively small number of business entities have contributed to the majority of global emissions over time. For instance, Heede’s (2014) quantitative analysis found that 63 per cent of cumulative worldwide industrial GHG emissions between 1751 and 2010 could be attributed to just 90 ‘carbon majors’ (investor-owned corporations, state-owned enterprises, and specific nation states) engaged in the production and sale of hydrocarbon fuels, cement manufacture, and associated activities. Moreover, more than half of these emissions have occurred since 1986 (Clark, 2013). Key emitters include companies such as Chevron, ExxonMobil, Saudi Aramco, BP, Gazprom, and Royal Dutch Shell, with emissions exceeding those of many small nation states (Patenaude, 2010).

The first of the roles business corporations play in relation to climate change, then, is that of a producer of GHG emissions. This can occur directly through business activities (e.g., energy usage, transportation, waste processing) as well as less directly through association with products and services that contribute to emissions (e.g., the sale of coal, oil, and gas for energy production or food and consumer goods that contain significant embedded emissions).
Climate change, capitalism, and corporations

The role of producer gives rise to risks. Governments might seek to reduce emissions through ‘carbon pricing’, ‘cap and trade’, or ‘carbon taxes’, all of which can leave high-emitting businesses facing additional costs or holding ‘stranded assets’ (Carbon Tracker Initiative, 2012). As the recent fossil fuel ‘divestment’ campaign has demonstrated, changes in public and consumer sentiment towards corporations that are major emitters can threaten these firms’ ‘social licence to operate’ and endanger their reputation and the demand for their products and services (McKibben, 2013b).

But where there are risks there are also opportunities, and it is these that facilitate the second of the roles corporations play in relation to climate change: that of innovator. There is enormous scope for businesses to develop new products, services, and methods of operation that radically reduce their emissions, cut their costs, and afford them a competitive advantage as potentially ‘low-carbon’ or ‘zero-emission’ companies (Dauvergne and Lister, 2013; Hoffman, 2005). For instance, many studies of ‘green’ business promote the logic of process, product, and technological innovation as a way for

Figure 1.4  Major global CO₂ emitters.
firms to improve their market position (Esty and Winston, 2006; Orsato, 2009).

Businesses can exploit these opportunities in a number of ways. These include:

- Reducing operational costs through improved eco-efficiency (particularly as energy costs rise and GHG emissions are priced)
- Expanding eco-efficiency to broader supply chains, further reducing costs
- Identifying and developing new products and services that satisfy changing markets and social demands
- Marketing and branding themselves as ‘green’ companies.

For instance, corporations such as Walmart have pioneered ‘green’ supply chain strategies as a way to reduce costs, and new markets for environmentally friendly products and services have become an established feature in an increasing range of consumer settings (Bonini and Oppenheim, 2008; Ottman, 2011). As outlined in Table 1.1, a growing number of global corporations have introduced sustainability programmes and practices that emphasise improved environmental outcomes – although it is interesting to note that failure to achieve the targets they set is often ignored (Inez Ward, 2014).

Together with images of the green entrepreneur or ‘ecopreneur’ (Phillips, 2013), these programmes and practices contribute to a vision of business ‘leadership’ on climate change and corporations’ potential role as saviours from the climate crisis. However, this putative quest to deliver salvation is chiefly driven by self-interest; greed, not necessity, is the mother of invention. As a South African entrepreneur at the 2011 World Climate Summit in Durban acknowledged when asked why businesses would be interested in saving the Maldives from climate catastrophe: ‘Customers live there. It’s a business world. It’s capitalism. We need people to buy our goods … Two, three, four hundred thousand people in the Maldives, they all buy iPads, Coca-Cola, all the products we know. If they don’t exist anymore the market’s gone’ (Goodman, 2011).

Indeed, critics note the way in which corporate ‘greening’ strategies by promoting greater efficiency and cost reduction can actually result in overall increases in GHG emissions through increasing demand for their products (Owen, 2011). This paradox underpins the problem of ‘decoupling’ economic production from its material effects which has
Table 1.1 *Examples of corporate environmental programmes*

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<tr>
<th>Company</th>
<th>Sustainability program</th>
<th>Description</th>
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<tbody>
<tr>
<td>Google (United States)</td>
<td>Google Green</td>
<td>Google aims to ultimately power the company with 100% renewable energy. It claims to have been carbon-neutral since 2007; using data centres that use 50% less energy than typical equivalents; and have obtained 35% of electricity from renewable sources in 2014.</td>
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<tr>
<td>Ikea (The Netherlands)</td>
<td>People and Planet Positive</td>
<td>Ikea claims to have doubled the amount of cotton bought from sustainable sources since the launch of its programme in 2012; installed over 500,000 solar panels on buildings; purchased 137 wind turbines; and increased the use of certified wood to 35%. It audits its wood supply chain and paper, food, and textile suppliers for sustainability, and has a future goal of sourcing 100% of home furnishing materials from renewable, recyclable or recycled materials by 2015. It also aims to source 50% of wood from sustainable sources by 2017 and use 100% renewable energy as a share of total consumption by 2020.</td>
</tr>
<tr>
<td>FedEx (United States)</td>
<td>Earth Smart</td>
<td>Launched 2011, the company has claimed to have saved over 7,000 metric tonnes of carbon emissions annually through the installation of solar facilities; it carbon offsets every FedEx envelope; and it has improved vehicle fuel efficiency by 30%. The company aims to reduce GHG emissions from global air operations by 20% by 2020, and plans to have 30% of jet fuel come from alternative fuels by 2030.</td>
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<tr>
<th>Company</th>
<th>Sustainability program</th>
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<tbody>
<tr>
<td>Sony (Japan)</td>
<td>Road to Zero Environmental Plan</td>
<td>Launched in 2010, Sony’s long-term goal under its ‘Road to Zero’ plan is to have a zero environmental footprint in its business activities and through the life cycle of its products and services by 2050. Mid-term targets include a 30% reduction in annual energy consumption of products; 10% reduction in product mass (baseline 2008); 50% absolute reduction in waste generation; and 30% reduction in water consumption (baseline 2000).</td>
</tr>
<tr>
<td>Gazprom (Russia)</td>
<td>Comprehensive Environmental Program</td>
<td>Gazprom adopted its Environmental Policy in 1995 and Comprehensive Environmental Program in 2011. It aims to reduce gross pollutant emissions (particularly nitrogen and carbon oxides); reduce contaminated effluents in surface-water; and introduce an ISO 14001-compliant environmental management system. In 2010–2011, the company claimed gross pollutant emissions fell by 5% and 8% (2009 baseline).</td>
</tr>
<tr>
<td>Asia Pulp &amp; Paper (Indonesia)</td>
<td>Sustainability Roadmap Vision 2020</td>
<td>Launched in 2012, Asia Pulp &amp; Paper’s ‘Sustainability Roadmap Vision’ is designed to achieve ‘whole business’ sustainability, including a reduction in carbon emissions in mills in line with national targets by 2015, and the identification and protection of high conservation value and High Carbon Stock forests. It also aims to achieve best practice peatland management and rehabilitate one million hectares of degraded forest.</td>
</tr>
<tr>
<td>Company</td>
<td>Sustainability program</td>
<td>Description</td>
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<tr>
<td>Vale (Brazil)</td>
<td>Carbon Program</td>
<td>Created in 2008, the Carbon Program aims to reduce global GHGs emissions by 5% by 2020 through the use of new technologies and less carbon-intensive processes. To date, the company claims 21% of energy used by the company comes from renewable sources, 75% water is re-used in operations, and 230,000km² of natural areas have been protected through the Vale fund.</td>
</tr>
<tr>
<td>HSBC (United Kingdom)</td>
<td>Sustainable Operations Strategy</td>
<td>HSBC’s Sustainable Operations Strategy was established in 2012, and claims to have achieved 21% reduction in waste; 30% reduction in paper consumption; and 12% reduction in overall energy consumption from 2011. It aims to increase energy consumption from renewables to 25% and reduce annual carbon emissions per employee from 3.5 to 2.5 tonnes by 2020. HSBC has partnerships with the Climate Group, Earthwatch, and WWF.</td>
</tr>
<tr>
<td>Lego (Denmark)</td>
<td>Planet Promise</td>
<td>In 2014, the company claimed an improvement of 30% in energy efficiency over a five-year period. It aims to reduce the amount of energy used to manufacture a tonne of Lego by 10% by 2016, use 100% renewable energy by 2016, and recycle all waste that is produced.</td>
</tr>
<tr>
<td>Pick n Pay (South Africa)</td>
<td>Social Investment Program</td>
<td>The company claimed a 10% reduction in carbon footprint and a reduction of 18% in packaging (2010 baseline). By 2016, it aims to send zero waste to landfill, reduce its carbon footprint by 15%, and reduce electricity consumption by 40% (2010 baseline).</td>
</tr>
<tr>
<td>Company</td>
<td>Sustainability program</td>
<td>Description</td>
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<tr>
<td>Tata Motors (India)</td>
<td>Sustainability in Motion</td>
<td>Tata began publishing Sustainability Reports in 2003. In 2014, the company claims to have achieved a 9% decrease in water consumed per vehicle produced; 2.5 times increase in renewable energy consumption; and 9% of total energy consumption based on renewables. It has set up effluent treatment facilities, undertaken tree plantation programmes, and contributed to the cost of installing five pre-fabricated biogas units in its Indian operations.</td>
</tr>
<tr>
<td>Unilever (The Netherlands)</td>
<td>Sustainable Living Plan</td>
<td>Established in 2010, the plan sets the goal of halving the GHG impact of products across the lifecycle by 2020. The company claims a reduction of CO₂ emissions in manufacturing by 32% since 2008, the reduction of deforestation associated with commodity crops, and the purchase of electricity from certified renewable sources for its factory sites in North America and Europe. It acknowledges that the total GHG impact of Unilever products has increased by 5% since 2010 because of the expansions of its hair and shower product portfolio.</td>
</tr>
<tr>
<td>General Electric (United States)</td>
<td>Ecomagination</td>
<td>Established in 2005, the company claims to have reduced GHG emissions by 32% (2004 baseline) and freshwater use by 45% (2006 baseline). It has also invested $12 billion in research and development. In 2013, the company published a global white paper in support of an ‘age of gas’ and increased its investments in low-cost renewable technology and alternative fuel transportation.</td>
</tr>
</tbody>
</table>
proved elusive in both relative and absolute terms (Jackson, 2009). Nevertheless, these corporate activities feed into a broader imaginary of business ‘leadership’ on climate change that, as we will show, are critical for corporate legitimacy.

Corporations also play a role as major employers. In many service and professional settings they engage in a ‘war for talent’ that can be endangered if their brand is tarnished. Just as tobacco, alcohol, arms manufacture, and gambling earned a reputation as ‘sin industries’, so the emerging social awareness of the harm fossil fuels pose to the future well-being of society and the ecosystem may also lead to problems for these firms in attracting the ‘best and brightest’ employees. Many corporations now claim developing a corporate culture that promotes social and environmental sustainability can be a major factor in improved staff attraction, motivation, and retention (Renwick et al., 2013). Moreover, new functions have emerged within corporations to deal with the environment and climate change, consisting of roles such as ‘environmental managers’ and ‘sustainability managers’ (Wright et al., 2012); these point to the importance of understanding the emotional relations and activities that occur within corporations with regard to the climate crisis (Wright and Nyberg, 2012).

<table>
<thead>
<tr>
<th>Company</th>
<th>Sustainability program</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walmart (United States)</td>
<td>Sustainability Commitment</td>
<td>Introduced in 2005, Walmart’s Sustainability Commitment set the goal for the company to create zero waste, use 100% renewable energy, source all materials sustainably. It claims that 24% of its electricity comes from renewable sources. It aims to reduce the energy intensity required to power its buildings by 20% (2010 baseline). The company’s ‘Acres for America’ initiative involves the purchase of 1 acre of wildlife habitat in the United States for every acre of land developed.</td>
</tr>
</tbody>
</table>

Table 1.1 (cont.)
Finally, corporations play an active role in civil society as *corporate citizens*, particularly in the administration of citizenship rights for individuals (Matten and Crane, 2005). With the influence of the state receding under neoliberalism, there is an increasingly accepted place for businesses to supply social services (e.g., supplementing education or welfare provision), to provide economic and physical infrastructure, and to contribute to solving social and political problems (Scherer and Palazzo, 2011; Valente and Crane, 2010).

Corporate citizenship also involves engaging in political activity through marketing, lobbying, and funding. These strategies have become increasingly relevant for business interests seeking to shape government policy on climate change in areas such as ‘carbon pricing’, emissions regulation, and the promotion of renewable energy technologies. Fossil fuel industries have been vociferous opponents of government attempts to mitigate GHG emissions and have undertaken a range of political activities in an effort to defeat such measures (Dunlap and McCright, 2011). Ordinary citizens, among them coal miners and factory workers, are increasingly pulled into campaigns supporting corporate objectives (Nyberg et al., 2013). The political ‘war of positions’ has also been evident as rival firms have sought to develop renewable energy technologies and move towards more low-carbon business models (Chesbrough, 2012; Levy and Spicer, 2013).

As detailed in Table 1.2, each of these roles – *producer, innovator, saviour, employer*, and *corporate citizen* – is central to how businesses respond to climate change. They are the cornerstones of countless corporate sustainability programmes. From reducing GHG emissions and energy consumption to employee engagement and culture change initiatives, from corporate political activities to alliance-building with civil actors and Non-Governmental Organizations (NGOs), this is how corporations react to the greatest threat of our time. In the chapters that follow we explore these activities and the broader processes and motivations underpinning the corporate response to the climate crisis.

**Book structure**

This book seeks not only to document these varying corporate roles and the practices that underpin them but also – and more importantly – to outline the *processes* through which corporations are shaping humanity’s response to the climate crisis.
Table 1.2 *Corporate practices in responding to climate change*

<table>
<thead>
<tr>
<th>Practice</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Improved energy efficiency</td>
<td>Practices for the measurement, recording, and reduction of energy usage and improved energy efficiency, including adoption of new technologies and processes (e.g., improved insulation, LED lighting)</td>
</tr>
<tr>
<td>Waste reduction and recycling</td>
<td>Minimising, separating, and reusing waste</td>
</tr>
<tr>
<td>Emissions reduction</td>
<td>Measurement and implementation of changed technologies and processes that reduce GHG emissions from a corporation’s business activities</td>
</tr>
<tr>
<td>Green culture</td>
<td>Initiatives aimed at developing a corporate culture that promotes environmental sustainability and ‘green’ values as a way of engaging staff and customers</td>
</tr>
<tr>
<td>Green marketing and branding</td>
<td>Marketing and branding an organisation as environmentally aware in its products, services, and activities</td>
</tr>
<tr>
<td>Green products and services</td>
<td>Development of new products, services, and markets that are promoted as environmentally sustainable and ‘green’</td>
</tr>
<tr>
<td>Supply chain management</td>
<td>Changing procurement practices and supplier relations based on an analysis of environmental impacts across the supply chain</td>
</tr>
<tr>
<td>Reporting</td>
<td>Gathering data on carbon emissions and other environmental activities and reporting these publicly through participation in voluntary environmental reporting schemes such as the Global Reporting Initiative (GRI) and the Carbon Disclosure Project (CDP)</td>
</tr>
<tr>
<td>Alliance-building</td>
<td>Building links with other businesses, industry groups, think tanks, and NGOs as a way of promoting a company’s environmental and climate policies and objectives</td>
</tr>
<tr>
<td>Advocacy and lobbying</td>
<td>Corporate political activity aimed at shaping government policy and legislative outcomes in regard to environmental issues and climate policy</td>
</tr>
</tbody>
</table>
Having provided some contextual setting in this introductory chapter, in Chapter 2 we outline the conceptual framework for our analysis, which posits that climate change has revealed one of the fundamental contradictions of capitalism: the necessity to consume the natural environment to ensure continued economic growth. Building on insights from ecological sociology and the so-called treadmill of production perspective, we challenge conventional views of ‘ecological modernisation’ and argue that the political and economic response to climate change highlights a form of ‘creative self-destruction’ in which businesses are encouraged to further devour the very life-support systems of a habitable environment. We suggest that this entirely irrational path is made ‘sensible’ through incorporation of critique, in which criticism of corporate activities is absorbed and adapted to further justify capitalist expansion. This incorporation of critique is enacted through a range of interconnected processes. These are dealt with in the chapters that follow.

In Chapter 3 we explore how corporations have constructed climate change as a space of business risk and opportunity. We view risk as socially constructed; in other words, we suggest that corporations, by identifying, measuring, and assessing risk, are taking part in constructing the very phenomenon to which they are responding. We outline how risk has become a dominant discourse in corporations’ framing and understanding of climate change and analyse the effect these risk constructions have on business and society. We argue that the construction of climate change as risk legitimises and justifies particular corporate activities and practices; moreover, we argue that the framing of societal events as risks is also a political act, since the construction of risk closes certain paths and opens others in addressing the perceived threat. We show how the practices of ‘corporate environmentalism’ are used to provide supposed answers to these risk framings, which present a particular future vision based on corporate self-regulation, local innovation, and market-based drivers of economic change.

Continuing our analysis of the consequences of the corporate construction of climate change, in Chapter 4 we illustrate how corporations influence the political debate and further their objectives by building coalitions with like-minded enterprises, industry groups, the media, think tanks, NGOs and by the promotion of social movements. Viewing the corporation as a political actor, we discuss corporate
practices, such as lobbying, campaign funding, political marketing, and ‘astroturfing’, and consider how these influence debate and policy development with regard to climate change. As noted previously, this involves moving beyond a view of the ‘corporate citizen’ as an administrator of citizens’ rights and recognising the involvement of ordinary people in a corporate ‘war of positions’ over climate politics and policy.

Moving beyond the level of corporate strategy and political engagement, the next three chapters explore how corporations enact climate change within the firm and what this means for employees engaged in this process.

In Chapter 5 we discuss the incompatibility of the market and the environment. We explore the process of compromise in corporate engagements with climate change and how multiple competing justifications for corporate action are internally resolved. Avoiding the simplistic black-and-white picture of corporate initiatives as either ‘authentic’ or ‘greenwashing’, we explain how the dispute between profit and the environment is conveniently and habitually settled through compromise. We argue that this involves the commensuration of competing ‘orders of worth’, which leads to the corruption of the environment by converting it into a market commodity.

In Chapter 6 we explore what this means for the individuals tasked with implementing corporate responses to climate change. We especially focus on the emergent occupational community of sustainability managers and advisers. These are people who may have strong personal concerns about climate change but are often faced with organisational imperatives that challenge their commitment. We explore how these individuals make sense of the paradoxes that confront them and how they develop a coherent narrative identity in situations that are fundamentally contradictory.

This analysis is further developed in Chapter 7, where we investigate how corporations have sought to define appropriate emotional responses to the climate crisis. This is an issue where cold facts have generated the most heated debate – one that we believe is associated with new ‘emotionologies’ (Fineman, 2010). We outline how corporate activities influence these emotionologies – in which expressions of passion, anger, fear, and hostility are common – and we explain the individual ‘emotionology work’ involved in dealing with the tensions and contradictions of climate change.
In Chapter 8 we synthesise our discussion of the different processes underpinning creative self-destruction by focusing on the role of political myths in creating a convincing narrative of humanity’s response to climate change. In particular we focus on the myths of corporate environmentalism, corporate citizenship and corporate omnipotence as central narratives for the incorporation of critique and the maintenance of corporate legitimacy. We also identify alternative emergent narratives which to varying extents challenge the predominant focus on corporate capitalism as the solution to climate crisis.

Our analysis concludes in Chapter 9, where we return to the implications of the previous chapters and highlight six movements that can promote people’s imaginations in demanding a change to our current path. These include questioning how we see our relationship to nature; disrupting the language of climate change; promoting greater democracy in climate politics; emphasising the worth of environment beyond a market commodity; developing a green identity beyond consumption; and championing the positive emotionality of climate action.

In the pages that follow we aim not only to explore how corporations have responded to climate change but also to raise questions about corporate capitalism’s efficacy as the response of choice to the most significant social, political, and economic issue of our time – one that will have profound implications for the future of our societies and our very existence as a species on this planet.

Our message is that many of the corporate world’s responses to climate change, despite representing a profoundly significant influence, can more accurately be described as narratives or, better still, myths. Like Plato’s original Noble Lie, they function to further an agenda and maintain the status quo. It is easy enough to condemn these myths. It is easy to become angry about them and to rail against the self-serving short-termism they epitomise. But until we fully appreciate quite how brilliantly they satisfy their purpose, until we grasp how sublimely they protect the interests of their instigators and risk betraying those of everyone else, the meaningful alternatives that are so desperately required will remain disturbingly elusive. Our hope is that our overall argument will encourage and support a double-movement of much-needed regulation and more local and democratic responses.