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INTRODUCTION

Everyone knows that we're not dealing with climate change successfully, but few people understand why. Sure, we all know that politicians are driven by short-term interests, oil companies corrupt politics to maximise their profits, and most of us in the rich world keep driving around burning oil at the same time as we self-consciously buy reusable coffee cups. But we've known all that for a long time.

In the past decade or two, the world has upped its game. Mass protests have put pressure on the politicians. Parliaments have passed laws to limit greenhouse gas emissions, put taxes on carbon, and subsidised solar panels. Oil firms have been sued, coal-burning power plants have been demolished, and global agreements have been reached. Yet still, every year we pump more planet-warming gases into the sky than we did the year before.

By some measures, we are making progress. Last year, eight-tenths of the new power plants built across the world used solar, wind, or other forms of renewable energy. Electric vehicles are visibly proliferating on our streets.

The problem, however, is the pace of change. Over the past two decades, emissions of greenhouse gases for each unit of global gross domestic product (GDP) decreased only by a measly 1.5% per year. To keep the climate just about safe and stable, as it has been for the ten thousand years of human civilisation so far, the countries of the world have agreed to try to limit the increase in global temperatures to below 1.5°C. That requires a reduction in global emissions per unit GDP of around 8% per year over the course of this decade. In other words, we need to rip fossil-burning out of the global economy roughly *five times faster* this decade than we managed over the past two decades.¹

Almost nobody can tell you how that will be done. Technologically, we can imagine it, but politically, we can't. The common answers are unconvincing. 'The solutions are all available, and action on climate change is a great economic opportunity; all we need is leaders with enough political will, and we can do it.' Or 'Young people care about climate change more than their parents do, and look how fast veganism is spreading. Behaviour change

from the bottom up is what will change society for the better.’ There is some truth in both of these statements, but also desperation. Do we really expect a new and better crop of political leaders to spring up across the world, or a moral revolution to sweep through society, quickly enough for the global economy to be turned upside down and half the fossil fuels shaken out within the next decade? Hardly. No wonder some of the activists who have immersed themselves most deeply in this problem are telling their children not to have children.

If we want to give ourselves a fighting chance of success, we need to face up to this lack of answers and find some new ones that provide more plausible grounds for hope.

For the past decade, I have hacked away at climate change from various positions within the UK government. The United Kingdom congratulates itself on being a climate change leader, and in some ways it is. Our non-governmental organisation (NGO), business, and academic communities have been at the forefront of global movements in climate science, economics, law, and finance. Our governments, from both the right and the left sides of politics, have been the first in the world to set legally binding limits on emissions and to create a dedicated global network of diplomats to persuade other countries to do the same. We have a strength of social concern and political consensus for acting on climate change that some countries can only dream of. And yet, in many ways we are still failing. Perhaps this makes the UK a good place to think about what is holding the world back, and how we could all do better.

I first got interested in climate change not long after my daughter was born, when I happened to watch a presentation that a scientist had shared online. It was a plain set of graphs with a dry voiceover, but its content was shocking. The problem was far worse than I had realised. I cut short my job on counter-terrorism as soon as my bosses would allow, took an online course on climate change, and moved into the first climate change position I could find. Over the years that followed, I worked on domestic energy, climate, and industrial policy, and international climate change projects, negotiations, and campaigns.

At each stage of this journey, I discovered strange things. The worst potential consequences of climate change seemed to be the least recognised. The most promising policies to do something about it seemed to face the most resistance – even within government itself. As for promoting cooperation between countries, the most effort was going into the approach that seemed least likely to succeed. When I hunted down some of the best

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experts in the world to help me understand what was going on in each of these areas, what they told me only gave me greater reasons for concern.

One day when I left my office at lunchtime to see the climate change protesters outside Parliament, my heart was lifted by the sight of a small girl, who looked like she was only about seven years old, carrying a sign that said, 'We'll stop protesting when you stop being so shit'.

This book is about why we are still being so shit at dealing with climate change, and how we can stop that without needing to become better people or have better leaders. More specifically, its focus is on the problem of global emissions: how to decarbonise the world's economy five times faster than we have done so far. The problem of how to adapt to the climate change that we cannot avoid is equally important, but it has not been the focus of my work; rather than do it the injustice of a half-treatment, I will leave that book for others to write.

The conclusion I have come to is that there is a great deal we could change, but the targets of the necessary reforms are not as obvious as the oil firms and their pipelines. It's not just the physical plumbing of the global economy that needs to be replaced, but the intellectual plumbing. In the science, economics, and diplomacy of climate change – three fields that are central to how we understand and respond to this civilisation-threatening problem – institutions that should be helping us are holding us back.

In climate science, the most surprising thing is how little world leaders have been told about how bad things could get. You might think they are all given clear assessments of the risk that leave them in no doubt about what is at stake. They are not. While we all assume the scientists have got this covered, the science community is organised for a different purpose. Collectively it assumes, with some justification, that risk assessment is someone else's job. The result is a lack of serious risk assessment that would be unthinkable in other areas of public policy, such as public health or national security. Unless we fix this, we can hardly be surprised if the actions of leaders fall short. Part I of this book looks into why this situation has arisen, and what we can do about it.

If science has been pulling its punches, economics has been fighting for the other side. Thanks to some strange twists of history, the economics that dominates public debate and policymaking is founded on an assumption that the world is fixed and unchanging. The more we want to change things, the more unhelpful this kind of economics turns out to be. Avoiding dangerous climate change demands the largest and fastest economic changes the world has ever seen. We have to change how we generate electricity, construct buildings, grow food, manufacture materials, and

transport ourselves by land, sea, and air – all within a few decades, all over the world. As if this wasn't hard enough already, economics is systematically giving us the wrong advice about how to do it. The result is that policies we know are needed are not put in place; technologies that would work are not deployed; finance that is available is not invested. Part II of this book investigates what has gone wrong and shows how a different approach to economics can be a better guide to fast and effective action.

Diplomacy, for its part, has been picking the wrong battles. For three decades, international talks have focused on countries' long-term economy-wide emissions targets. As we have increasingly accepted the impossibility of agreeing these targets, negotiations have become ever more focused on process, while matters of substance – everything that determines whether emissions go up or down – are left to countries to manage individually. We have all heard rhetoric about climate change being 'a global problem that needs a global solution'. But the reality is we have agreed not to agree; we have become collaborators in non-collaboration. When we go back to first principles, we can readily imagine a way that countries could work together to speed up progress, despite their different interests and competing concerns. Staggeringly, in most respects, serious cooperation of this kind has barely even begun. Part III of this book tells the story of climate diplomacy so far, and sets out how it must be substantially different in its next stage, to effect real – and faster – change.

These criticisms may sound harsh, especially to some of the people working in those fields. In climate change science, economics, and diplomacy there is a great diversity of activity taking place, including movements for change in the directions I am advocating. The target of my criticism is not the frontier of academic knowledge, but the way in which knowledge is being put to use. My concern is less about the best practice and more about the dominant practice. The dominant practice is what decides the pace of change, and in the fight against climate change, speed is everything. Winning slowly is the same as losing.

The good news is that in each of these areas there are structural changes we could make that would give us a better chance of success. Risk assessments that give a clear view of the threat can motivate leaders to do more to address it, without requiring any underlying change in values or preferences. Economics that understands change can enable policies to be dramatically more effective, with the same level of political and financial capital. Diplomacy that is targeted in the right way can help all countries reduce their emissions more quickly, without needing them to take a different view of their national interests.

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I wrote this book because I believe this set of problems and solutions is radically under-recognised. The movements for change are growing, but still far too few people recognise the need or even the possibility of doing things differently. Changing institutions from within is difficult – there is great inertia to overcome – so those who are pushing for new approaches need help from outside. But for the most part, the NGOs are not campaigning for the reforms that are needed, and the media is consistently missing the point. Too often, the loudest voices in the climate change community repeat the refrain that everyone needs to ‘raise ambition’, in other words, ‘try harder’, as if that were all that is needed.

What I advocate here is certainly not the full set of solutions to climate change, and I do not pretend that it will make all the difference. Avoiding dangerous climate change will be a long and hard battle, and we have made a slow start. I do not know if we can win. But I am sure that if we do not channel our efforts more effectively, we will have absolutely no chance. I believe that in these ways of doing things differently – rethinking our approach to the science, the economics, and the diplomacy – there are plausible grounds for hope. And wherever you stand, whether you are a concerned citizen or a politician, an activist or an investor, there are things you can do to help shake up complacent institutions and promote the spread of new ideas.

