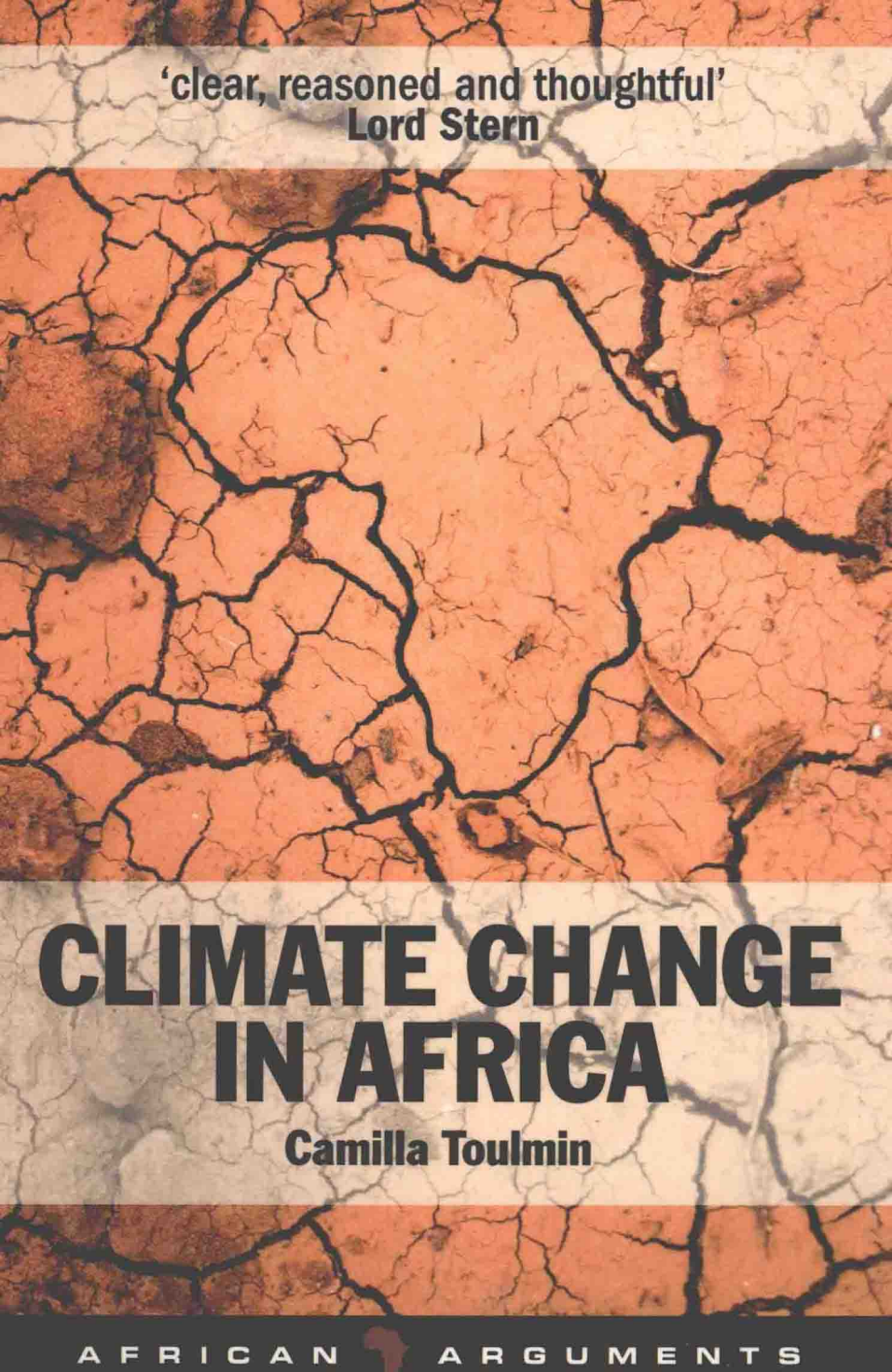
'clear, reasoned and thoughtful'
Lord Stern
CLIMATE CHANGE IN AFRICA
Camilla Toulmin
AFRICAN ARGUMENTS

CAMILLA TOULMIN

Climate change in Africa

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Over the last twenty-five years, my regular visits back to a small village in central Mali have helped remind me of the enormous energy, initiative and adaptability of many people in Africa. Like all villages across the continent, it offers much instruction about change over time, and overturns

many of the assumptions we bring to understanding people's goals and options. Many families in this small village, Dlonguebougou, have one foot in farming, and another in town, the hoe in one hand and a mobile phone in the other, with cooking still done on an open fire while a solar PV cell charges a battery for the radio. Seizing new opportunities and balancing the needs of individuals versus the collective interest are key elements in maintaining a successful domestic group in this drought-prone, high-risk environment. Ganiba Dembele has become a regular caller on his new mobile telephone and brings me up to date with village news. Sidiki Diarra and Yacouba Dème are faithful friends in Mali to whom I return again and again for help and advice.

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Camilla Toulmin, London, April 2009

Abbreviations

ABN	Autorité du Bassin du Niger
AF	adaptation fund
AOSIS	Association of Small Island States
CDM	Clean Development Mechanism
CERs	Certified Emissions Reductions
CH_4	methane
CLACC	Capacity Strengthening of Least Developed Countries for Adaptation to Climate Change
CO_2	carbon dioxide
COP3	Third Conference of the Parties
COP13	Thirteenth Conference of the Parties
COP15	Fifteenth Conference of the Parties
ENSO	El Niño Southern Oscillation
ETS	European Emission Trading System
EU	European Union
GCM	General Circulation Models
GEF	Global Environment Facility
GHG	greenhouse gas(es)
HFCs	hydrofluorocarbons
IIED	International Institute for Environment and Development
IPCC	Intergovernmental Panel on Climate Change
ITCZ	Intertropical Convergence Zone
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
N_2O	nitrous oxide
NAPA	National Adaptation Programme/Plan of Action
PFCs	perfluorocarbons
PRSPs	Poverty Reduction Strategy Papers

REDD	Reduced Emissions from Deforestation and Degradation
S_6F	sulphur hexafluoride
SDI	Shack/Slum Dwellers International
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WMO	World Meteorological Organization
WTO	World Trade Organization

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1 | Introduction

> The world's wealthiest countries have emitted more than their fair share of greenhouse gases. Resultant floods, droughts and other climate change impacts continue to fall disproportionately on the world's poorest people and countries, many of which are in Africa. (Archbishop Desmond Tutu)

> Africa is the continent that will be hit hardest by climate change. Unpredictable rains and floods, prolonged droughts, subsequent crop failures and rapid desertification, among other signs of global warming, have in fact already begun to change the face of Africa. (Dr Wangari Muta Maathai, 2004 Nobel Peace Prize winner)

> So finally today, there is an understanding that climate change is very real, it is happening and it is happening now. We can no longer consider it a threat that is yet to hit us; all over the world we see its impact. (Kofi Annan, opening address at the Global Humanitarian Forum, 2007)

Since 2006, climate change has become a major public issue. Everyone is talking about global warming, how to measure their carbon footprint, and whether it is still ethical to fly around the world. But what will climate change mean for different parts of the world – will some be winners and others losers? How will it affect the continent of Africa, and its many people who depend on farming or who have moved into its rapidly growing cities to find work, or whose incomes stem from the tourist economy? Will it hit rich and poor alike? And what kind of investment would help people and nations 'adapt' to climate change? Amid a rather sombre assessment of adverse impacts from global warming in many parts of the world, are there any opportunities that could

bring better prospects for some peoples, such as the growth in financial markets for carbon? And if so, how might African people gain access to such markets?

We live in a world in which our global interconnectedness has become ever more evident, as shown by the extraordinary and unexpected hike in food and commodity prices from late 2006 to mid-2008. Biofuel targets set by the European Union (EU), the USA and China, among others, are part of the reason for the doubling or tripling of prices. Some observers have portrayed this as the rich world choosing to channel limited food supplies into generating fuel for gas-guzzling cars, rather than nourishing the world's poor. While there may be some truth in this, there are many other forces at work, such as the drought in Australia, growing demand for food from nations such as China and India, speculation in commodities, and the imposition of food export bans by a large number of countries, leading to further hoarding and price increases.

Like global warming, the global 'food crisis' demonstrates yet again that we live on a single planet where our decisions impact, whether we like it or not, on people often in distant parts of the world. In 1972, Barbara Ward, philosopher and writer, who founded IIED, the organization for which I work, wrote a prophetic book, *Only One Earth*, which laid out only too clearly the choices open to us then. These choices are even more pressing now. Thirty-seven years ago, she argued that we faced the real possibility, for the first time, of making the planet unfit for human life, and she took, as an example, the oceans, into which people tip a cocktail of wastes, as though they had boundless capacity to absorb whatever we empty into them. Second, she pointed to the impossibility of everyone on the planet living with the consumption levels of the rich world. But this then poses a difficult question: 'What is to be reduced, the luxuries of the rich or the necessities of the poor?' Third, she noted that there are many issues of huge planetary importance which cannot be solved by nations acting alone. 'The relentless pursuit of separate national interests by rich and poor alike can, in a totally interdependent biosphere, produce global disasters of irreversible environmental damage.'

Only One Earth was published half a lifetime ago, but the message is only too pertinent to our position today. The way we structure ourselves into families, neighbourhoods and nations may help us to mobilize energy and action to defend ourselves or pursue some great ambition, such as space travel. But in the face of global warming, regardless of which part of the world we inhabit, these tribal affiliations make no difference to our ability to protect ourselves and those we love. All will be affected in differing ways. This fundamental mismatch between the global span of the climate system and the social and political constructions within which we plan, make decisions and allocate resources presents a great challenge for our political leaders and the people they are meant to represent. The shortness of the electoral cycle, fear of telling the electorate that we have been living beyond our means, and the need to weigh our wants against the needs of both poor nations today and the rights of future generations tomorrow, together make for a complex manifesto for any political party. It is much easier to focus on tax cuts today and increased spending on health next week. Currently, our politicians are only tinkering at the margins, with a yawning gap between their proud claims to be addressing climate change on the one hand and the timid budgetary allocations that are dwarfed by more immediate political priorities. As Tom Burke reminds us, 'The problem is neither the economics nor the technology: it's the politics.' The credit crunch and the economic downturn offer a much-needed breathing space in which to rethink patterns of growth, ways of measuring progress and the means to build more resilient systems at global and local levels.

The Stern report, *Review of the Economics of Climate Change* (2006), commissioned by the UK government, showed that early action to cut emissions of greenhouse gases (GHG) makes much more sense than waiting for another decade or two and then trying to adapt to the consequences. This is partly because there are time lags in the global climate system, which mean that, even were we to be successful in cutting emissions to zero today, another twenty to thirty years of warming are inevitable. The rising concentration of GHG in the atmosphere will bring ever rising global temperatures,

as described in more detail in Chapter 2. The longer we leave the cutbacks in GHG, the bigger the rise in temperature, the larger the adverse impacts and the more costly it will be to bring down emissions. Stern argues we should start now to make the necessary investments over a period of time which will lead us to a low-carbon economy at a manageable pace. We cannot afford to wait and risk the uncertain and potentially catastrophic impacts of climate change (Stern 2009).

Scientists can only give us a range of predictions on how different GHG concentrations will feed into higher temperatures, because of the difficulty of modelling the complex systems that make up the different levels of the atmosphere and its interlinkages with land and sea. There are also some concerns that global warming may feed back into further accelerating the rise in GHG and temperatures. These include the possibility of the methane currently trapped in the frozen Siberian tundra being released as northern Russia starts to warm up. This tundra is estimated to contain 70 billion tons of methane. If even a small fraction of this escapes, it will eclipse the estimated 600 million metric tons of methane that are emitted each year, from natural and human sources, and cause a dramatic acceleration in global warming. Equally, as the world warms, there will be limits to how much CO_2 can be absorbed by the soils and oceans. Normally, land and water act as a 'sink' by absorbing CO_2 from the atmosphere but, with rising temperature, these sinks may start to act as 'sources', releasing rather than absorbing GHG.

This book outlines what research tells us about the likely impacts of global warming on the African continent. Written for a mainstream audience, it tries to avoid technical language and argument, while recognizing the uncertainties inherent in modelling global climate systems and predicting how they play out on the ground. It starts from a recognition that, while no body of science can provide all the answers, the college of scientists in the Intergovernmental Panel on Climate Change constitutes the best foundation for understanding what is happening to the world's climate. Set up in 1988, the IPCC prepares an assessment

of knowledge about climate change every four to five years, drawing on existing peer-reviewed literature. The fourth and latest IPCC assessment report dates from 2007 and concludes for the first time that the evidence of man-made global warming, linked to emissions of GHG, is now incontrovertible. Because the IPCC works on the published literature, it is inevitably working with material that is two to three years old. Scientific evidence emerging over the last two years indicates that the process of global warming is happening faster than the IPCC report suggests, and global emissions of GHG are even higher than the most pessimistic of the scenarios outlined in the report. While one or two climate sceptics describe the IPCC as alarmist, much well-informed opinion worries that – in their attempt to be cautious in their interpretation of the evidence – the IPCC's fourth and latest assessment report underestimates the risks of runaway global climate change we now face.

The year 2009 is a critical period for making progress in addressing climate change, with the hope that agreement will be reached on a new global treaty at the Copenhagen climate conference in December. As a successor to the current Kyoto protocol, which runs out in 2012, this treaty will need to establish new and more binding targets for cutbacks to GHG among rich countries. It will need to offer a variety of options for helping other countries, such as India, China and Brazil, move to a pattern of economic growth that minimizes their GHG emissions in future. Science tells us that global emissions of GHG need to fall by at least 50 per cent by 2050, in comparison with 1990 levels, if we are to limit the risk of dangerous climate change. Developed countries will need to commit to cutting emissions by 80–90 per cent by 2050 in comparison with the 1990 baseline. Developing countries with major emissions, such as China, India, South Africa and Brazil, will need to set targets in advance of 2020, if global emissions are to peak and then fall in time. Such long-term targets and credible interim goals will help firm up the price to be paid for carbon reductions, which will act as a strong, positive incentive for a wide range of new technologies. Stern (2009) outlines a number of other elements that would need to form part of the deal, which include developed

countries demonstrating that they can achieve low-carbon growth and provide resources and technologies to developing countries to help them follow suit, offering a cost-effective means of reducing deforestation, and supporting vulnerable countries in adapting to the impacts of climate change.

It is hoped that the Copenhagen summit will produce a text along these lines, but most observers recognize that we are currently a long way from reaching an agreement of this sort. The election of Barack Obama as US president offers much greater hope of progress in reaching a climate agreement, given his statements and the appointment of serious scientific advisers in his administration. The high price for oil and gas up to mid-2008 brought about a significant cutback in demand for big cars and made renewable energy sources much more competitive. These trends have now been reversed, however, given the collapse in oil prices and financial difficulties facing investors. The growth in carbon markets has established a mechanism for seeking out carbon emission reductions in different sectors, and different regions of the world. This has generated a new constituency of interests in obtaining a successful post-Kyoto treaty, which can start to provide a counterweight to the very powerful set of vested interests linked to the fossil fuel economy.

On the other side of the coin is the lack of ambition from politicians and governments. European governments, which see themselves as at the progressive end of the climate change negotiations, are still far behind what many businesses and citizen groups would like to see achieved in terms of emission cuts. The global credit crunch and economic slowdown in North America and Europe have increased budget deficits, and have made people feel poorer and more vulnerable, while the breakdown of the WTO negotiations has sent out a signal that many governments are more interested in narrow domestic interests than gaining an equitable global agreement. Climate sceptics have been sowing the seeds of doubt, pandering to the self-interest of those who want no change in current arrangements. Globally, our economies remain firmly wedded to oil and gas as the fuels that keep our economies working

and growing, with all the associated infrastructure of refineries, pipelines and road systems. The big oil and gas giants, eight of which are among the top twenty publicly quoted companies, are powerful actors able to lobby for their interests at national and global levels. Oil-producing countries and companies have a very strong interest in maintaining the status quo of the fossil fuel economy, and ensuring a return on their continuing investment in the steel and concrete needed to service the extraction, processing and distribution of oil.

Where does the African continent sit in relation to these global trends and debates? In some ways, the diversity to be found within Africa's landmass and its enormous size make generalizations impossible. With a surface area of 30 million square kilometres, Africa is seven times larger than the current EU and three times the size of China. But despite this evident diversity in people and place, there are some important common features, including continued heavy reliance on natural resources and agriculture, low levels of income per head, and consequent marginalization in global political affairs. With high levels of inequality, and limited government capacity to deliver services to the majority of people, many states serve the interests of an elite, especially where mineral or oil wealth generates significant riches. Apart from the North African region and South Africa, there has been limited industrialization, and even this is threatened by the huge strength of the Chinese manufacturing sector, with its capacity to produce enormous volumes of low-price goods. Hence, in terms of the world economy, African countries remain largely a source of raw materials and agricultural commodities.

As regards climate change, Africa also stands out as the continent that has contributed the least amount of greenhouse gases to the atmosphere in terms of current flows and existing stocks. For example, for 2007, which is the most recent year for which full data are available, per-head emissions of CO_2 for all of Africa stood at 1 tCO_2 (tonnes of CO_2), in comparison with a world average of 4.3 tCO_2, a US figure of 19.9 tCO_2, the EU15 (the fifteen countries in the EU at the start of 2004) with 6.9 tCO_2 and China