

Why Are We Waiting? The Logic, Urgency and Promise of Tackling Climate Change. By Nicholas Stern. MIT Press (2015). Hardback. ISBN-10: 0262029189, ISBN-13: 978-0262029186. 448 pp.

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[Author's manuscript version]

In *Why Are We Waiting?* (a follow-up to his well known *Review* of 2006), Nicholas Stern assembles arguments that rapid and radical reductions of greenhouse gas emissions are needed to limit global warming to 2 °C above pre-industrial temperatures, and wonders why progress is so slow.

Stern argues that as greenhouse gases accumulate in the atmosphere, temperatures will rise beyond those experienced on Earth for millions of years. Allowing this to happen 'will lead to chaos, conflict, and destruction toward the middle and second half of this century', which 'could include hundreds of millions of people having to move, with the associated risks of severe and extended conflict' (pp.303 and 304). To avoid or reduce such risks, greenhouse gas emissions must be almost eliminated by the end of the 21st century, and electricity generation made carbon-free much sooner. He argues that delay is dangerous for two reasons. First, because most greenhouse gases (particularly CO₂) are long-lived in the atmosphere and so gases emitted today will have effects far into the future and second, because the choices made today as countries build or renew energy infrastructure, expand cities, and design transport systems will not be easily reversed. According to Stern, paths to a low-carbon economy are attractive and lead to economic growth and to many co-benefits, as in the case of other waves of innovation (such as computers, the internet, and medical science) over the last 250 years.

The first nine chapters of the book assemble scientific, moral, and economic evidence to support his arguments. The tenth chapter addresses the question posed in the title, to which I will return. The evidence is wide-ranging and extensively footnoted. Stern is, however, selective in his choice of data. He frequently ignores mainstream scientific evidence (such as that found in the authoritative reports of the Intergovernmental Panel on Climate Change (IPCC)) in favour of outlying estimates. For example, 'current projections suggest a 2-meter sea level rise might occur sometime by the end of the century' (p.137) is more than double the highest IPCC estimate and is only cited as an outlier by the World Bank report that Stern gives as a source.¹ And his unreferenced claims that '...the absorptive capacity of the planet, particularly the oceans, is less than expected ... [and] methane release from thawing permafrost is accelerating...' (p.12) are

¹ The IPCC's estimate is 0.45–0.82m by 2100 under the highest emissions scenario (IPCC 2013, Table SPM.2). Stern cites the World Bank report *Turn Down the Heat* for his estimate (see Stern p.11); that report explains, however, that although the figure of 2m can be obtained by some modelling approaches, that high-end figure was not in fact used in the report, which instead used a range of 0.5–1m. (World Bank 2012 p.xv and pp. 29-31).

not supported by mainstream scientific evidence.² He is similarly pessimistic about the societal impacts of climate change. The link between climate and conflict is far from clear-cut, as the IPCC report demonstrates,³ but Stern does not attempt to provide a balanced view, stating that ‘climate change can, and does, kill people either directly or through the conflict it can cause’ (p.199). Similarly, Stern is highly critical of current economic models for not being alarming enough about the possible future costs of climate change.

Although pessimistic about the potential impacts of climate change, Stern is optimistic about policy benefits, in some cases misleadingly so. It is not credible to suggest, as he does on p.79, that solar photovoltaic (PV) systems allow women to ‘spend less time in the often dangerous activity of collecting and transporting biomass over long distances.’ The type of small-scale solar PV he describes is a good way to supply electricity for lights, phone and internet access to remote communities, but it is fanciful to suppose that such systems can provide enough power for cooking, which is the major use of such ‘biomass’.

While Stern makes much of the health risks of air pollution – which are indeed severe – he attributes such pollution almost entirely to burning coal. This allows him to argue that moving away from fossil fuels would bring major health and economic benefits.⁴ But those ‘co-benefits’ are not as straightforward as he implies. Although coal is a major contributor to air pollution in some countries (notably China), in many other countries domestic cooking stoves and vehicles are larger contributors. The World Health Organization estimated that household air pollution (mainly from cooking stoves burning ‘biomass’ such as wood, crop-wastes, and dung) accounted for over 4 million deaths in 2012 (1.6 million in South-East Asia), over half of all deaths from air pollution (WHO 2014a and 2014b, Bonjour et al. 2013). Such pollution is not reduced by closing coal-fired power stations or limiting access to affordable fossil fuels, and may even be exacerbated. The International Energy Authority (IEA) calculated that giving the poorest households the opportunity to cook with liquid petroleum gas would lead to large global health benefits at moderate cost in both financial and CO₂-emissions terms (IEA 2006). Thus, many of the co-benefits that Stern assumes will accompany decarbonisation can be provided more directly.⁵

Stern’s suggested policies to combat the risks of climate change draw on a recent report by the Global Commission on the Economy and Climate of which he is co-chair. That report argues that the major structural transformations – of cities, energy systems, and land use – that are already taking place due to urbanization, population growth and so on, must be ‘managed effectively’ in ways that lead to a sustainable future. We can hardly argue with that aim. But the policy instruments that Stern invokes – ‘country commitments’ of increasing ambition – reveal his optimism about the power of government to manage transitions effectively – an optimism not shared by all (e.g. Scott 1999). Management by targets (effectively the ‘commitments’ Stern suggests) often produce unintended consequences, behaviour distortions, and

² The most recent IPCC report (IPCC 2013, WGI, Table 6.1) shows both land and ocean absorbing more CO₂ as atmospheric concentrations rise, in line with expectations. Higher temperatures are expected to affect that uptake in a predictable manner. Chapter 2 of the same report states that no sustained acceleration of methane (CH₄) release from permafrost has been observed, citing Dlugokencky et al., 2009, which said ‘the Arctic has not yet reached a point of sustained increased CH₄ emissions from melting permafrost and CH₄ hydrates.’

³ IPCC 2014 (WGII Chapter 12 p772) ‘Confident statements about the effects of future changes in climate on armed conflict are not possible given the absence of generally supported theories and evidence about causality.’ See also Gleditsch and Nordås (2014) for a more extensive discussion.

⁴ For the link between air pollution and GDP, Stern repeatedly cites a study (‘Hamilton 2014’) that has not been made publicly available.

⁵ See Bollen et al. 2009 for a more extensive discussion of this point.

gaming strategies (Hood 2006). We can see examples of gaming already, for instance, in endeavouring to meet energy intensity targets at the end of the most recent 5-year plan, several districts in China limited the electricity supply to hospitals and homes, prompting the national government to ban such practices (Wang 2013, Oster 2010). As a member of the House of Lords, Stern must be familiar with the dilemmas that policy choices embody and the inevitable trade-offs that they imply, but he gives them no space in his book. He does not discuss the risks of climate *policy* (as opposed to climate itself), which are becoming apparent. For example, diesel-engine cars have lower CO₂ emissions than petrol equivalents but lead to higher urban air pollution. Biomass, increasingly used to help countries meet their renewables targets,⁶ contributes to air pollution and forest degradation.

It may be possible, as Stern repeatedly asserts, to decouple economic development from (largely fossil-fuelled) energy use, but he gives no examples demonstrating that on a national scale. Even Stern admits that cutting emissions ‘may possibly slow growth’ (p.276). Previous ‘waves of innovation’ did not all lead to prosperity and co-benefits – some turned out to be bubbles that left little of value behind. Stern is not the first to suggest that better technologies for energy generation and storage are needed or to propose a major research effort into renewable energy (see e.g. Prins et al. 2010, Pielke 2010). But Stern’s optimism that ‘energy efficiency can do something close to half of what is needed’ (p.50) should be tempered by considering that the IEA reports he cites show that gains of that magnitude depend on major transformations such as substantial electrification of transport and industrial processes.

Stern finally turns in Chapter 10 to consider the question in his title ‘*Why Are We Waiting?*’, attributing the lack of action to factors such as ‘a communication deficit’ and ‘psychological barriers.’ He suggests that communicators are needed who appeal to and are trusted by particular sections of the public. Those communicators should not only be scientists and political leaders but include ‘actors, celebrities, and sports stars’, religious leaders, academic societies, the medical community, royalty and so on. The media should make the most of every ‘weather extreme’ to explain climate change risk. But this chapter feels substantially disconnected from the rest of the book. The communication strategies that Stern advocates are aimed at individuals, specifically those individuals in developed countries he considers insufficiently worried about climate change, while the rest of the book is about how major transformations such as energy generation and urbanization might be managed by governments.

Stern gives little indication of what those individuals are meant to do, apart from a vague injunction to ‘support climate action.’ But considerable support already exists. A large majority of the public in both the UK and USA (which, as Stern notes, are among the most sceptical countries) is in favour of cutting CO₂ emissions and supports expansion of renewable energy.⁷ Whatever communication opposing climate action may have achieved (communication that Stern describes as ‘more effective’ than that in favour of action, although he gives no examples), it has not shifted public opinion away from climate action. Climate marches take place regularly in many developed countries. Public pressure via the Friends of the Earth’s ‘Big Ask’ was instrumental in achieving the UK Climate Change Act (Carter and Jacobs 2014). It is not clear what more politicians could do if public opinion increased from its present levels of about 74% in favour of regulating

⁶ In 2014, bioenergy accounted for 39%, and plant biomass over a fifth, of the UK’s renewable (non-hydro) electricity generation <https://www.gov.uk/government/statistics/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes> (Table 6.4).

⁷ US public opinion: <http://environment.yale.edu/poe/v2014/> UK public opinion: <https://www.gov.uk/government/collections/public-attitudes-tracking-survey> (Wave 13).

CO₂ (as in the US in 2014) or 80% in favour of renewable energy (in the UK). Radical policies have been enacted with much lower levels of support – consider same-sex marriage in the UK, or US healthcare reform. A clear majority of the public is convinced of the risk of climate change and supports climate action. So what is delaying a wholesale switch to a low-carbon economy? Stern provides no satisfactory answer to that question.

If Stern is right about the need to win over public opinion, advocates need to present the evidence fairly, transparently, and impartially. For all his strictures on ethics and moral principles, Stern is not above being selective with the evidence, as we have seen. Even in his own words, Stern makes clear that he does not view objectivity as an overriding concern. As he writes on p.207, '[t]o be effective, some economists and scientists may have to become directly involved in the processes of practical decision-making and advice. It is, of course, a challenge to do this and retain some objectivity, but the alternatives may be irrelevance or gross misuse of the work.' Perhaps following his own advice on communication, Stern often chooses to appeal to the reader's emotions. He implies that not caring about deaths due to climate change (described as 'extremely unpleasant' on p.199) is somehow worse than not caring about other premature deaths.⁸ He contrasts high-carbon infrastructure ('often unreliable, dirty, costly and corrupt') with the transition to low carbon growth ('can ... be one of greater inclusiveness and stronger communities' and '[r]ecycling and reusing draws communities together' (p.80)). One might equally (un)fairly say carbon markets are 'infested by corruption'⁹ or that many polluting fires occur at recycling plants.¹⁰ He will not win over his critics by saying that they must 'demonstrat[e] ... that the risks are small' (p.305) while citing extreme risks that are not found in the mainstream literature.

In assessing Stern's avowedly biased book, readers must confront their own biases. Is Stern right to be so pessimistic about climate change and the inability of nations to build up resilience through economic development? Is he right to be so optimistic about the ability of governments to predict and manage change? If he is correct, we need more than 'communication strategies' to meet this challenge – we need arguments that do not rely on a selective presentation of the evidence, and solutions that take into account the physical, chemical and engineering challenges that our collective demand for energy requires. Governments regularly implement costly and unpopular policies if they are convinced that they will be effective. The lack of 'action' suggests that such policies are not (yet) available.

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⁸ Stern notes that some 150,000 deaths were attributed to climate change in 2000 (WHO 2002). He does not point out that, according to the World Health Organization's methodology, this was calculated as a small proportion (about 3%) of causes such as under-nutrition, malaria and diarrhoea, all of which are preventable or treatable, and which are falling globally as countries develop.

⁹ <http://www.theguardian.com/sustainable-business/blog/why-are-carbon-markets-failing>

¹⁰ <http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm130708/text/130708w0001.htm>

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