

How to avoid a climate disaster: the solutions we have and the

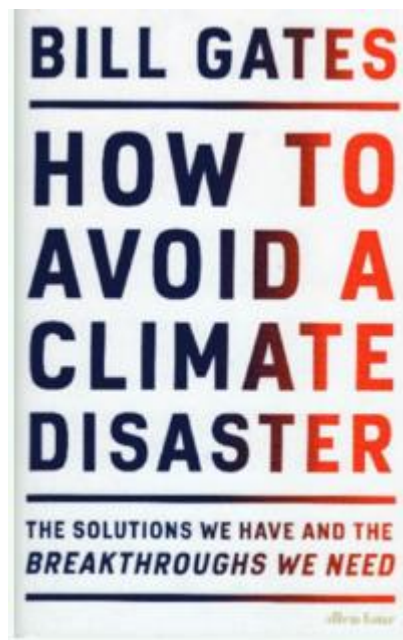
Bill Gates, 2021

Allen Lane (Penguin Random House, UK)

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Bill Gates is a self-confessed technophile, and this book is a no-nonsense technical appraisal of the current climate crisis situation and a clear-eyed proposal to get to zero carbon emissions by 2050. We are asked to keep two numbers in mind: 51 billion and zero. The first is the number of tons of carbon dioxide equivalent (CO₂e) that we are emitting annually and the second is where we must get to by 2050 to avoid the impending climate disaster. The task will not be easy, fossil fuels and their derivatives are all pervasive in our lives as they are used to produce plastics, fertiliser, steel, synthetic fibres, cement and fuel. Given that oil is cheaper than Coca-Cola, producing green alternatives that are as cheap, or cheaper, is an uphill task. But, insists Bill, doable.



The main sources of emissions (and their percentage contributions to the 51 billion tons of CO₂e) are: making things (31 percent); electricity generation (27 percent); agriculture (19 percent); transport (16 percent); and heating and cooling (7 percent). These are discussed in detail and the Green Premiums (additional costs over fossil fuelled sources) are estimated for carbon-free alternatives. Our immediate and urgent task is to work to reduce these Premiums to zero or less. We have some of the answers (eg solar, wind and, arguably, nuclear fission), but others (eg nuclear fusion, better batteries, and carbon capture and storage) require considerable investment.

The chapter on 'How we grow things' is possibly the section of greatest interest to Ag4Dev readers. It highlights the problem of animal production as a major contributor to the agriculture and forestry sector greenhouse gas (GHG) emissions. The main culprit is not CO₂ but methane (28 times more warming potential) and nitrous oxide (with 265 times more warming potential than CO₂). The problem is getting worse as the world's population expands, becomes richer, and prefers meat and dairy products. The planet's one billion cattle produce four percent of global GHG emissions; and that is before the dung contribution is factored in. Better breeds, less consumption, and plant-based or cultivated meat are among the solutions. As is a reduction of wasted food products which are as high as 40 percent in the USA. The chapter also deals with fertiliser production (with new nitrogen-fixing crops as a possible solution) and deforestation, which has largely political overtones. Bill is an admirer of CGIAR and urges

increased funding for research and development (R&D) to produce the innovations so desperately needed, especially by the world's 500 million smallholder farmers. The book emphasises the importance of government policies for reducing emissions and getting to net zero; it also sets out seven clear goals for governments to achieve. These are: investment in clean energy R&D when the private sector will not invest; levelling the playing field by including externalities in the price of fossil-fuel produced energy; overcoming non-market barriers (eg a lack of information on clean alternatives; trained personnel, and incentives); keep up to date; plan for a just transition (eg compensation for the losers in the fossil fuel industries); do the hard stuff (electricity storage, steel, concrete and fertilisers) and not just go after the low-hanging fruit (electric vehicles, solar and wind); and work on technology, policy and markets at the same time – they are complementary components of the solution.

Perhaps the loudest message is the need for international cooperation and collaboration. The climate crisis is a global concern requiring global solutions and geopolitical suspicion has no role to play. Bill's 'plan for getting to zero' has been produced with perfect timing as we approach the United Nations Climate Change Conference (COP26) in Glasgow in November this year. The book offers clear advice on precisely what we all need to do, now, to reach zero net emissions by 2050 and, with the US back on board, has the potential to have a major impact on the Conference. A Green New Deal (see 'Bookstack', Ag4Dev39, Spring 2020, p44–45) is within reach and we have, perhaps, one last chance to grasp the opportunity. Let us hope that this time the message is listened to, taken seriously and acted upon.

Brian Sims

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