

SPRING BOOKS

Could climate change capitalism?

Economist Nicholas Stern's latest book is a rare and masterly synthesis of climate-change science and economics. His 'global deal' could change capitalism for the better, says **Robert Costanza**.

A Blueprint for a Safer Planet: How to Manage Climate Change and Create a New Era of Progress and Prosperity

by Nicholas Stern

Bodley Head: 2009. 256 pp. £16.99



When economist Nicholas Stern released his 700-page review of the economics of climate change for the UK government in 2006, it fundamentally reoriented discussions of the subject. The review opened the way for a broader, more realistic and more relevant approach than economists had provided until then.

In his new book, *A Blueprint for a Safer Planet*, Stern takes things further and lays out a roadmap for managing the climate crisis. He devotes much of the book to describing basic characteristics of the climate problem, including our current scientific understanding of the Earth system and humanity's role within it, the dangers posed to human societies by climate disruption, and the inherent uncertainties of climate change and how we can best deal with them. He raises thorny but unavoidable ethical issues, such as how we should weigh up the possible costs and benefits of climate change now and in the future — known as discounting. He explains what policies we should adopt to reduce greenhouse-gas emissions and what we can learn from current good practice in reducing them.

Although much of this material is well known, Stern presents an up-to-date, logically argued synthesis, using a style that makes his book more intelligible than many others on the topic. For example, he masterfully explains the advantages and disadvantages of two of the main mechanisms proposed for limiting emissions. One is a carbon tax that would charge



polluters based on the emissions they produce. The other is 'cap, auction and trade', in which a global emissions limit, or cap, is internationally agreed, permits to emit are auctioned, and holders then buy and sell the permits.

Stern clearly describes the trade-offs between the price certainty of a tax and the quantity certainty of a cap system, emphasizing that "we cannot have both price and quantity certainty in an uncertain world". He also points out some less obvious characteristics of each option, such as how caps "allow international private-sector flows of carbon finance from rich to poor countries", and how they might deal better with the oligarchic, price-manipulating nature of the oil and gas industry than a tax would. He concludes that a mix of policies will be necessary,

but that a clear understanding of the inherent trade-offs is needed to optimize this mix.

Stern's treatment of the issue of discounting the future is also exemplary. The main criticism of the *Stern Review on the Economics of Climate Change* came from a few economists who disagreed with the low discount rates it used to handle this issue. Discounting is about how much weight we should give to costs and benefits that occur in the future, relative to the present. The high discount rates of around 3–6% used by some economists may be useful for comparing small-scale public investments, such as bridges or roads, but are totally inappropriate for issues such as climate change. At 6%, any impacts that might occur more than 50 years in the future are negligible. Stern clearly

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NEW IN PAPERBACK



Supercontinent: Ten Billion Years in the Life of Our Planet

by Ted Nield (Harvard Univ. Press, \$18.95)

Geologist Ted Nield gives a thorough account of Earth, from long before Pangaea to far into the future. "To handle it without oversimplification or getting lost in a maze of detail is no small accomplishment," wrote David Oldroyd in his review of the hardback edition (*Nature* 449, 540; 2007).



Earth Under Fire: How Global Warming is Changing the World

by Gary Braasch (Univ. California Press, £14.95)

Award-winning photojournalist Gary Braasch supplies breathtaking imagery of the effects of climate change. He includes personal accounts from eyewitnesses and researchers, together with the best evidence available, to give a refreshing and intelligent take on this well-covered field.

describes the ethical basis for discounting, and puts to rest criticisms of the low discount rates used in the *Stern Review*.

The essence of *Blueprint for a Safer Planet*, however, is the chapter in which Stern outlines the structure of a proposed global climate deal. He bases his argument on three guiding principles: effectiveness, efficiency and equity. His suggestions are complex and interrelated, and he emphasizes that they are an integrated package, not a menu from which selections can be made. Stern also stresses that no deal will work without true international collaboration.

His proposal focuses on six elements: targets for emissions from rich countries and world emissions; targets for developing countries; an effective international emissions-trading regime; combating deforestation; technological advances to reduce emissions; and overseas assistance to help developing countries adapt to climate change.

Stern proposes global targets for cutting emissions by half by 2050, relative to 1990 levels, with developed countries acting first and more aggressively with cuts of around 20–40% by 2020 and 80% by 2050. Developed countries

would demonstrate the feasibility of 'low-carbon growth', share technologies with developing countries and implement trading and financial mechanisms. Based on the successful example of these countries, developing countries would commit to targets by 2020, reaching a target of 2 tonnes of carbon per capita by 2050.

Stern's global deal contains all the right elements. We need targets, but as we learn more we may discover that even bigger cuts are required to avoid major climate impacts. We will need enforceable caps coupled with a rate of decline that can be adjusted over time. We must also combat deforestation, effectively spread new technologies and directly assist developing countries with adaptation, but the challenge is how to do all this in a coordinated, focused and sustainable way.

Stern recognizes that this will be costly and complicated to achieve in practice. As the former chief economist of both the European

Bank for Reconstruction and Development and the World Bank, he has long experience of multilateral institutions and recognizes that existing ones are not up to the task. Under the current arrangements, there is no single authority that is responsible for ensuring compliance with climate commitments. Similarly, there is no international funding mechanism dedicated to climate change. Although Stern is hesitant to recommend new institutions, which are costly to set up and run, he has learned from experience that "coherence within climate-change activities is of great importance and without a clear primary responsibility in one place it would be very elusive", noting that "priority would slip relative to other shorter-term issues in ... other organizations". The design of this new global institution is not addressed, however.

One institutional design that might meet all of Stern's criteria, as well as alleviate poverty, is the 'Atmospheric Trust' proposed by Peter Barnes and others (P. Barnes *et al. Science* 319, 724; 2008). Such a trust would use a cap, auction and trade system, reducing the cap over time to stabilize greenhouse-gas

concentrations at the desired target. A fraction of the revenues would be returned as 'dividends' on a per-capita basis to everyone on Earth. This would directly address poverty issues. The rest would be invested in protecting and enhancing the atmospheric asset — as proposed in Stern's global deal — using initiatives such as payments for the carbon-sequestration services of forests to combat deforestation, investment in open-access renewable-energy technology to reduce emissions and direct assistance to developing countries for adaptation to climate change.

One fundamental shortcoming of the book, however, is its uncritical acceptance of economic growth as the only path to future prosperity. Stern acknowledges that any future growth must be 'low carbon', but fails to recognize that conventional economic growth is merely a means to the goal of sustainable human well-being. Economic growth is not — and should not be — an end in itself.

There is evidence in developed countries that economic growth beyond a certain point does not improve well-being, owing to the hidden, external costs of that growth, including climate impacts. For example, an oil spill increases gross domestic product (GDP) as someone must pay to clean it up, yet it detracts from well-being. Increased crime, sickness, war, pollution, fires, storms and pestilence are all positive for GDP because they increase economic activity. We need to move beyond GDP as a measure of well-being — something for which it was never designed — and develop and use better indicators of sustainable quality of life. Proposed alternatives include the Genuine Progress Indicator and Gross National Happiness, as used in Bhutan in south Asia, but we need to build a broad global consensus on alternative measures to move forward.

Stern may not fully recognize that a global deal for climate change has positive implications for global capitalism. The deal will require a new, more nuanced suite of property rights and responsibilities that give adequate weight to 'the commons' — public goods such as the atmosphere that are open-access but need to be assigned appropriate property rights so they can be protected. We cannot, and should not, assign private property rights to this inherently common asset, but a global institution that charged for greenhouse-gas emissions would at least implicitly assign such common rights.

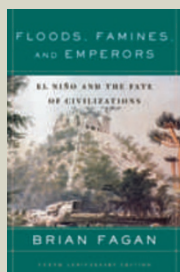
The key is to find the right balance between private and common property while protecting the commons. Neither socialism, in which most property is common, nor capitalism, in which most is private, have dealt adequately with open-access commons because they have failed to get this balance right. The meltdown of these economic systems presents the opportunity to find a new balance that will help us lay the path to sustainable prosperity. ■

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See Editorial, page 1077.

Listen to an interview with Nicholas Stern at www.nature.com/nature/podcast.

"A global deal for climate change has positive implications for global capitalism."



Floods, Famines and Emperors: El Niño and the Fate of Civilizations (Tenth Anniversary Edition) by Brian Fagan (Basic Books, \$17.95)

First published in 1999, Brian Fagan's book charts the discovery of El Niño — the Pacific ocean-atmosphere oscillation underlying freak weather events — and shows how climate change affected ancient civilizations. In describing how they coped, or not, Fagan highlights the problems we face in dealing with climate change today.



American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer by Kai Bird and Martin J. Sherwin (Atlantic Books, £9.99)

This impressively researched and well-written book explores the life of nuclear physicist J. Robert Oppenheimer, covering the different sides of his personality and his rise and fall in society. Bird and Sherwin provide a thorough exploration of the science and politics of the nuclear age.