

implementation phase. This is a novel and very promising contribution to the literature on norm diffusion.

The heavy focus on contestation raises two questions, however. First, what exactly is contested here? Is it really a new understanding of the norm of impartiality that is contested or is it the UN's embrace of human rights-related norms, such as PoC or RtoP? Often, the contestation that Paddon Rhoads describes revolves around the objective to protect civilians in complex and messy humanitarian emergencies. It seems, therefore, that the real controversy pertains to the UN's efforts to promote and protect human rights, rather than to the norm of impartiality. While Paddon Rhoads treats these human rights norms as part of the substantive component of impartiality, it is not clear that this helps to accurately capture the nature of the contestation. It also raises the question of whether the procedural and substantive components of the norm of impartiality are of equal importance.

Second, how much contestation can a norm take? If "assertive impartiality" is so heavily contested and in fact only promoted by a handful of states, as Paddon Rhoads demonstrates, is it still a norm? In her

excellent discussion of the role of norms in international relations, she explains that norms are social facts. Norms exist and exert an influence only because they reflect beliefs that are held intersubjectively. But how much intersubjective agreement is required for an idea to be considered a norm? If "assertive impartiality" is advocated by three permanent members of the UN Security Council (the United States, the United Kingdom, and France) but resisted by most other states and even parts of the UN Secretariat, as Paddon Rhoads shows, should we still treat it as a norm in the sense that it reflects intersubjectively held beliefs?

Such questions aside, *Taking Sides in Peacekeeping* is an outstanding book and a must read for scholars and practitioners interested in the role of norms in international relations, UN peacekeeping, human rights, and the DRC.

—RUBEN REIKE

Ruben Reike is a post-doctoral research fellow at the European University Institute, where he works on a project funded by the European Research Council titled "The Individualisation of War: Reconfiguring the Ethics, Law, and Politics of Armed Conflict."

The Planet Remade: How Geoengineering Could Change the World, Oliver Morton
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Economics is little more than organized common sense. Trade-offs, then, are among the most commonsense aspects of life as we know it. Unconstrained maximization might

appear as a theory on a pure math exam, but in economics—as in life—constraints are everywhere. One of the most consequential is how much carbon dioxide the Earth's

atmosphere can hold. Another is our political and technical ability to transform global energy infrastructure fast enough to avoid bursting through the carbon constraints.

Oliver Morton begins *The Planet Remade* with a clear statement of how these constraints matter. In fact, he not only tells us but allows his readers to discover the trade-offs by asking two pointed questions: (1) *Do you believe the risks of climate change merit serious action aimed at lessening them?* (2) *Do you think that reducing an industrial economy's carbon dioxide emissions to near zero is very hard?* (Full disclosure: I am partial to this approach. I begin my own book, *Climate Shock*, co-authored with Martin L. Weitzman, with the same "pop quiz." In fact, we cite each other, plus the pioneer of this quiz, Princeton physicist Robert Socolow, who has asked similar questions in his lectures and talks to great effect for years.)

These two competing constraints set the appropriate tone for the book, firmly grounded both in science and in real-world political conversations. Importantly, both constraints are binding—a fact that makes for few easy answers. Trade-offs are everywhere. But perhaps none is as important as those concerning the central question of whether solar geoengineering—that is, the process of deliberately increasing the reflectivity of the Earth in an attempt to cool it—ought to be part of society's climate policy portfolio.

The Planet Remade speaks particularly to environmentalists. If you consider geoengineering to be absurd or simply unprecedented, you ought to read Morton's description of how the debate fits into—and, in part, breaks with—historical context. Morton educates, illuminates, and helps the reader connect the dots, but he does not take sides. Instead, he elevates

the debate to a new level that, first and foremost, acknowledges the enormous trade-offs involved. "Absurd" might be an apt description, but absurd compared to what? Is it absurd compared to unmitigated climate change? Compared to past human interventions into life on Earth?

Morton goes to great lengths to introduce us to the far-reaching human interference in the nitrogen cycle, which has enabled us to produce ammonia and, ultimately, fertilizer through what is known as the Haber-Bosch process. This process has been used for enormous good. It has also come at great cost. Along a number of dimensions, the process has arguably done more to modify the global nitrogen cycle than the sum of human interference has done to the carbon cycle.

Amazingly, humans have already had more of an influence on the sulfur and sulfates cycles through pollution than solar geoengineering ever will. Air pollution in the lower atmosphere kills three to six million people a year. It must be reduced. However, sulfates in the lower atmosphere do not just kill people; they also (inadvertently) cool the planet by reflecting a small fraction of sunlight back to space.

What then if the world was to stop burning coal, oil, and gas altogether tomorrow? Less carbon means lower temperatures over the long term—over decades or centuries. But less sulfates means higher temperatures immediately. So far, for example, Europe's slashing of sulfur emissions from smokestacks and tailpipes since the 1970s has resulted in higher Arctic temperatures of about half a degree Centigrade. This suggests that a small fraction of tropospheric sulfates deliberately injected into the stratosphere could help stabilize the effects from reduced emissions in the coming years and decades, while the full effect of

decreased carbon emissions materializes over decades and centuries.

Morton is careful not to present solar geoengineering as the solution. It is not. He instead asks usefully how and why it could be part of a broader climate change policy portfolio.

The climate change debate—or lack thereof—might be among the most consequential public policy conversations. It is also a rather stale one. The political Left and Right have staked out their grounds. Rare is the environmentalist who embraces nuclear energy. Rarer still is the one who takes a serious look at solar geoengineering. Similarly rare are those on the political Right who care deeply about climate change and appropriate policy interventions.

One important characteristic of solar geoengineering—and Morton's analysis of it—is that it has the potential to cut across party lines and usual alliances. Those still unconvinced that climate change is a problem at all, believing that seven billion human emitters cannot influence the world's climate, might conclude otherwise once learning that a single volcano can lower global average temperatures, as Morton describes. Those already convinced that the planet is experiencing a climatic emergency might find comfort in learning that not all policy approaches involve a decades- or centuries-long lag to show their effects. Conversely, simply knowing about solar geoengineering and its intended and unintended consequences might make both groups appropriately uneasy. It should also give both groups some measure of hope. Perhaps technology can help soften the blow, both of a changing climate and of a transition to more sustainable energy use. Morton sticks to his script here and does not assume an answer. He does, however, provide the

beginnings of a blueprint for how it could be done, going farther than prior publicly accessible descriptions of the topic.

Al Gore has stated with great effect that “political will is a renewable resource.” He is right, in principle, though in practice political will always faces constraints, which are all too real. Economists are quick to point out that the world has never—and will never—truly exhaust a nonrenewable resource like oil, coal, or gas. Rising extraction costs will dictate that the resource will be abandoned long before it is fully exploited. Meanwhile, the world has exhausted supposed renewable resources, such as fisheries and entire ecosystems that depend on a certain minimally viable stock to survive.

Whether or not it is possible to muster enough political will for timely action on climate change is subject to vigorous debate. Some argue the world has already run out of time, and that we must adopt an “emergency” mind-set in which society throws everything at the problem. Depending on your thinking, this may or may not involve solar geoengineering. But one thing is clear: the world cannot ignore the solar geoengineering option. Whether you believe that the “threat” of solar geoengineering itself is so large that it ought (finally) to lead to the political will to slash carbon emissions, whether you believe that the political and technical constraints on serious mitigation action make solar geoengineering inevitable, or whether you believe both positions are naïve, it is time for a serious public debate. *The Planet Remade* is required reading for any such conversation.

—GERNOT WAGNER

Gernot Wagner teaches climate policy at Harvard University. He is the co-author, with Martin L. Weitzman, of Climate Shock (2015).