



The Planet Remade: How Geoengineering Could Change the World. Oliver Morton. Granta Publications, 12 Addison Avenue, London, W11 4QR. 2015. 428 pages. Price: £20.

That the Earth is getting warmer slowly but surely and that there is not much the global climate negotiations have been able to achieve thus far, geo-engineering the planet to put a plug on rising temperature is beginning to gain serious attention. Despite its social, moral, technical and political pitfalls, discussions on creating stratospheric veil(s) to reduce influx of solar radiations have been projected as one of the most potent options for slowing down the process of global warming.

This concept is borne out of the harsh realization that not enough is being done to cut down global carbon emissions. Having risen from the pre-industrial levels of 280 ppm to a high of 400 ppm today and with projections that carbon dioxide in the atmosphere will double before the turn of the present century, options before mankind are limited by the extent of current technological prowess. Further, neither is our obsession with coal-fired power plants waning anytime soon nor are carbon-neutral technological options on offer as yet. Solar, wind and nuclear are possible decarbonizing substitutes but their scaling up poses a

formidable challenge. Should the world decide to replace coal-based plants with nuclear power, it would need to build one large nuclear power plant per week for the next two decades. If we were to think about solar instead, it would mean installing solar panels at the present rate for the next fifteen decades.

On top of it, the trouble with prevailing emission reduction approaches is that even if these are put to use, the global temperature will continue to rise because of already accumulated greenhouse gases up there, nullifying any potential impact of such interventions at the global scale. It is here that Plan B of mimicking large volcanic eruptions, which inject huge quantities of sunlight-reflecting aerosols into the atmosphere, has been brought into consideration. Reference is made to the Philippines' Mount Pinatubo eruptions of June 1991 in the context of geo-engineering, which caused the average global surface air temperature to cool by about 0.5% between 1991 and 1992. What nature can do, mankind can do better! 'Using the slowed warming as a breathing space in which to deploy more and better zero-emission technologies would be a good strategy', argues the accomplished science writer Oliver Morton. Since the planet has been remade, is being remade, and will be remade in future, what stops science to take nature into its own realm?

It is a vexed question that cannot be clearly answered till the working of the earth system is understood in its entirety. That the natural system is anything but linear is at the root of getting a sense of geo-engineering predicament in affecting desired effect. Even the veil produced by Pinatubo has not been well understood, in terms of the total volume of volcanic dust it spewed into the atmosphere, the composition and size of different particles, and the interaction between them in space. Yet, Morton, after whom Asteroid 10716 has been named, examines the issue from diverse cultural and scientific perspectives in suggesting that geo-

engineering be given more anticipatory consideration such that its impacts and implications are better understood.

The Planet Remade is an authoritative take on the issue, backed by evidence on manipulating various natural cycles (viz. nitrogen, carbon and sulphur) as a precursor to taking a calculated risk with geo-engineering. To affect such a change at the planetary scale would warrant a governance mechanism that takes into account the geographical specificity of the unintended effects. Those who fear that geo-engineering will do more harm than good feel it on the ground that the atmosphere matters differently to people located in vulnerable areas like the shores and the deserts. Further, the most powerful countries have vested interest in manipulating the atmosphere in their favour at the cost of the vulnerable states.

Morton is a stylish writer who organizes the text on a technical subject with such finesse that it makes for engaging reading. He presents multiple dimensions of the issue for an informed public debate. Those geo-engineering solutions are likely to persist in the global policy arena; there is no choice but to take them seriously at all levels. Far from taking a position on whether or not geo-engineering is the solution, the author instead questions if 'climate change' itself is a problem in the first place. It is a complex relationship between the industrialized civilization and the earthsystem that is shaping up the formation of imagined catastrophes. Even if these are imagined projections these can hardly be ignored. The challenge and task is to use technology to convert the doomsday prediction to unabashed utopias. It calls for a world order wherein people take care of the sky instead of taking control of the sky. The writing on the 'sky' is clear!

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