# UK’s £56.8m geoengineering fund sparks urgent calls for global climate safeguards



This week, the UK’s Advanced Research & Invention Agency (ARIA) announced an ambitious funding initiative, pledging £56.8 million to support 21 geoengineering projects worldwide over the next five years. This significant investment has reignited debates about the implications of large-scale technological interventions aimed at combatting climate change. As a cautious admirer of science fiction, I was reminded of Kim Stanley Robinson’s speculative novel, *Ministry for the Future*, which opens with catastrophic heatwaves—a scenario many now consider all too possible.

Geoengineering, broadly defined, encompasses methods designed to intervene in Earth's climate system to mitigate the effects of climate change. Techniques range from the familiar—such as cloud seeding to stimulate rainfall—to more radical proposals like injecting aerosols into the atmosphere to reflect sunlight and thus cool the planet. While this week’s announcement marks one of the largest government-backed geoengineering efforts to date, such experiments are not without historical precedent and remain largely unregulated.

Countries such as Australia have been experimenting with cloud seeding since 1947, using silver iodide and other substances to encourage precipitation. Saudi Arabia has adopted similar techniques for the past two decades, while Malaysia initiated cloud seeding operations in 2024 to counter drought conditions. Notably, China’s cloud-seeding initiatives currently cover an area larger than India, reflecting a significant commitment to weather manipulation in response to escalating environmental challenges. However, these efforts are dwarfed by concerns that unregulated and potentially harmful practices could proliferate in the wake of climate crises.

The ramifications of such weather manipulation extend beyond immediate meteorological changes. The possibility that billionaires could act as rogue weather makers raises alarms. In 2012, Californian entrepreneur Russ George infamously dumped iron sulfate into the Pacific Ocean, hoping to stimulate phytoplankton blooms to absorb carbon dioxide. This act, while initially successful in creating a bloom, contravened several international agreements and resulted in a significant ecological controversy, as heightened levels of neurotoxins were subsequently detected in nearby waters.

The unpredictability of geoengineering side effects has led some nations, including Kenya, Colombia, Mexico, and Fiji, to advocate for a non-use agreement at international forums, reflecting widespread apprehension about uncoordinated climate intervention efforts. At the UN Environment Assembly last year, these countries emphasised the risk that geoengineering, particularly solar radiation management, could inadvertently disrupt monsoon patterns or worsen droughts. Moreover, critics argue that such high-tech solutions may detract from addressing the root causes of climate change, an issue underscored by the Production Gap Report. This report indicated that governments are planning to extract more than double the amount of fossil fuels by 2030 than would be permissible to limit global warming to 1.5°C.

As the climate crisis intensifies, the contrasting trajectories of geoengineering and artificial intelligence (AI) emerge. Both fields tread a perilous line between promising solutions and dystopian outcomes, often polarising the scientific community. Not long ago, in 2023, leading researchers—including prominent figures like Elon Musk and Steve Wozniak—called for a moratorium on AI development due to fears of uncontrolled escalation. Their concerns echo in the realm of geoengineering, where the regulatory landscape remains uncertain and fragmented.

Despite its long history, geoengineering continues to operate largely without international oversight. The UK’s recent commitment to researching geoengineering, complete with proposals for safety protocols and accountability, appears somewhat measured. Nevertheless, the UK Labour government has clarified its stance against immediate deployment, opting instead for these initiatives to guide discussions aimed at establishing global regulations by 2030.

As climate change exacerbates extreme weather events worldwide, the allure of quick-fix technological solutions will likely grow stronger, even as these interventions risk diverting attention from systemic changes needed to reduce fossil fuel reliance. The challenge of navigating the ethical implications and potential consequences of geoengineering looms large, necessitating greater foresight and restraint. The stakes are nothing less than existential, and we must approach this rapidly evolving landscape with the utmost seriousness, lest we repeat the mistakes of the past.

### Reference Map

1. Paragraphs 1, 2, 3, 4, 5, 6, 7, 8.

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## Bibliography

* <https://www.independent.co.uk/voices/geoengineering-british-government-climate-change-weather-b2748754.html> - Please view link - unable to able to access data
* <https://www.independent.co.uk/voices/geoengineering-british-government-climate-change-weather-b2748754.html> - The UK’s Advanced Research & Invention Agency (ARIA) announced £56.8 million to fund 21 geoengineering projects worldwide over the next five years. This significant investment in climate intervention technologies, such as cloud seeding and atmospheric aerosol injection, raises concerns about the unregulated nature of such experiments and their potential unintended consequences. The article draws parallels to Kim Stanley Robinson’s dystopian novel, 'Ministry for the Future,' highlighting the risks associated with large-scale climate manipulation.
* <https://www.theguardian.com/environment/2019/mar/18/us-and-saudi-arabia-blocking-regulation-of-geoengineering-sources-say> - At a UN assembly in Nairobi, efforts to strengthen international governance on geoengineering were blocked by the US and Saudi Arabia. The initiative aimed to establish a scientific research group to examine climate engineering technologies, but faced opposition from high-emitting oil-producing countries, highlighting the challenges in regulating geoengineering practices.
* <https://www.geoengineeringmonitor.org/2023/01/by-prohibiting-solar-geoengineering-experiments-mexico-sets-a-global-example-of-precaution/> - In January 2023, Mexico's Ministry of Environment and Natural Resources announced a ban on solar geoengineering experiments within the country. This decision was prompted by unauthorized field tests conducted by the startup Make Sunsets, which launched weather balloons containing sulfur dioxide without prior notice or consent, underscoring the need for international agreements to regulate such practices.
* <https://www.ft.com/content/1e9fbb42-7ec6-4c85-9f9c-1e2f1c022375> - The UN's chief environmental agency warned about the potential risks of experimental techniques aimed at cooling the atmosphere by blocking the sun, which could harm wildlife, oceans, the ozone layer, and crops. This warning follows a failure by governments to agree on controlling geoengineering methods at a recent UN assembly in Nairobi.
* <https://www.lemonde.fr/en/environment/article/2024/08/31/marine-cloud-brightening-a-controversial-geoengineering-technology-with-potentially-harmful-effects_6724084_114.html> - Marine cloud brightening, a geoengineering technique that injects marine salt aerosols into clouds to increase their reflectivity and reduce ocean temperatures, aims to mitigate global warming. Despite potential benefits, a study by the University of California highlights potential long-term negative effects, including exacerbated heatwaves and altered precipitation patterns.
* <https://www.ft.com/content/cd88bf71-97ca-4142-88c8-3a5819ce81b7> - Despite existing pledges to climate action, the world is projected to face a temperature rise of 2.4 to 2.6°C by the end of the century, surpassing the Paris Agreement's goal of 1.5°C. Geoengineering, specifically solar radiation modification (SRM), is being considered as a controversial but potential method to mitigate temperature rise by reflecting sunlight.