# Concerns rise over geo-engineering projects and their environmental and political impacts



Concerns surrounding geo-engineering projects, particularly those involving solar radiation management (SRM) and cloud-seeding, have been raised amid increasing public awareness following recent media reports. These interventions, designed to modify weather patterns or reduce the effects of climate change, have a complex history and a controversial present due to their potential impacts and lack of comprehensive regulation.

Historic and ongoing weather modification efforts include cloud-seeding, which has been employed since the 1940s. This method typically involves dispersing substances such as salt or silver iodide into clouds to induce rainfall. Cloud-seeding is now widely used around the world—in countries including Saudi Arabia, the United States, China, Russia, Thailand, Australia, and reportedly France and Spain—as a tool for managing drought, mitigating wildfires, reducing heatwaves, fog, hail, and even to increase snow in ski resorts. Its widespread use is supported by various government and military programmes as well as commercial interests. The global market for cloud-seeding technology is projected to grow significantly through to 2032 across several key regions.

However, the environmental consequences and effectiveness of these interventions are not fully understood. Reviews, such as one published by earth.org in April 2024, have highlighted the uncertainty about whether increased precipitation in one region may lead to droughts elsewhere or cause flooding due to excessive rain. Environmental concerns have also been raised about the toxicity of chemicals like silver iodide to terrestrial and aquatic ecosystems.

Solar radiation management (SRM), a more direct form of geo-engineering aimed at reflecting sunlight to cool the Earth, has been under consideration in countries such as the United Kingdom and the United States for over a decade. Techniques proposed include spraying particles into the atmosphere to block or reflect solar radiation. While these remain in experimental stages, active experiments have been reported, and extensive modelling research is underway. Government policy documents, including the UK Government’s 2020 paper on greenhouse gas removal technologies and SRM, emphasize the need for greenhouse gas reduction but acknowledge ongoing research into the possible effects of SRM.

The legal and regulatory framework for geo-engineering is sparse and complex. The UK’s 2010 Commons Science and Technology Committee report suggested that short-term weather modifications, such as cloud-seeding, did not require additional regulation beyond conventions against hostile use. Yet, a 2023 review by the World Meteorological Organization recommended enhanced research and rigorous monitoring of weather modification programmes, signalling current regulation is insufficient.

There have been specific allegations regarding covert geo-engineering activities. For instance, a written question posed by Ramon Tremosa, a Member of the European Parliament from Catalonia, alleged that Spain’s Meteorological Agency employees ‘confessed’ to nationwide spraying of lead dioxide, silver iodide, and diatomite to influence rainfall and temperature, a practice purportedly linked to tourism and agricultural interests. The European Commission denied knowledge or endorsement of such actions. Further, a peer-reviewed 2017 paper claimed that coal fly ash has been deliberately sprayed into the troposphere since the late 1990s, with efforts made to conceal this fact from the public.

The consequences of geo-engineering reach beyond environmental concerns. Some experts warn of political and economic risks, noting potential threats to international relations, especially where weather modification efforts in one country may adversely affect neighbouring nations. For example, China’s large-scale weather modification programmes have raised regional concerns.

As persistent heavy rain continues to impact agriculture and food production, notably with significant flooding across Europe in 2024, questions mount about the interaction between natural climate cycles and human interventions in weather systems. Funding such as the £50 million allocation by the UK Environment Department (Defra) for rain-affected farmers has been deemed insufficient to offset potential crop failures and food security problems exacerbated by changing weather patterns.

Experts highlight the urgency of understanding these geo-engineering activities. Laura Kuhl, Assistant Professor at Northeastern University, notes the lack of policy discussion around the widespread use of cloud-seeding technology. Critics caution that such measures may worsen environmental issues rather than solve them, driven by economic interests such as carbon credit trading rather than genuine environmental protection.

Further investigations and reports are underway to shed light on government and corporate weather modification activities within the UK and beyond, underscoring the evolving landscape of human intervention in the planet’s climatic systems.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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