

High-Level Workshop by CSEP-NITI Aayog-CEEW Highlights Need for India to Evaluate Research, Risks, and Governance of Geoengineering

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NITI Aayog, the Council on Energy, Environment and Water (CEEW), and the Centre for Social and Economic Progress (CSEP) co-hosted a high-level workshop on “Indian and Global Perspectives on Geoengineering – Science, Governance and Risks” in New Delhi yesterday (28 Aug 2025). The convening brought together senior policymakers, scientists, and thought leaders, including Shri B. V. R. Subrahmanyam (CEO, NITI Aayog), Shri Tanmay Kumar (Secretary, Ministry of Environment, Forest and Climate Change), Dr Arunabha Ghosh (Founder-CEO, CEEW), Dr Laveesh Bhandari (President and Senior Fellow, CSEP), and global experts such as Prof David Keith (University of Chicago).

Geoengineering refers to large-scale interventions in the Earth’s climate system to intentionally cool the planet or remove greenhouse gases (GHGs) from the atmosphere. The discussions focused on two broad approaches: Carbon Dioxide Removal (CDR) – actively removing and durably storing atmospheric carbon dioxide through pathways such as biochar, enhanced rock weathering, ocean-based approaches and carbon capture with geological storage; and Solar Radiation Management (SRM) – reflecting sunlight back into space through techniques like stratospheric aerosol injection or marine cloud brightening. The sessions examined issues in geoengineering science, economics and governance—including risk assessment and management, the need for rigorous research, robust monitoring, reporting, and verification (MRV) to ensure removals are real and durable, storage integrity for geological options, safeguards for vulnerable communities, and frameworks for global governance.

In his address, Shri B. V. R. Subrahmanyam, CEO, NITI Aayog, said “India’s development journey is unprecedented — our economy growing while pursuing a low-carbon and sustainable path. This transition will be energy-intensive, yet we are progressing steadily on our NDCs and promoting policies such as Mission LiFE. Climate change is impacting India severely, even as many large emitters are not moving fast enough on their energy transitions. Mitigation should remain the foremost global responsibility, but we must also keep researching other technologies. That requires India to also explore some moonshot technologies, to ensure that we not only keep pace but set the trend for sustainable development in the decades to come.”

Dr Arunabha Ghosh, Founder-CEO, CEEW, observed that “India must develop in a non-linear manner — decarbonising without deindustrialising. While research on climate engineering has grown, the wider conversation on the governance of climate-altering technologies must also keep pace. Climate geoengineering—with implications for planetary-scale impacts—demands far greater collaboration between governments, researchers, and scientists across borders. Equity and climate justice must remain at the centre of global decisions.”

Dr Laveesh Bhandari, President and Senior Fellow, CSEP, opined “Geoengineering raises profound questions of science, sovereignty, and society. India must engage early, invest in strategic research, and ensure that any pathway we consider is aligned with democratic oversight and national interest. This also means assessing the techno-economics of options, designing institutions that can manage long-term risks, and recognising the stakes for water security, agriculture, and livelihoods in a monsoon-dependent nation.”

The workshop featured thematic sessions on India’s Carbon Dioxide Removal pathways and the governance dilemmas posed by Solar Radiation Management. Participants included senior experts from NITI Aayog, CSEP, Department of Science and Technology, Government of India, CEEW, CSIR, IIT, Delhi and IIT Roorkee. The deliberations underscored that while mitigation and adaptation remain the priority, India must

strategically evaluate research, risks, and governance frameworks on geoengineering to ensure preparedness for the decades ahead.





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