Scientific Advice Mechanism
to the European Commission

SRM research governance: Evidence review report (ERR) findings

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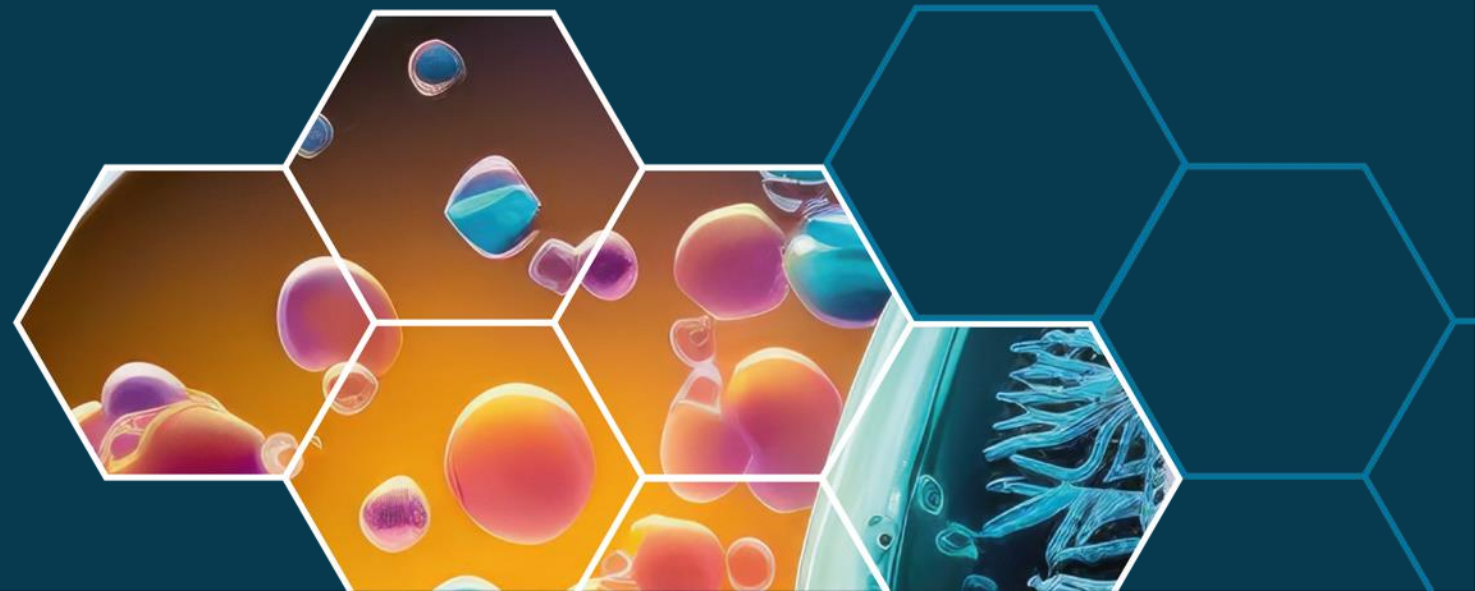

Research governance

ERR discusses core questions, requirements and challenges relating to SRM research governance:

1. **How to demarcate** between laboratory research, field research, technology development and deployment to support political decisions on what to permit, control, restrict or prohibit

2. Whether narrow or broad **impacts of research experiments** are to assessed: direct environmental impacts or also broader political and social impacts

3. Governing research in order to facilitate more **informed decision-making**

4. How to ensure **oversight over and transparency** of not only **public but also private research**

5. Governing research in a manner that can **avoid the risk of mitigation deterrence**

I touch on some findings on each (with related Scientific Opinion recommendations noted for reference).

1. Governing demarcation: research, development, deployment

Scientific literature points to some core challenges for research governance:

→ How to distinguish between small and large-scale experiments and decide on safe 'thresholds' of activity and impacts

→ How to avoid the risk of a slippery slope from field research to development of deployment capability: diverse scientific views on this, including calls for strict guardrails to prevent undesired slippery slope dynamics

→ The larger the scale of an experiment, the greater the need for political control and consent, including globally inclusive decision-making in the event of potential transboundary harms or impacts.

Scientific Opinion recommendation 4:

A moratorium on large-scale outdoor experimentation; small-scale outdoor experimentation only if adhering to broad oversight criteria.

2. Narrow or broad scope of research impacts to be assessed

→ERR discusses literature on whether to govern to avoid direct environmental harms or also broader political, ethical and even symbolic consequences of proposed research and experimentation.

→ ERR also points out that, empirically, decisions (in the real world) about outdoor experiments thus far have gone far beyond narrow physical harm to considering social and political perceptions of harms and impacts.

Scientific Opinion recommendation 4 on scope of impacts:

Any research funding directed towards SRM 'fully addresses all direct and indirect potential risks to and unintended impacts on the climate system, the biosphere, and humankind, including governance and justice issues' (p. 31); funding for small-scale outdoor SRM experiments to be contingent on demonstrating 'no significant economic, social, cultural, ecological, geopolitical harm; public consultation among potentially affected populations (p. 32).

3. Research governance for more informed decision-making

ERR notes a core issue for research governance:

The risks posed by SRM ultimately require information about long-term effects of deployment at planetary scale over a sustained period, which may unfold in a non-linear manner and with unequally distributed effects.

→ If so, a fundamental question is what each respective research effort (short of full-scale deployment) can usefully reveal about such planetary scale, sustained non-linear effects of SRM.

→ It is important to acknowledge potential limits to 'knowability' through research, given non-linear effects from potential deployment that cannot be extrapolated from small scale or even large-scale field experiments.

→ Some postulate a concerted interdisciplinary effort to identify what these limits of knowability might be.

→ Some literature notes the risk that research may provide a false sense of security that decision-making in the future might be facilitated via research underway, even where this may not be the case.

4. Governing public and private research activities

→ ERR highlights that the onus is on states to regulate and exercise oversight over private SRM research activity within their jurisdictions

→Mechanisms: information disclosure obligations, obligations to solicit research permits, undertake impact assessments and/or solicit the prior informed consent of impacted parties.

The SRM research governance challenge is to ensure these oversight mechanisms are in place in diverse national jurisdictions; including global disclosure systems to foster transparency

→ ERR highlights that commercial implications of any SRM research are highly underassessed, including selling cooling credits, upstream outsourcing of infrastructure innovation and intellectual control through patenting, this requires research governance and oversight as well

SO recommendation 4: Need for ethical, political and scientific oversight of both public and private research, and need for transparency.

Also: EU should not support SRM cooling credits internationally.

5. Governing research to avoid mitigation deterrence

On this important topic, ERR notes that:

→ Mitigation deterrence is difficult to empirically assess, but that some literature shows few mitigation crowding out effects.

→ ERR also notes that these findings are hypothetical and difficult to extrapolate to real-world decision-making processes.

→ Governance mechanisms are needed to avoid mitigation deterrence. The EU's Green Deal and other climate policy commitments should be key guide here.

SO Recommendation 1,2,3: Mitigation and adaptation should remain EU's priority; EU-wide moratorium on SRM use; EU negotiation position internationally: 'non-deployment' of SRM for foreseeable future.

SO Recommendation 4: Ensure that any SRM funding is not a diversion away from funding for mitigation and adaptation.