WORKSHOP ON THE GOVERNANCE OF SOLAR GEOENGINEERING

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GOVERNANCE

QUESTIONS

(1) *Who* ought to and/or will *specify criteria* for SG deployment, and who ought to and/or is likely to decide when the criteria are satisfied?

(2) *What* will or should be *the criteria for deciding* whether and how SG will or should be deployed?

- a. These may include regulatory criteria developed by policy makers and criteria specified by “agents”/actors who might engage in SG deployment.
- b. Criteria may have physical, engineering, social, economic, ethical, and other dimensions.

(3) *How should/will such decisions be made; what decision-making process should/will be utilized?*
ON ANALOGIES

Which are the appropriate ones?

• Begin with economics, models, and game theory (mostly state-centric).

• Begin with international law and treaties and extrapolate (mostly focused on negative norms).

• Begin with global deployment of large technological systems.

• What are the relevant characteristics of SG as a technological system?
  • Relatively cheap
  • Private as well as public interests
  • Contested knowledge and expertise
  • Global inequalities in technological and policy capability
  • Presumed need for public buy-in (?)
WHO? ("BOUNDARY ORGANIZATIONS"?)

Choices:

- Authorized (IPCC, WTO)
- Self-proclaimed (Club of Rome, Wingspread, Asilomar)

What needs to be resolved?

- “Three-Body Problem”
- Integrity at three levels: personal, epistemic, collective
# Knowledge and Political Culture: Three Case Studies

<table>
<thead>
<tr>
<th>Cases</th>
<th>Nature of Objectivity</th>
<th>Normative Commitments</th>
<th>Administrative Practices</th>
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</thead>
</table>
| Embodied experts (UK)      | View from everywhere (empirical, observational) | • Issue-specific experience  
• Dedication to the public good  
• Balanced judgment | • Nominations from the public  
• Principles of public life  
• Conflict of interest rules |
| Bodies of knowledge (US)   | View from nowhere (transcendental)     | • Open access to information  
• Transparency  
• Public comment and criticism | • Freedom of Information  
• Public comment  
• Legal challenge and review |
| Advisory bodies (Germany)  | View from everywhere (reasoned)        | • Inclusion of all relevant voices  
• Willingness to accommodate reasons of others | • Representation of relevant institutional voices  
• Appointment of substitute members |
LANGUAGES OF DELIBERATION
WHAT?
(OXFORD PRINCIPLES)

Principle 1: Geoengineering to be regulated as a public good.

Principle 2: Public participation in geoengineering decision-making

Principle 3: Disclosure of geoengineering research and open publication of results

Principle 4: Independent assessment of impacts

Principle 5: Governance before deployment
FINDING THE RIGHT PUBLIC

GM Nation?

• An unprecedented event of an open, inclusive public debate before any change in public policy
• Designed to inform policy and to raise public awareness beyond those people taking part
• Funded by DEFRA (£650k) & designed to cover the full range of issues raised by GM technology
• Open Debate - Involved 675 public meetings on range of scales (c. 25,000 people); web-site that had 2.9 million hits from 24,609 visitors during active phase (60 % response rate); 1,200 letters or emails – 36,557 completed questionnaires
• Narrow-but-Deep Consultations – survey research on typical cross-section of public (not involved in open debate) over 2 week period
  • *Still > 0.001 % of UK public actively involved! – lowest relative response rate from 16 – 19 year olds*
<table>
<thead>
<tr>
<th>Attributes used to assess the strength of application of the precautionary principle</th>
<th>Weak precaution: ‘uncertainty does not justify inaction’</th>
<th>Moderate precaution: ‘uncertainty justifies action’</th>
<th>Strong precaution: ‘uncertainty justifies shifting the burden and standard of proof’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity of potential harm prompting precautionary action as referenced in international legislation and regulation</td>
<td>Rio Declaration suggests that regulation is permitted to avoid ‘serious and irreversible damage’</td>
<td>The European Commission Communication on the precautionary principle suggests the use of regulation proportional to the risk level, following preliminary objective scientific evaluation to avoid ‘potentially dangerous effects’</td>
<td>The Wingspread Statement conveys that clear responsibility lies with the proponent in proving an activity is safe even if the cause-and-effect relationship cannot be determined scientifically to avoid ‘threats of harm’</td>
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<tr>
<td>Degree of epistemic uncertainty/quality of evidence prompting precautionary action</td>
<td>Regulation is permitted in the absence of full scientific certainty; significant precautionary action may be invoked under uncertainty</td>
<td>Research is needed to establish cause and effect (reduce uncertainty) upon which regulatory decisions are based; until then, precautionary action includes setting regulatory standards with large margins of safety built in through application of uncertainty factors</td>
<td>Uncertainty necessitates forbidding the potentially risky activity until the proponent of the activity demonstrates that it poses no (or acceptable) risk. And is sufficiently safe</td>
</tr>
<tr>
<td>Nature of precautionary action/measures taken and provision for review</td>
<td>Presumption of risk management; banning very rare</td>
<td>Underlying presumption of risk management; banning possible, but is a last resort; measures are provisional or subject to review when new information or scientific evidence emerges</td>
<td>Presumption of risk avoidance; banning is likely</td>
</tr>
</tbody>
</table>
HOW?

Expert advice within nation states is embedded within administrative traditions, in keeping with national political cultures.

International expert advice confects its own administrative rules (e.g., IPCC post Climategate).

Analytic-deliberative model (NRC 1996)
FIGURE 1-2. A schematic representation of the risk decision process.
# CIVIC EPISTEMOLOGIES: PUBLIC KNOWLEDGE WAYS

<table>
<thead>
<tr>
<th></th>
<th><strong>US</strong></th>
<th><strong>Britain</strong></th>
<th><strong>Germany</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Public knowledge-making</strong></td>
<td>Pluralist, interest-based</td>
<td>Embodied, service-based</td>
<td>Corporatist, institution-based</td>
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<tr>
<td><strong>Public Accountability</strong></td>
<td>Assumptions of distrust</td>
<td>Assumptions of trust</td>
<td>Assumptions of trust</td>
</tr>
<tr>
<td></td>
<td>Legal</td>
<td>Relational</td>
<td>Role-based</td>
</tr>
<tr>
<td><strong>Demonstration (practices)</strong></td>
<td>Socio-technical experiments</td>
<td>Empirical science</td>
<td>Expert rationality</td>
</tr>
<tr>
<td><strong>Objectivity (styles)</strong></td>
<td>Numerical; reasoned</td>
<td>Negotiated</td>
<td>Negotiated; reasoned</td>
</tr>
<tr>
<td><strong>Expertise (preferred modes)</strong></td>
<td>Formal methods</td>
<td>Experience</td>
<td>Training, skills, experience</td>
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Thank you!