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 pubic 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

Cases	Nature of Objectivity	Normative Commitments	Administrative Practices
Embodied experts (United Kingdom)	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 (United States)	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*

UNCERTAINTY, AMBIGUITY, PRECAUTION

Attributes used to assess the strength of application of the precautionary principle	Weak precaution: 'uncertainty does not justify inaction'	Moderate precaution: 'uncertainty justifies action'	Strong precaution: 'uncertainty justifies shifting the burden and standard of proof'
Severity of potential harm prompting precautionary action as referenced in international legislation and regulation	Rio Declaration suggests that regulation is permitted to avoid 'serious and irreversible damage'	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'	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'
Degree of epistemic uncertainty/ quality of evidence prompting precautionary action	Regulation is permitted in the absence of full scientific certainty; significant precautionary action may be invoked under uncertainty	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	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
Nature of precautionary action/ measures taken and provision for review	Presumption of risk management; banning very rare	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	Presumption of risk avoidance; banning is likely

CONSENT

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)

ANALYTIC-DELIBERATIVE MODEL

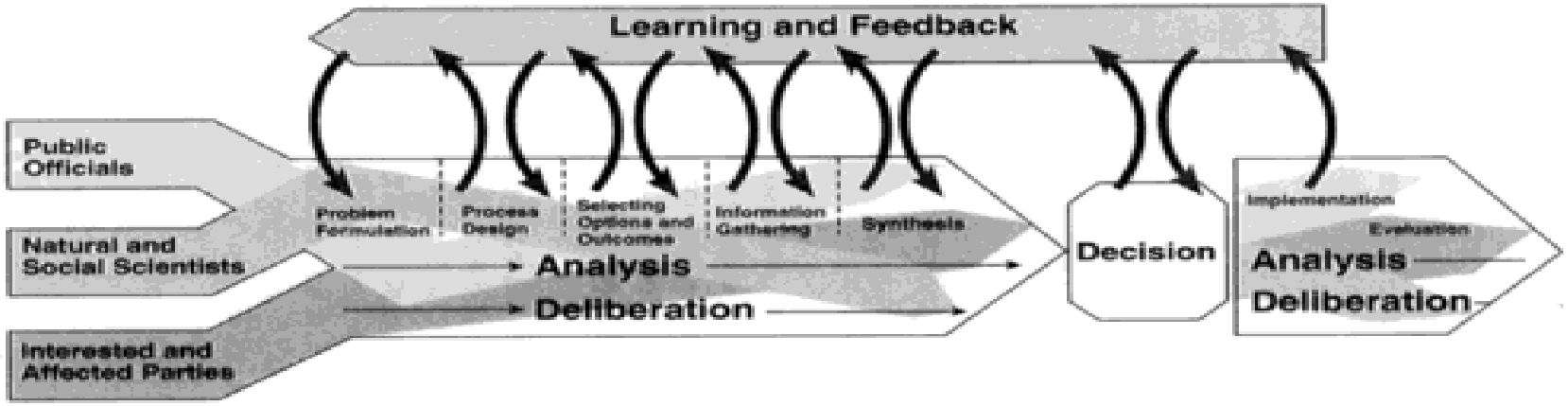

FIGURE 1-2. A schematic representation of the risk decision process.

CIVIC EPISTEMOLOGIES: PUBLIC KNOWLEDGE WAYS

	US	***Britain***	***Germany***
Public knowledge-making	Pluralist, interest-based	Embodied , service-based	Corporatist, institution-based
Public Accountability	Assumptions of distrust Legal	Assumptions of trust Relational	Assumptions of trust Role-based
Demonstration (practices)	Socio-technical experiments	Empirical science	Expert rationality
Objectivity (styles)	Numerical; reasoned	Negotiated	Negotiated; reasoned
Expertise (preferred modes)	Formal methods	Experience	Training, skills, experience

Thank you!