Challenges in the Governance of Engineered Life:
research policy, innovation dynamics and the politics of progress

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www.steps-centre.org/
www.sussex.ac.uk/spru/
www.multicriteriamapping.com
www.sussex.ac.uk/spru/people/peoplelists/person/7513
Some Prominent Themes From Discussions So Far

Regulation must “accommodate” new developments, in order to foster “public trust” and allow us to “go forward”

Need to prioritise “fact based neutrality”, assuming claimed “benefits” and “manage risks” to promote “advance”

Subordinate “public engagement” to “risk-based policy” founded on “sound science” & “substantial equivalence”

Focal queries are “should we?”; “yes / no?”; “how fast?”; “what risk?” – about this single very specific technology

Overall aims to allow “free markets” for “research to move ahead”, but act “responsibly” within these imperatives
Key Messages from Earlier Comparable Risk Issues

1: innovation is more political than technical/managerial

2: key issues are about choice, not risk or speed

3: directions for progress are largely driven by power

4: risk assessment conceals radical ambiguities

5: regulatory appraisal is mainly about justifying policy

6: many practical methods to address, but little demand
Innovation is More Political than it is Technical

for instance, innovation for seed production…

marker assist  industrial hybrids  synthetic biology  transgenics  cisgenics

participatory breeding

open source sharing

research and innovation are branching evolutionary processes
Directions for Progress are Largely Driven by Power

privileges:
- technology-intensive
- commodity interests
- high processing

for:
- shareholder profit
- value chain
- controlled supply
- affluent demand
- market share
- assertive IP

excludes:
- supply side governance
- advertising controls
- cultural responses
- grassroots innovation
- public health measures

... demand not supply measures
- therapeutics not prevention
- end-of-pipe remediation
- functional foods
Risk Assessment Conceals Radical Ambiguities

Regulatory assessment in general is only rarely fully comparative...

Energy regulation: most mature, sophisticated comparative analysis...
Risk Assessment Conceals Radical Ambiguities

Regulatory assessment in general is only rarely fully comparative...

Energy regulation: most mature, sophisticated comparative analysis...

Conventional regulatory risk analysis asks simply:
- is this safe?
- safe enough?
- tolerable?

externality': $c_{US}/kWh$ (after Sundqvist et al, 2005)
Risk Assessment Conceals Radical Ambiguities

Regulatory assessment in general is only rarely fully comparative...

Energy regulation: most mature, sophisticated comparative analysis...

Where comparisons made, selective and circumscribed

Appear to deliver clear, objective distinctions

Contrast emotive subjectivity of precaution or participation?

externality': $c_{US/kWh}$ (after Sundqvist et al, 2005)
Risk Assessment Conceals Radical Ambiguities

Regulatory assessment in general is only rarely fully comparative...

Energy regulation: most mature, sophisticated comparative analysis...

In a single particular study: ‘sound scientific’, ‘evidence based’ risk analysis implies clear orderings of choices by simple scalar numbers

coal, oil, gas, nuclear, hydro, wind, solar, biomass

externality': $c_{US}/\text{kWh}$ (after Sundqvist et al, 2005)
Risk Assessment Conceals Radical Ambiguities

Regulatory assessment in general is only rarely fully comparative...

Energy regulation: most mature, sophisticated comparative analysis...

![Risk Assessment Chart]

co
c
oil

gas

nuclear

hydro

wind

solar

biomass

minimum 25% 75% maximum

n = 21

But 'objective' peer-reviewed data typically varies radically.

'externality': cUS/kWh (after Sundqvist et al, 2005)
Risk Assessment Conceals Radical Ambiguities

Regulatory assessment in general is only rarely fully comparative...

Energy regulation: most mature, sophisticated comparative analysis...

…‘evidence based’ risk literatures can be used to justify any choice

Tho’ concealed, the same is often true for all options
Regulatory Appraisal Is Mainly for Justifying Policy

‘science based decision’ rhetorics conceal full scale of challenge

- Socrates, Lao Tzu, Knight, Keynes, Shackle, Collingridge, Dovers, Ravetz, Wynne ...
Regulatory Appraisal Is Mainly for Justifying Policy

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Regulatory Appraisal Is Mainly for Justifying Policy

‘science based decision’ rhetorics conceal full scale of challenge

knowledge about possibilities

unproblematic

problematic

unproblematic

RISK

problematic

AMBIGUITY

knowledge about likelihoods

problomatic

UNCERTAINTY

novel agents or vectors

surprising conditions

new alternatives

wilful blinkers

- Socrates, Lao Tzu, Knight, Keynes, Shackle, Collingridge, Dovers, Ravetz, Wynne ...
Regulatory Appraisal Is Mainly for Justifying Policy
needs of power for justification drives many dynamics of closure

risk focus is shaped by power – Beck’s “organised irresponsibility”
Democratic Governing Opens Up Politics of Choice

… collective action by civil society ‘open up’ space for appreciating incertitude
There Are Plenty of Practical Concrete Methods

‘plural conditional’ methods acknowledge politics, explore choice

knowledge about possibilities

unproblematic  problematic

unproblematic  RISK  AMBIGUITY

knowledge about likelihoods

burden of evidence
onus of persuasion
uncertainty factors
decision heuristics
interval analysis
sensitivity testing

precautionary appraisal

UNCERTAINTY

IGNORANCE

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unproblematic

problematic

knowledge about possibilities

knowledge about likelihoods

unproblematic

problematic

RISK

AMBIGUITY

participatory deliberation

scenarios backcasting interactive modells MC mapping Q-method

UNCERTAINTY

IGNORANCE

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AMBIGUITY

Options

‘opening up’: options, issues, approaches, possibilities, perspectives

safety

sustainability

& social choice

humility

... about aims and ends as well as means...

UNCERTAINTY

IGNORANCE
Conclusions

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