

*Frontier of Dreams:
Basic Science in Society*

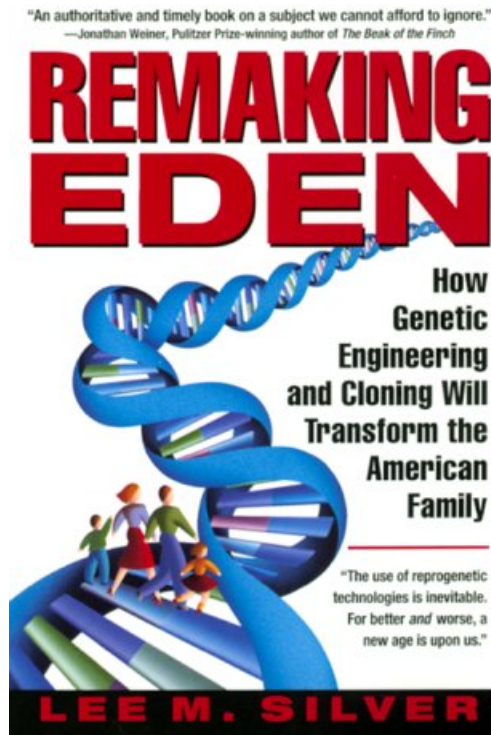
Sheila Jasanoff
Harvard University

Science Impact, Vienna, May 10-11, 2007

Laboratory Life



Societal Visions: Bio-Agro-Nano Futures



Building Connections

- Circuitous path to get from bench (science) to market (society)
- Obstacles
 - ◆ Heterogeneous networks
 - ◆ Resistance (material and social)
 - ◆ “Reverse salients”
 - ◆ Translation
 - ◆ Unintended consequences
 - ◆ Ethics and culture

Protesting “Frankenfoods” in Britain



Discrepant Discourses: *Truth vs. Gain*

- **“Normal” Science**

- ◆ *Experiment*
- ◆ Messy
- ◆ Provisional
- ◆ Incremental
 (“shoulders of giants”)
- ◆ Uncertain
- ◆ Mostly forgettable

- **Technoscience**

- ◆ *Progress*
- ◆ Wealth-creating
- ◆ Health-promoting
- ◆ Life-prolonging
- ◆ Environment-
enhancing
- ◆ Capacity-enlarging

NSF Evaluation Criteria

- **Merit**

- ◆ Paradigm-internal
- ◆ Conventional methods
- ◆ Established influence measures
- ◆ Socialized peers
- ◆ Shared models of success
- ◆ Institutionalized rewards

- **Broader impact**

- ◆ Paradigm-external
- ◆ Evolving methods
- ◆ Uncertain influence measures
- ◆ Non-disciplinary peers
- ◆ Discrepant models of success
- ◆ Commercial rewards

Conceptual Challenges: Framing Technoscientific Impacts

- Product or process?
- Who defines the impacts (e.g., for ag biotech)?
 - ◆ Molecular biology or ecology?
 - ◆ Growers or food producers?
 - ◆ Exporters or importers?
 - ◆ Experts or citizens?
- Which impacts?
 - ◆ Economy, health, environment, culture?

Technical Challenges of Science Impact Assessment

- Dominant regulatory focus on negative impacts, i.e., *risk*
- Benefits more temporally distant, dispersed, and indeterminate than costs
- Inadequate social knowledge
- Cross-border impacts
- Culturally disparate assessment systems

From Risk Society to Knowledge Society

- Extended peer review (in cases of low certainty, high impact technologies)
- Analytic-deliberative model of risk characterization
- Real-time technology assessment
- Upstream engagement
- “Fourth hurdle”

Impact Assessment, Mode 2

- Impact assessment as a *process*
- Procedural implications
 - ◆ Dam debates as an example
- Intellectual needs
 - ◆ Social science competence
 - ◆ Historical memory
 - ◆ Distributive impact measures
 - ◆ New ethical discourses
 - ◆ Cross-cultural learning opportunities

Universities and Science Impacts

- Inadequacies of Bayh-Dole model
 - ◆ Private gain as public good
 - ◆ Unquestioned aims
 - ◆ Market-driven predictions and priorities
 - ◆ Neglect of historical understandings and imaginative resources
- Challenges for science and technology studies
 - ◆ Internal coherence and legitimacy
 - ◆ External visibility and relevance
 - ◆ Cosmopolitan competence