Societal Dimensions of Nanotechnology 2008 Grantees Meeting

28-29 July, 2008

- Attended by 30 grantees representing 22 NSF funded projects
- 3 main topical areas – to be discussed in subsequent slides
- In 2008, over $4.1 million of NSF funding was directed to research on societal dimensions of nanotechnology
- About half of this funding supports two societal dimensions NSECs at Arizona State and University of California, Santa Barbara
Topical Areas Addressed at the Meeting

1. Historical precedents and the capacity for “upstream” or “midstream” social shaping of nanoscience and nanotechnology
   - Historical context for emergence of nano S&T
   - Historical precedents for regulation and governance of nanotechnologies
   - Capacity for social shaping at upstream or midstream
   - Development of methodologies for upstream and midstream shaping
   - Safety and ethics practices and standards in labs and nanomanufacturing firms
Research Gaps:

- Improving our understanding of organizational and cultural arrangements that contribute to more robust collaborations between social scientists and natural scientists and engineering researchers.

- Research on standardization

- Deepening our understanding of historical precedents for governance and regulation of nanomaterials across state, national, and international levels.
2. Public perceptions, risk communication, & media representations

- Work that monitors public perceptions of nanotechnology (surveys, focus groups)
  - Still relatively low level of public knowledge or interest in nanotechnology
  - Overall, relatively little public concern about potential nanotechnology risks
  - Comparing populations of nano scientists and public: Public perceives slightly more risk in all areas (e.g., loss of privacy, loss of jobs) with the exception of pollution and health risks where scientists perceive more risk.
Risk Communication

- Work to develop training modules for risk communicators
- Different approaches to analyzing risk communication:
  - Approach that focuses on scientific accuracy of risk communication
  - Approach that broadens our understanding of risk – risk varies across sub-populations, different value orientations, and localized knowledges
Work on media representations and formal and informal education

- Media has not yet made significant strides in raising public consciousness
- Key thing to watch are the anchoring principles for nanotechnology as they emerge in the media
- Emphasis in this research on the construction and use of visual imagery
- Formal & Informal science education (Bob Chang & Larry Bell earlier this morning, public forums, nano cafes)
Research Gaps

- Little research yet on representation of nanotechnology (and S&T more generally) on the internet and its impacts.

- Need for more experimental work on media impacts

- Need for more research on risk perceptions and risk communication that disaggregates the public. Preliminary evidence that there are differences along gender, ethnicity, and religion

- Questions raised about deliberative democracy exercises (public forums designed to elicit informed public opinion). Are they overly artificial sites for true deliberative democracy?
3. Nanotechnology Diffusion, Ethics and Cultural Values, Governance

- Nanotechnology Development and Diffusion:
  - Development of nano-districts in U.S., Europe, and Asia where research & commercialization are concentrated
  - Rapid growth of research & development in China – doesn’t yet match the quality of work in U.S. or EU
Ethics & Cultural Values

- Some unique ethical characteristics of nanotechnologies that distinguish them from other emerging technologies
- Important ethical questions in the area of applications of nanotechnology to human enhancement – e.g., potentially blurred lines between human therapy and enhancement
- Important to study who is doing the ethics work, especially in the development of ethical standards
Governance

- Wide agreement that the capacity for regulation and oversight is lacking
- Recognition that states are playing an important role in nanotechnology policy (and S&T policy more generally), which involves a new science policy trend and raises new questions.

Two key areas need development

- Use of historical precedents that have relevant oversight experiences
- More coordination between federal & state governments & across regulatory agencies
Research Gaps:

- Better indicators of nanotechnology diffusion and their economic impacts (especially related to inequality)
- More study of nano-districts and their potential policy implications
- More focused work on nano-ethics as it relates to specific areas of development
- Much more work is needed on capacity for regulation and oversight.
Society for the Study of Nanoscience and Emerging Technologies (S-NET)

-- international organization to promote exchange towards the advancement of knowledge and understanding of nanotechnologies in society.

-- First annual conference in Seattle (8 - 11 September 2009)

-- Call for papers: [www.theSNET.net](http://www.theSNET.net) (deadline for submission of abstracts – 15 February)