Online Ethics Center
FOR ENGINEERING AND SCIENCE

Public Engagement in Science and Technology Policy Decision-Making Bibliography

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Description

Includes links, books, and journal articles on engaging the public in discussions of science and technology and related policy.

Body

Web Sites

AAAS Center for Public Engagement with Science & Technology
A Center at the American Association for the Advancement of Science dedicated to helping scientists and engineers communicate more broadly with the public, and promote a two-way dialogue between scientists, policy-makers, and the public on issues such as human embryonic stem cell research, climate change, the teaching of evolution, and other issues in science.

British Council Public Engagement and Science

The United Kingdom's British Council has created a web site that includes lists and links to all public engagement in science and technology projects that are currently being funded by the British Government.

Books

Ankeny, Rachel A. and Susan Dodds. 2008. *Hearing community voices: Public engagement in Australian human embryo research policy 2005-2007.*

Paper investigates the recent public policy processes in Australia with regard to embryo research, including various mechanisms uses to engage various publics and the procedures for balancing conflicting values, as well as the various difficulties that arose throughout this process.

Holliman, Richard. 2009. *Investigating science communication in the information age: implications for public engagement and popular media.* New York: Oxford University Press.

This book explores questions about how recent policy changes and new technologies are influencing how scientists disseminate their work and knowledge, and how they engage with the public.

Holliman, Richard, et al. 2009. *Practicing Science Communication in the Information Age: Theorizing Professional Practices.* New York, Oxford University Press.

This book explores how scientists communicate with each other as part of their professional practice, how this forms the basis of the documenting of scientific knowledge, and how open access publication and open review are influencing current practices. It also explores how science communication can play a crucial role when science is disputed, and how scientists can effectively engage and interact with the public.

Journal Articles & Reports

Ahteensuu, Marko and Helena Siipi. 2009. A critical assessment of public-consultations on GMOs in the European Union. *Environmental Values.*

18(2):129-152.
This article looks at some of the drawbacks of public consultation practices used in Finland to discuss the deliberate release and place on the market of genetically modified organisms (GMOs). The authors argue that these current practices do not meet the aims of increasing consensus, establishing trust and enabling better decisions to be made. More discussion and active development is needed to ensure the ethical and sociopolitical foundations of public engagement strategies of this kind.

Bell, Larry. 2008. Engaging the public in technology policy: A new role for science museums. *Science Communication* 29(3): 386-398.
Discusses activities of the Museum of Science in Boston who has been experimenting with a variety of public engagement approaches designed to help visitors think and talk about the societal implications of nanotechnology.

Broerse, Jacqueline et al. 2009. Evaluating interactive policy making on biotechnology: the case of the Dutch Ministry of Health, Welfare and Sport. *Bulletin of Science, Technology & Society.* 29(6): 447-463. *The authors look at a recent effort by the Dutch Ministry of Health, Welfare and Sport to use interactive policy making and public engagement in the area of medical biotechnology to increase the legitimacy and quality of the policy agenda. The use an evaluative framework they have developed to assess the effectiveness of the project, and discuss the successes and challenged faced.*

Cotton, Matthew. 2010. Discourse, upstream public engagement and the governance of human life extension research. *Poesis & Praxis.* 7(1&2):135-150.
This article outlines a proposal that seeks to outline a program of participatory approaches to encourage two-way dialogue between scientific and citizen perspectives on the governance of scientific and technological advances seeking to "cure" age related illinesses and extend the healthy life span of individuals.

Cormick, Craig. 2009. Piecing together the elephant: Public engagement on nanotechnology challenges. *Science and Engineering Ethics.* 15(4): 439-442.
This short article describes a workshop held by the Australia Office of Nanotechnology that sought to invite equal numbers of key interest groups and members of the general public who held mid-range attitudes about the advantages

and risks associated with nanotechnology development. The author discusses the problem of engaging unengaged members of the public who are unlikely to attend more traditional public engagement workshops about nanotechnology, and shares the results of the Australian workshop.

Davies, Sarah R. 2009. Doing dialogue: Genre and flexibility in public engagement with science. *Science as Culture.* 18(4): 397-416.
In order to study the ways in which public engagement occurs, the author reports on dialogue events held at London's Dana Center. She discusses the fluidity of practices in public engagement, and suggests that this may be due to the newness of the practice.

Doubleday, Robert. 2007. Risk, public engagement and reflexivity: Alternative framings of the public dimensions of nanotechnology. *Health, Risk and Society.* 9(2):211-227.
The author discusses the debate about the meaning of "upstream public engagement," in United Kingdom science policy in regard to nanotechnology, and follows with detailed description about a laboratory-based collaboration between social science and nanoscience whose goal is to explore the social dimensions of nanotechnology. This project suggests another meaning to "upstream" public engagement as a place in space rather than in time where interventions in the emergence of a new technology are possible. The author concludes that debates over the meaning of "upstream" can obscure the main point of these public engagement experiments, to ensure the transparency of deliberations and decisions made about the social and technical aspects of nanotechnology research and development.

Doubleday, Robert. 2007. The laboratory revisited: Academic science and the responsible development of nanotechnology. *Nanoethics*. 1(2): 167-176.
This article reviews how the social aspects of nanotechnology research and development have emerged as a public issue, and research being done in this area. The author argues that the focus on public engagement experiments on the health and environmental risks of nanotechnology is limiting the effectiveness of these experiments, and suggests ways in which social science can support a widening of discussion of the public dimensions of nanotechnology.

Felt, Ulrike, and Maximillian Fochler. 2008. The bottom-up meaning of the concept of public participation in science and technology. *Science and Public Policy.* 35(7) 489-499.

Despite the increased focus on the importance of public engagement, very little is known about citizens' perspectives on public engagement in the governance of science, let alone about the social processes and the meaning participation acquires within actual engagement exercises. The authors look at the bottom-up meaning of public participating in a public engagement exercise in Australia, and traces the various meanings and implications this term was given by the participating citizens and scientists.

Gavelin, Karin, Richard Wilson and Robert Doubleday. 2007. *Democratic Technologies? Final Report of the Nanotechnology Engagement Group*. London, INVOLVE.

Final report by the Involve Group's Nanotechnology Engagement Group (NEG). The group set out to document the efforts of six United Kingdom initiatives to involve members of the public in discussions about the development and governance of nanotechnologies. The report reviews the positive results of these initiatives, some challenges that still exist, and the Group's recommendations for designing future initiatives for public engagement.

Jones, Richards. 2007. What have we learned from public engagement? *Nature Nanotechnology*2(3): 262-263.

In this article, the chair of the United Kingdom's Nanotechnology Engagement Group reflects on some of the main lessons learned from the public engagement experiments done from 2004-2007 by this organization. Some of the main obstacles faced in these kinds of projects come from the rather abstract concepts of what nanotechnology is, and what its future applications and risks may be, as well as the difficulty in seeing how public engagement can influence science policy. Though it can be hard for public engagement exercise to come to a substantial conclusion, these experiments offer valuable experiences to the scientists and members of the public who take part.

Kearnes, Matthew, Phil Macnaghten, and James Wilsdon. 2006. Governing the nanoscale: People, policies, and emerging technologies. London, Demos.

Based on a two-year ESRC-funded project by Demos and Lancaster University, this report examines the technical and social implications of nanotechnologies. Rapid

advances in nanotechnologies are giving rise to new economic, social and ethical questions. Are systems of governance and regulation keeping pace? How can we imagine the social possibilities created by emerging technologies and choose among them wisely? This pamphlet presents the findings of a two-year ESRC-funded project, which aimed to understand the social and scientific visions that are influencing nanotechnology research, and develop opportunities for "upstream" dialog between scientists and the wider public.

Keanes, Matthew and Brian Wyne. 2007. On nanotechnology and ambivalence: The politics of enthusiasm. *Nanoethics.* 1(2): 131-142.
The majority of public engagement experiments that have been done in the past few years on nanotechnology research and development seek to address the lack of public trust in the benefits of emerging technologies and governments' and other intuitions' ability to deal with potential risks that may emerge, by engaging members of the public in a debate about these issues and helping them become part of the decision-making process. This is seen as one way to help the public become more confident about nano research and development, feel engaged in the research, and help them feel that their views are valued and being taken into account. The authors of this paper look at the perceived public ambivalence about nanotechnology as a nested set of enthusiasms and anxieties, and suggest that public engagement might be re-thought to utilize this ambivalence as a creative resource, rather then as the problem to be addressed.

Kyle, Renee and Susan Dodds. 2009. Avoiding empty rhetoric: Engaging publics in debates about nanotechnologies. *Science and Engineering Ethics.* 15(1):81-96.
The authors discuss why public engagement in discussions about nanotechnology is important, and suggest some possible methods for more effectively including the public in future debates about the development of science policy and the regulation of nanotechnology in the future.

Macnaghten, Phil et al. 2009. *Deepening ethical engagement and participation in emerging nanotechnologies*. Durham University, Department of Geography.
This final report of a three year research project funded by the European Union, the DEEPEN project (Deepening Ethical Engagement and Participation in Emerging Nanotechnologies) argues that decision making on emerging technologies and science must become more democratic. The authors strongly suggest that current

governance activities are limiting public debate and may result in a repeat of mistakes made in regulating genetically modified food. The authors look at public engagement activities that have been taking place in the past few years, and make recommendations on how policy makers can be more innovative in finding ways to involve the public in decisions about the future development and use of nanotechnologies.

Macnaghten, Phil Matthew B. Kearnes, Brian Wynne. 2005. Nanotechnology, governance, and public deliberation : What role for the social sciences? *Science Communication.* 27(2):268-291.
In this article, the authors argue that nanotechnology represents an extraordinary opportunity to build in a robust role for the social sciences in a technology that remains at an early, and hence undetermined, stage of development. The authors examine policy dynamics in both the United States and United Kingdom aimed at both opening up, and closing down, the role of the social sciences in nanotechnologies. The authors then set out a prospective agenda for the social sciences and its potential in the future shaping of nanotechnology research and innovation processes. The emergent, undetermined nature of nanotechnologies calls for an open, experimental, and interdisciplinary model for social science research.

Moore, Alfred and Jack Stilgoe. 2009. Experts and anecdotes: The role of 'anecdotal evidence' in public scientific controversies. *Science Technology and Human Values.* 34(5): 645-677.
The authors examines the role anecdotal evidence plays in the management of the boundary between experts and non-experts, and its consequences for ideas of public engagement and participation.

Murphy, Juli, et al. 2008. Public expectations for return of results from large-cohort genetic research. *American Journal of Bioethics.* 8(11): 36-43.
The National Institutes of Health of the U.S. are considering establishing a national biobank to study the roles of genes and environment on human health. A preliminary study was conducted to assess public attitudes and concerns about the proposed biobank, including the expectations for return of individual search results. Focus group participants voided a strong desire to be able to access individual records, and suggested that cohort study participants be given ongoing choices as to which results they received from research done based on data collected by the biobank.

Nisbet, Matthew C. 2009. Communicating climate change: Why frames matter for public engagement. *Environment.* 51(2):12-23.
This article discusses how reframing the relevance of climate change in ways Americans can re late to and the use of repetitive communication of their meaning, through trusted sources, can generate the public engagement required for effective policy action.

Nisbet, Matthew C. and Dietram A. Scheufele. 2007. The future of public engagement: the facts never speak for themselves, which is why scientists need to "frame" their message to the public. The Scientist. 21(10):38.
Article argues against the popular science model of using the media *to* "*educate*" *the public about science. Instead, the authors suggest that scientists learn to present their message in a way that connects with diverse audiences. While still staying true to the underlying science, scientists can draw on research to tailor their message in ways that makes the message personally relevant and meaningful to their audience.*

Nisbet, Matthew C. and Dietram A. Scheufele. 2009. What's next for science communication? Promising directions and lingering distractions. *American Journal of Botany.* 96(10): 1767-1778.
This essay reviews research from the social sciences on how the public makes sense of and participates in societal decisions about science and technology, and offers a details set of recommendations on how to improve public engagement efforts on the part of scientists and science organizations.

Ockwell, David, Lorraine Whitmarsh and Saffron O'Niell. 2009. Reorienting climate change communication for effective mitigation forcing people to be green or fostering grass-roots engagement? *Science Communication* 30(3):305-327.
The article analyzes how communications about climate change could possibly be effective in getting people to accept regulation that forces green behavior, and also to stimulate grass-roots action through affective and rational engagement with climate change.

Pidgeon, Nick and Tee Rogers-Hayden. 2007. Opening up nanotechnology dialogue with the publics: risk communication or "upstream engagement"? *Health, Risk and Society.* 9(2):191-210.
The authors discuss the origins of upstream engagement (public participation before

significant research has been done and before firm public attitudes about an issue have been established) and how this kind of public engagement is being promoted in the United Kingdom. Using the example of the NanoJury project, the authors argue that for upstream engagement to be effective, new approaches must be developed to open up the debate about the value of nanotechnology research and development.

Poliakoff, Ellen, and Thomas L. Webb. 2007. What factors predict scientists' intentions to participate in public engagement of science activities? *Science Communication* 29(2): 242-263.
Using an augmented version of the theory of planned behavior, the authors identify three factors that predicted scientists' intentions to participate in public engagement activities, over and above their past actions. These include whether the public engagement activity was viewed as positive, perceived behavior control, or if they could choose to participate, and whether they believed their colleagues would participate.

Robbie, Ali, Kenneth Olden, and Xu Shunqing. 2008. Community-based participatory research: A vehicle to promote public engagement for environmental health in China. *Environmental Health Perspectives.* 116(10):1281-1284.
Discusses how community-based participatory research can be used in China to address environmental health problems by allow the community to help shape the research agenda and by increasing accountability of researchers and governments to the public.

Stebbing, M. 2009. Avoiding the trust deficit: Public engagement, values, and the precautionary principle and the future of nanotechnology. *Journal of Bioethical Inquiry.* 6(1): 37-48.
The author argues for a more interdisciplinary and inclusive debate on the ethical, legal, and regulatory frameworks that may avoid the loss of public trust that has characterized the introduction of new technologies. The author suggests three main areas for action to help engage the public in how nanotechnology is regulated. These include the application of an active form of the precautionary principle, drawing insights from the "trust" gap that exists from past experiences with emerging technologies, and the creating of nano-futures that meet by community and industry values through effective public engagement.

Tourney, Chris. 2007. Rules of Engagement. *Nature Nanotechnology.* 2(7): 386-387.
The author describes the efforts of the South Carolina Citizens' School of Nanotechnology (SCCSN) to engage the public with nanotechnology. Drawing from his experience running the SCCSN, the author then comments about some of the important differences between nanotechnology and other areas that should be taken into account when involving the public in discussions about this new technology.

Wilsdon, James and Rebecca Willis. 2004. See through science: Why public engagement needs to move upstream. London, DEMOS.
Authors argue that nanotechnology research and development may be the start of a new phase in the debates of science and society. Spurred on by the high profile controversies of genetically modified foods, scientists have gradually begun engage the public in key discussions about their work. Only by the opening up on the innovation processes at an early stage, can society try to ensure that science contributes to the common good. Authors go on to offer practical guidance for scientists, policy matters, and other stakeholders who are trying to make public engagement work.

Notes

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Resource Type

Bibliography

Topics

Communicating Science and Engineering

Discipline(s)

Research Ethics