

# Engaging Publics in Science and Technology

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*When Science and Citizens Connect: Public Engagement on Genetically Modified Organisms*

*A Workshop of the Roundtable on Public Interfaces of the Life Sciences*

National Academy of Sciences  
Washington D.C.  
January 15-16, 2015



# GENETIC ENGINEERING + SOCIETY CENTER (GES)

- RESEARCH
- COLLABORATION
- HISTORY PROJECT
- EVENTS
- CALENDAR
- ABOUT US

SEARCH



## WHO + WHAT

The GES program is unique example of engaged scholarship that serves as a regional, national, and international hub of interdisciplinary, research analysis and inclusive dialogue



### Fellows

Find out about our fellows and the research they are doing for



### Sloan Grant

We were awarded a Sloan Grant to do research on



### IGERT

Find out what is going on with the NSF funded Genetic Pest

# Genetic Engineering & Society Center

<http://go.ncsu.edu/ges>



# GES Center: Resident Fellow Projects

Jade Barry-James (Public Administration)

- Faith-based communities of color and attitudes to GMOs

Jane Hoppin (Biology)

- GM health impacts on agricultural producers

David Berube (Communication)

- Do-it-yourself syn-bio labs and governance

Andy Binder (Communication)

- Meta-analysis of GM food perception studies



# Engaging Publics in Science and Technology

1. Why are YOU here? (invitation, networks, prior experiences, resources)
2. What is your role in this workshop? (during, after)
3. Imagine a member of the public. What features define this person?
4. Are you a member of the public? (VOTE)
5. Is this audience the public? Why or why not?
6. Who is missing (if anyone) to make this into a public audience?

## The Public?



## Publics?



## Audiences?

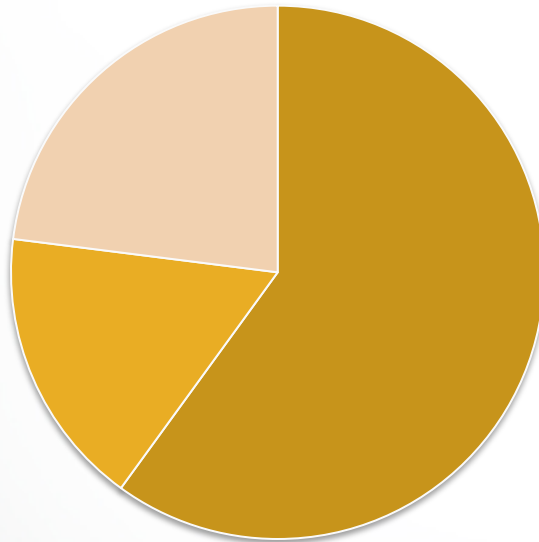


Delborne, J. A. (2011). Constructing Audiences in Scientific Controversy. *Social Epistemology*, 25(1), 67–95.

# Public perceptions of GE mosquitoes in Key West, Florida

- Mosquitoes engineered to reduce population that carries dengue fever.
- NC State study team: M. Cobb, A. Binder, E. Pitts, E. Johnson-Young, and M. Storment
- 205 interviews (27% response rate) at places of residence in January 2013
- Open-ended questions about hazards and benefits

# Public Support for GE mosquito release?



- Support 60%
- Neutral 17%
- Oppose 23%

*From Pitts and Cobb, unpublished.*

Table 1: Perceived Benefits of Using GE mosquito control technology

<b>Benefit</b>	<b>Frequency of Mention</b>
Mosquito Control	40% (N=82)
Don't Know/No Answer	31% (N=63)
Human Health/Disease Prevention	14% (N=29)
Not one: Rejects premise	8% (N=16)
Gibberish	3% (N=6)
Ecosystem	2% (N=4)
Generic Optimism	2% (N=4)
Uncertain Benefit(s)	1% (N=1)
Economic	0% (N=0)
Total	100% (N=205)

*From Pitts and Cobb, unpublished.*



Table 2: Perceived Hazards of Using GE mosquito control technology

Hazard	Frequency of Mention
Don't Know/No Answer	36% (N=73)
Not one: Rejects premise	21% (N=43)
Human Health/Disease Worse	11% (N=22)
Ecosystem	9% (N=19)
Uncertain Hazard(s)	9% (N=19)
Mosquito Control	7% (N=14)
Gibberish	4% (N=8)
Generic Pessimism	3% (N=7)
Economic	0% (N=0)
Total	100% (N=205)

Inability to engage the question: 57%

Concerns: 39%+

*From Pitts and Cobb, unpublished.*

# Perceptions of our perceptions of public perceptions of biotechnology

- Superficiality (and power) of measures of “support” and opposition
- Importance of attending to how the public is constructed (not just a sampling issue)
- Benefits of engagement that includes participatory mechanisms

# Public Engagement

Type of Engagement

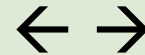
Public Communication

Public Consultation



**Public Engagement**

Sponsor



Public Representative

Rowe, G., & Frewer, L. J. (2005). A Typology of Public Engagement Mechanisms. *Science, Technology and Human Values*, 30(2), p. 255.

# Consensus Conferences

- Developed by the Danish Board of Technology
- Interaction of lay persons and experts
- Integration of facts and values
- Goals
  - Promote learning through deliberation
  - Access *thoughtful* public opinion
  - Generate new ideas or policy alternatives
  - Impact governance decisions



# National Citizens' Technology Forum

**March 2008**

Tempe, Arizona  
Madison, Wisconsin  
Atlanta, Georgia  
Boulder, Colorado  
Durham, New Hampshire  
Berkeley, California



THE UNIVERSITY  
of  
**WISCONSIN**  
MADISON

Robert F. & Jean E.

**HOLTZ Center**



The Center for  
**Nanotechnology in Society**  
ARIZONA STATE UNIVERSITY

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# WORLD WIDE VIEWS ON Global Warming



## World Wide Views on Global Warming

FROM THE WORLD'S CITIZENS TO THE  
CLIMATE POLICY-MAKERS



- Anderson, A. A., Delborne, J., & Kleinman, D. L. (2013). **Information beyond the forum: Motivations, strategies, and impacts of citizen participants seeking information during a consensus conference.** *Public Understanding of Science*, 22(8), 955–970.
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- Schneider, J., & Delborne, J. (2012). **Seeking the Spotlight: World Wide Views and the U.S. Media Context.** In M. Rask, R. Worthington, & M. Lammi (Eds.), *Citizen Participation in Global Environmental Governance* (pp. 241–60). London: Earthscan Publications.
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- Kleinman, D., Delborne, J., & Anderson, A. (2011). **Engaging citizens: The high cost of citizen participation in high technology.** *Public Understanding of Science*, 20(2), 221–40.
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- Powell, M., Delborne, J., & Colin, M. (2011). **Beyond Engagement Exercises: Exploring the U.S. National Citizens' Technology Forum from the Bottom-Up.** *Journal of Public Deliberation*, 7(1), Article 4, 47 pages.

# High quality deliberation





# Framing the task and questions



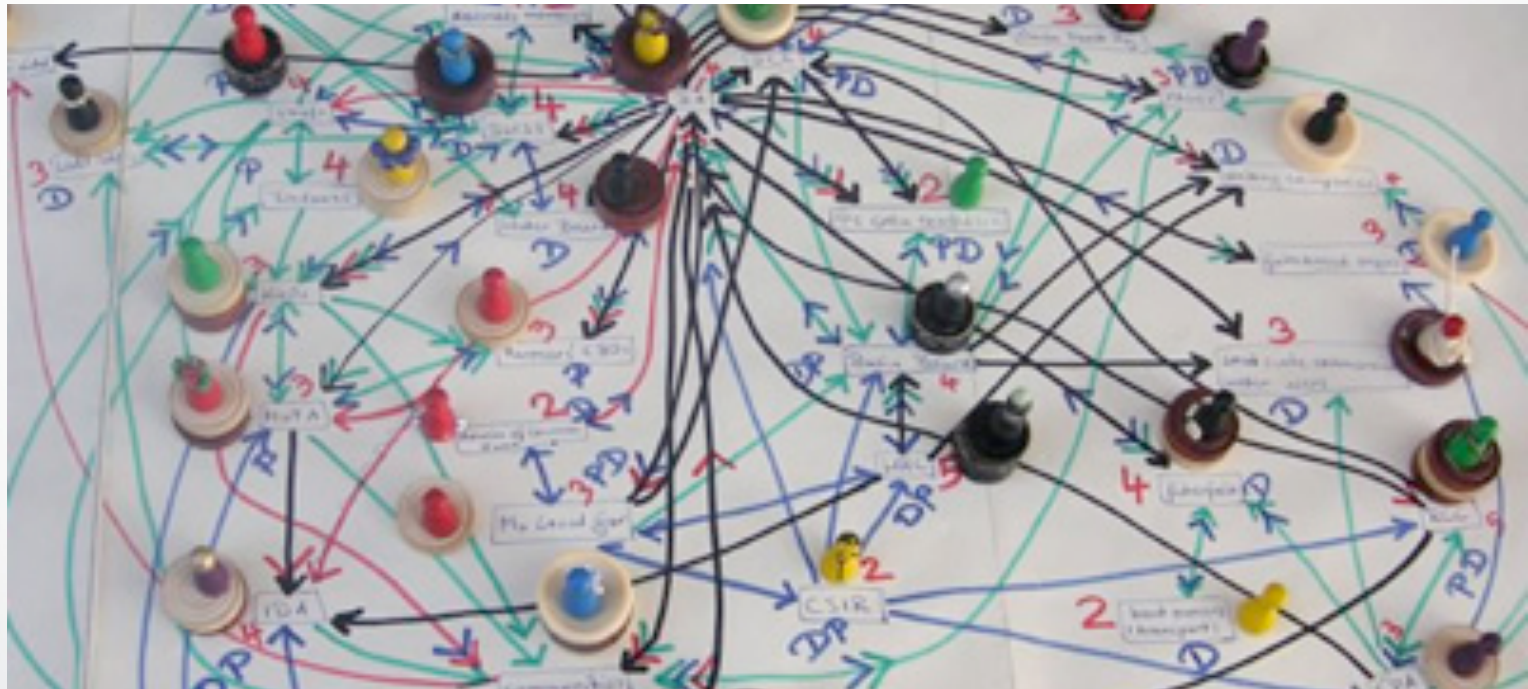
# Constructing the “public”



# Empowering participants



# Embedding in decision networks





High quality deliberation  
Empowering participants  
Constructing the “public”  
Embedding in decision networks  
Framing the task and questions  
Engagement with risk of being moved

