

# **Reinventing Technology Assessment**

## **A 21<sup>st</sup> Century Model**

Richard Sclove, Ph.D.  
Richard@Sclove.org



**Science and technology transform our world.**



**Often the ramifications are not understood until they are well-entrenched.**

# Technology Assessment (TA)

**Enhances societal understanding**

of the broad implications of  
science and technology, and

**improves decision-making.**

# Technology Assessment (TA)

- 1972: U.S. opens Office of Technology Assessment (OTA)
- 1995: U.S. Congress shuts down the OTA
- Meanwhile: 18 TA agencies now operate in Europe
- Since 1995: Repeated attempts to re-open U.S. OTA have failed
- 2008: Congress asks Government Accountability Office (GAO) to establish a permanent TA capability.

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- Since 1995: Repeated attempts to re-open U.S. OTA have failed
- 2008: Congress asks Government Accountability Office (GAO) to establish a permanent TA capability.
  - For now GAO anticipates producing studies at less than 1/10th the OTA's annual rate.

# Technology Assessment (TA)

*has the potential to  
alter and improve societal outcomes*

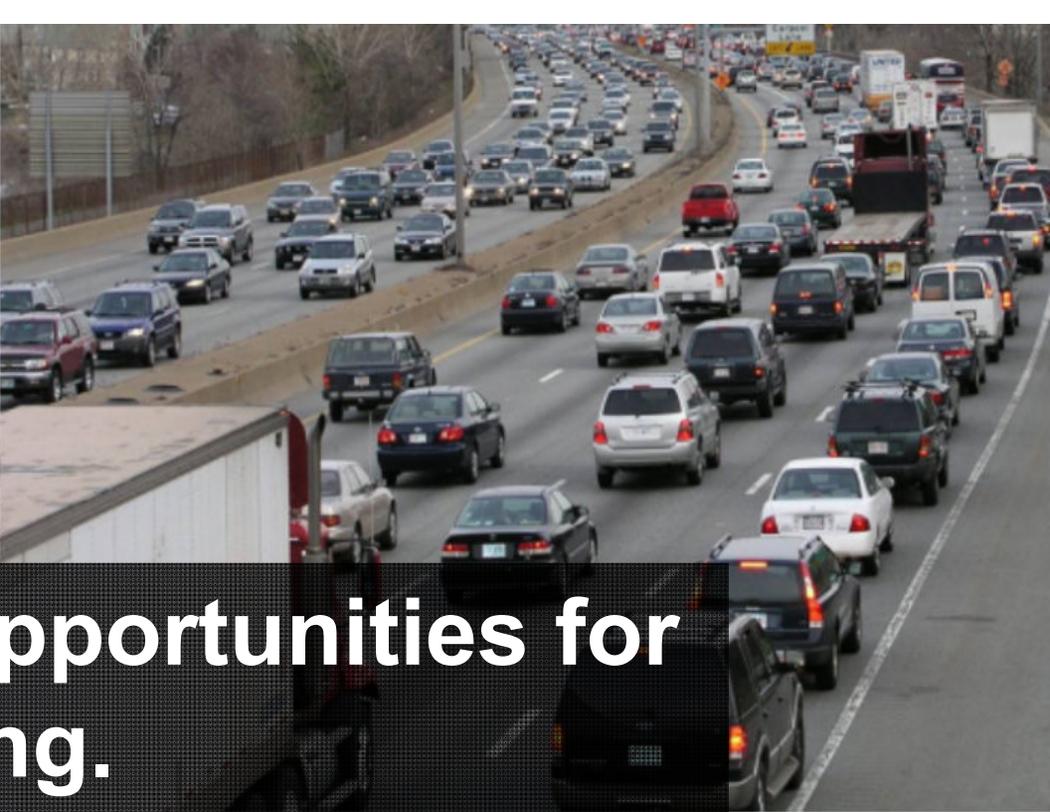
**In Europe, TA has contributed to:**

- Taking steps to adapt to global warming
- Developing strategies to produce green technologies
- Nuanced genetic technology choices (accelerating new pharmaceuticals, while going slow on gene-modified foods)
- Implementing REACH program that economically regulates all manufactured chemicals

# New Opportunities & Developments

- New TA practices in Europe, including participatory technology assessment (pTA), which involves citizens
- Collaboration between universities and European TA agencies in developing new TA concepts and methods
- The Internet makes TA possible on a more transparent, decentralized, agile, collaborative, and cost-effective basis
- Multi-institutional, multi-site and transnational TA collaboration is expanding
- Obama Administration open government & citizen engagement initiatives

**→ TA and pTA are increasingly influential around the world.**



**The need and opportunities for  
TA are expanding.**

***But the U.S. is lagging.***

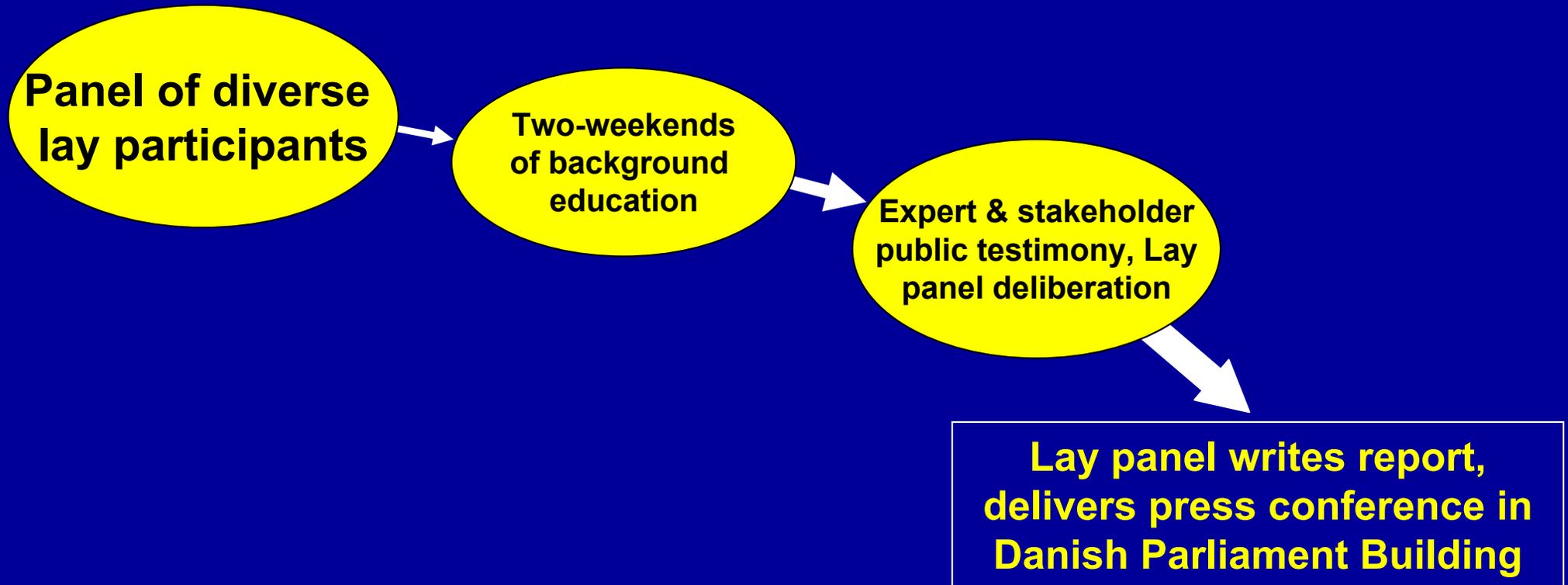


# Beyond OTA-style expert analysis, what's also needed is TA that...

- Gives **a voice to everyday laypeople**, who are otherwise omitted in politics of science and technology
- Lets decision-makers know **constituents' informed views**
- Stimulates broad **societal discussion**
- Allows innovators to anticipate public reactions and to alter innovation to **reduce costly controversy**
- Deepens **social and ethical analysis** of technology, informing and enriching expert TA

***pTA and expert TA complement one another  
in critical ways.***

# An Influential pTA Method: Danish Consensus Conferences



# Danish Consensus Conference Topics

- Gene technology in industry and agriculture (1987)
- Food irradiation (1989)
- Human genome mapping (1989)
- Air pollution (1990)
- Educational technology (1991)
- Transgenic animals (1992)
- Future of private automobiles (1993)
- Infertility (1993)
- Electronic identity cards (1994)
- Information technology in transport (1994)
- Integrated production in agriculture(1994)
- Setting limits on chemicals in food and the environment (1995)
- Gene therapy (1995)
- Future of fishing (1996)
- Consumption and the environment (1997)
- Telecommuting (1997)
- Citizens' food policy (1998)
- Genetically modified foods (1999)
- Noise and technology (2000)
- Electronic surveillance (2000)
- Testing our genes (2002)
- Assigning value to the environment (2003)
- Knowledge of the human brain (2005)
- New genetically modified crops (2005)

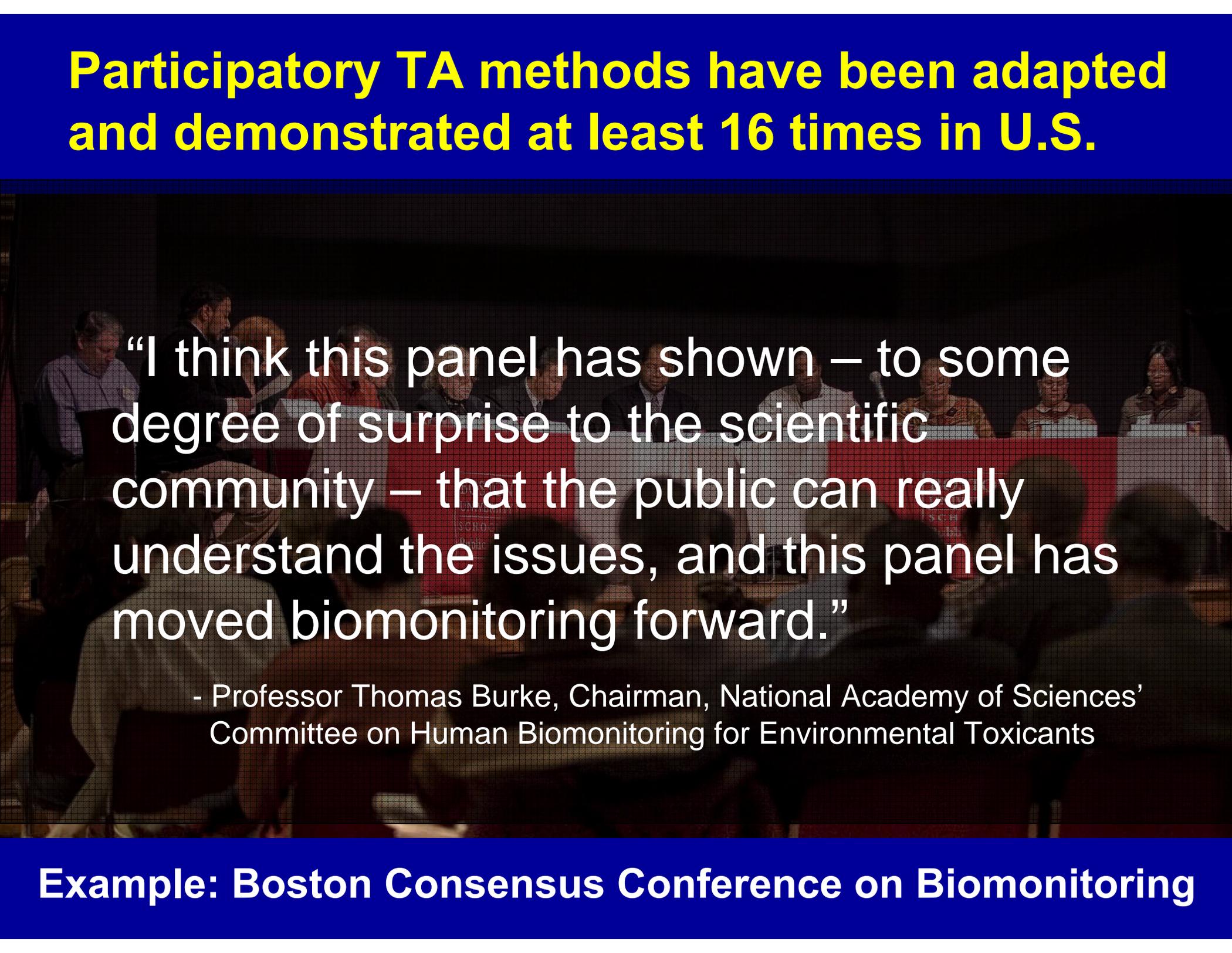
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**Example: Boston Consensus Conference on Biomonitoring**

# Participatory TA methods have been adapted and demonstrated at least 16 times in U.S.

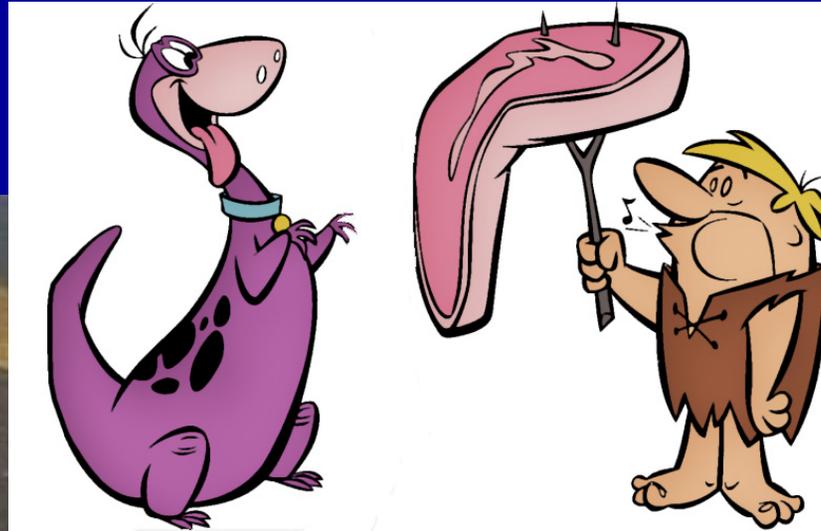
A photograph of a group of people, including men and women of various ethnicities, sitting around a long table covered with a red cloth. They appear to be in a meeting or conference setting, looking towards the camera or each other. The background is dark, and the lighting is focused on the participants.

“I think this panel has shown – to some degree of surprise to the scientific community – that the public can really understand the issues, and this panel has moved biomonitoring forward.”

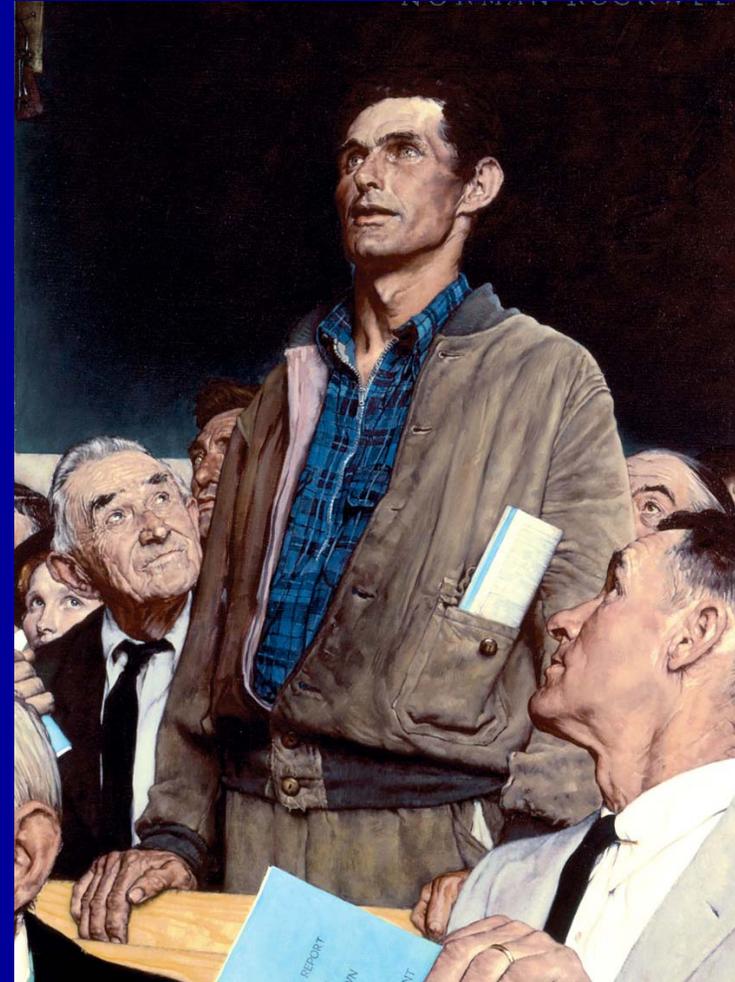
- Professor Thomas Burke, Chairman, National Academy of Sciences' Committee on Human Biomonitoring for Environmental Toxicants

**Example: Boston Consensus Conference on Biomonitoring**

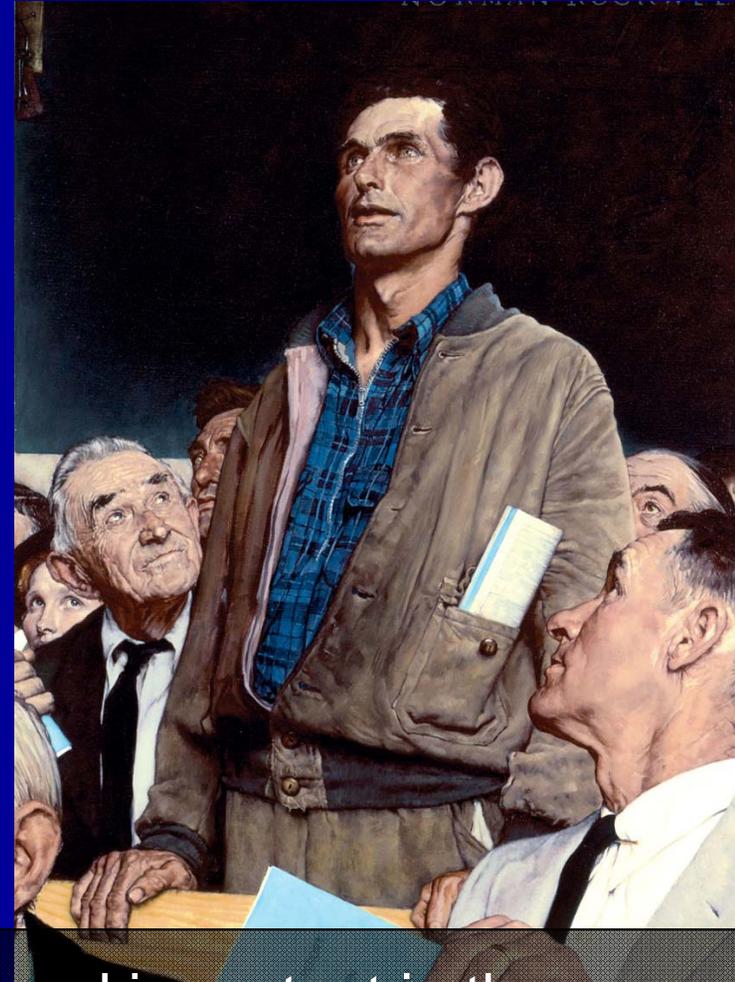
Engaging all kinds of stakeholders is good . . .



**. . . But how about affected people who aren't part of any recognized stakeholder group?**



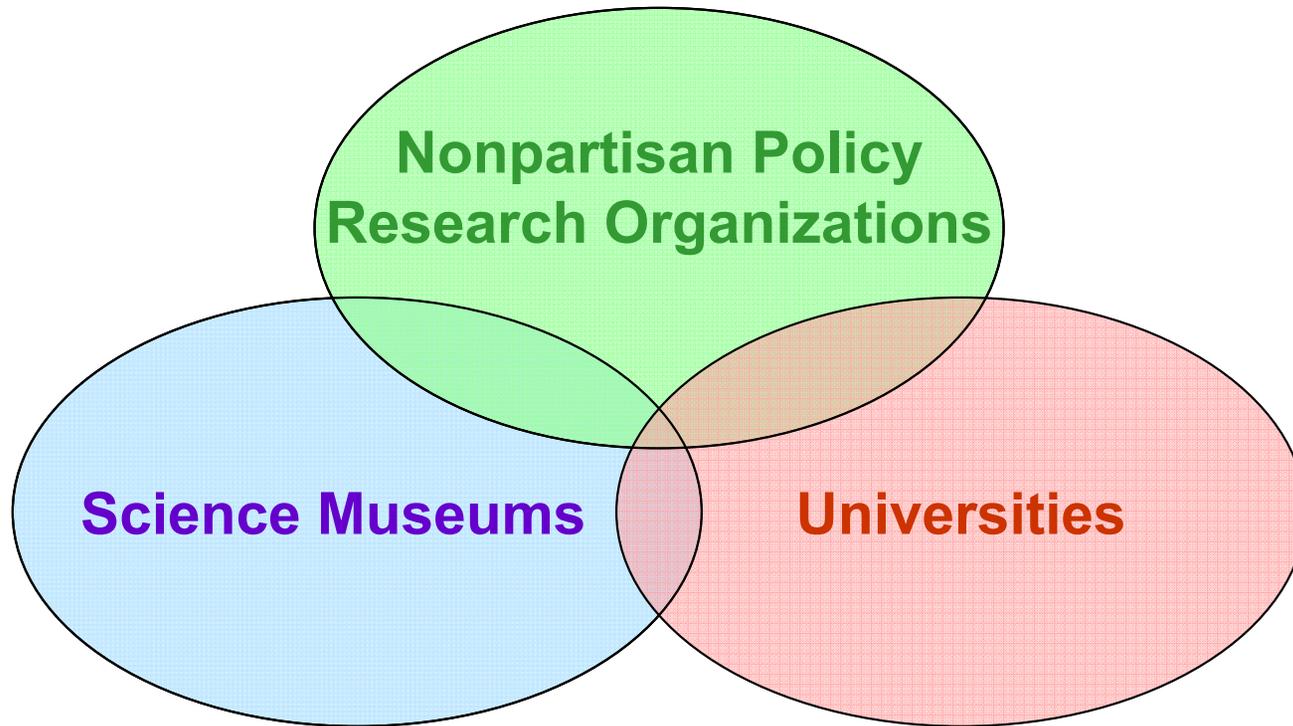
... But how about affected people who aren't part of any recognized stakeholder group?



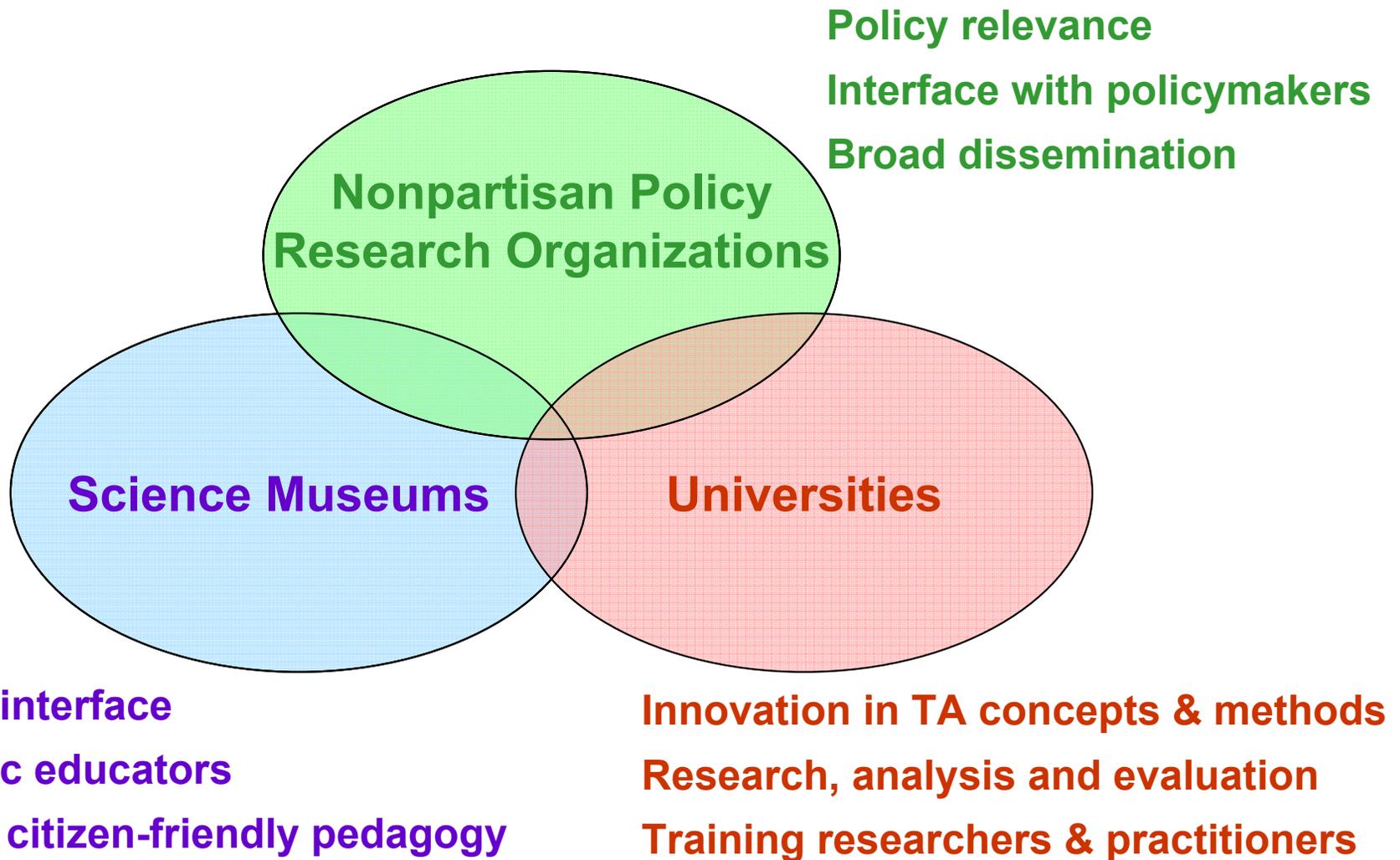
“Many important interests that are widespread and important in the aggregate are not strongly held or advocated by any particular organized group. Such interests are likely to have little voice in a process that emphasizes engaging stakeholders and organized groups.”

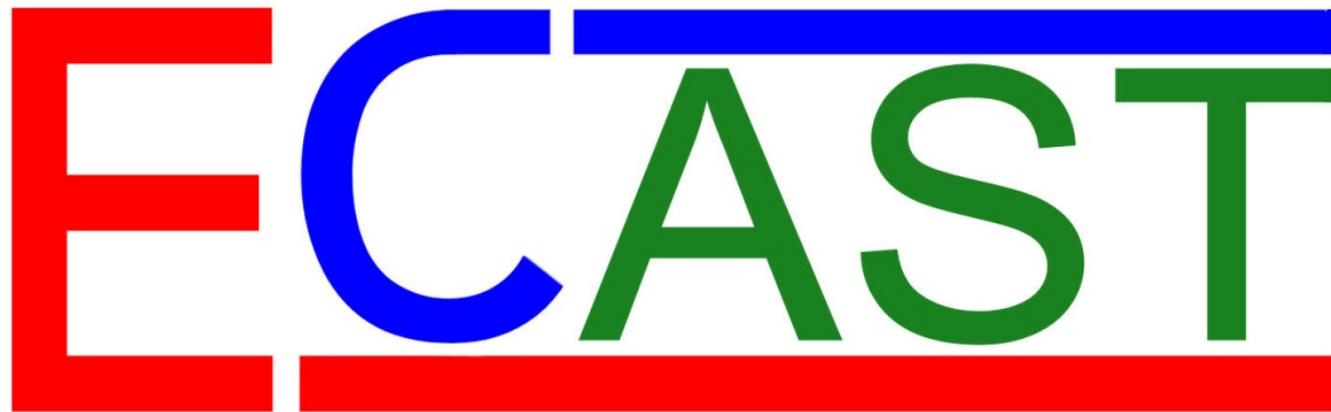
~ National Academy of Sciences report (2008)

# An Institutional Network Model



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Expert & Citizen Assessment of Science & Technology

**Founding partners:**

- Woodrow Wilson Center (Washington, DC)
- Arizona State University
- ScienceCheerleader
- Museum of Science Boston
- The Loka Institute

***ECAST will expand to encompass institutions  
across the USA.***



Woodrow Wilson  
International  
Center  
for Scholars

STIP 01  
APRIL 2010

# SCIENCE+ TECHNOLOGY INNOVATION PROGRAM

*by* Richard Sclove, Ph.D.

## REINVENTING TECHNOLOGY ASSESSMENT

A 21<sup>ST</sup> CENTURY MODEL

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## EDITORIALS

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### Open to all

A new approach to technology assessment would supplement expert opinion with input from society.

Ever since 1995, when a then-new Republican majority voted to close the US Congress Office of Technology Assessment (OTA) on the grounds that it wasn't necessary, calls have been made for its revival. Many say that the closure was short-sighted. Congress, like legislatures and executives in other nations, sorely needs a way to assess the complex scientific and technical issues involved in subjects such as climate change or genetically modified organisms.

But anything that replaces the OTA will need to confront some marked changes to the political environment that prevailed two decades ago. Then, the OTA's stock in trade was expertise, with about 150 professional staff members marshalling the best available technical information to produce authoritative reports.

Today, by contrast, the public and politicians alike are considerably less willing to accept the consensus of 'experts', even when it comes to technically grounded policy questions. The dominant strain in American domestic politics, as manifested in President Barack Obama's marshalling of grass-roots activists during his 2008 election campaign, and in the more recent 'Tea Party' movement against 'big' government, is a hunger for direct participation.

*Reinventing Technology Assessment*, a 2010 report from the Woodrow Wilson International Center for Scholars in Washington DC that lays out a new vision for US technology assessment, points to recent international experience, particularly in Europe, and calls for a broader, 'participatory technology assessment' (pTA) model that would supplement expert opinion with early input from all corners of society.

Such a model might have helped the US government to avoid

spending 30 years and US\$9 billion to develop the Yucca Mountain nuclear waste repository in Nevada, only for Obama to abandon the project last year in deference to local opposition. As National Academy of Sciences studies of risk assessment have inferred, it would have been wiser and cheaper to interact with the public at the beginning of the project, rather than at its end.

Whatever the virtues of the pTA approach, however, it is likely to be tricky to implement. If the process is to be credible to the public, for example, it will have to be open and transparent. Yet the doors cannot be thrown open to anyone who shows up at a meeting; that would make the process vulnerable to manipulation by special-interest groups, which have become adept at drumming up phony 'astroturf' grass-roots movements and spreading misinformation to inflame public opinion. Instead, the pTA organizers would have to do a careful job of recruiting representative samples of citizens, and motivating them to participate — presumably by paying them.

For decision-makers to listen, a pTA approach would have to be integrated with existing advisory mechanisms. One possibility would be to assign pTA responsibilities to well-established organizations such as Congress's Government Accountability Office, or the independent National Academies. Another possibility, advocated by the Wilson Center report, would be to create a non-governmental Expert and Citizen Assessment of Science and Technology network, which would include organizations with experience in public outreach such as non-partisan policy research institutions, universities and science museums.

Whatever its institutional form, however, the pTA approach needs to be attempted. It is exactly what Congress needs as it grapples with complex technical issues, and is squarely in line with the stated objective of Democrat and Republican politicians to build wider public participation in decision-making. All that's required is for Congress itself to agree, on a bipartisan basis, to set it up. ■

# Establishing a 21st century U.S. TA capability

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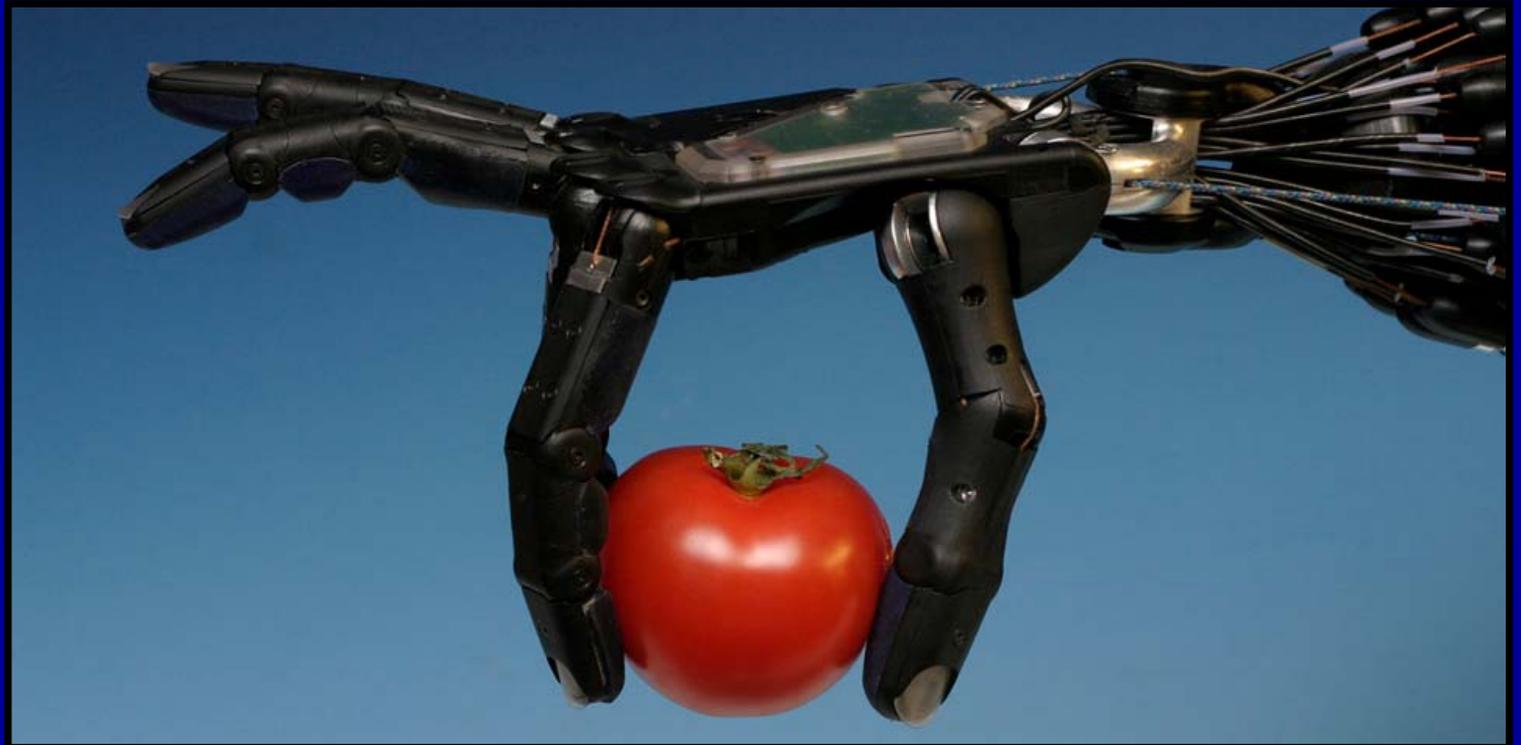
**The  
time  
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ripe!**



Courtesy Shadow Robot Company, Ltd.

# Establishing a 21st century U.S. TA capability

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[www.ECASTnetwork.org](http://www.ECASTnetwork.org)

[Richard@Sclove.org](mailto:Richard@Sclove.org)