Public and Stakeholder Participation for Managing and Reducing Risks

D. Warner North

Workshop Committee Member

Affiliation: NorthWorks, Inc, San Francisco, California

E-mail: northworks@mindspring.com

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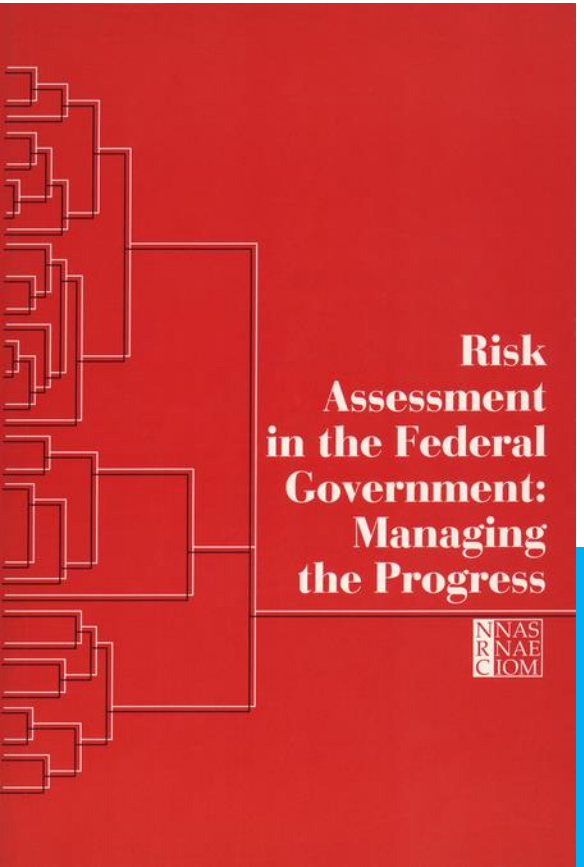
History and Motivation

- How to do risk characterization?
- How to assure good use of science – assessment of risk – in complex and controversial public policy issues?
- How to involve the public, particularly those individuals and organizations that are particularly interested and affected – "stakeholders" ?

Chemical Risk Assessment at EPA, OSHA, FDA, CPSC



Congress asked FDA to fund 1983 National Academy Report, *Risk Assessment in the Federal Government: Managing the Process*

("Red Book" - ref. to Sayings of Chairman Mao)

This report celebrated a 20th anniversary as a National Academies' "Bestseller:"

Special issue of **Human and Ecological Risk Assessment**, Aug 2003

National Academy Press publications are available online, this one at:
http://books.nap.edu/catalog.php?record_id=366

Risk Assessment: "Figure 1"

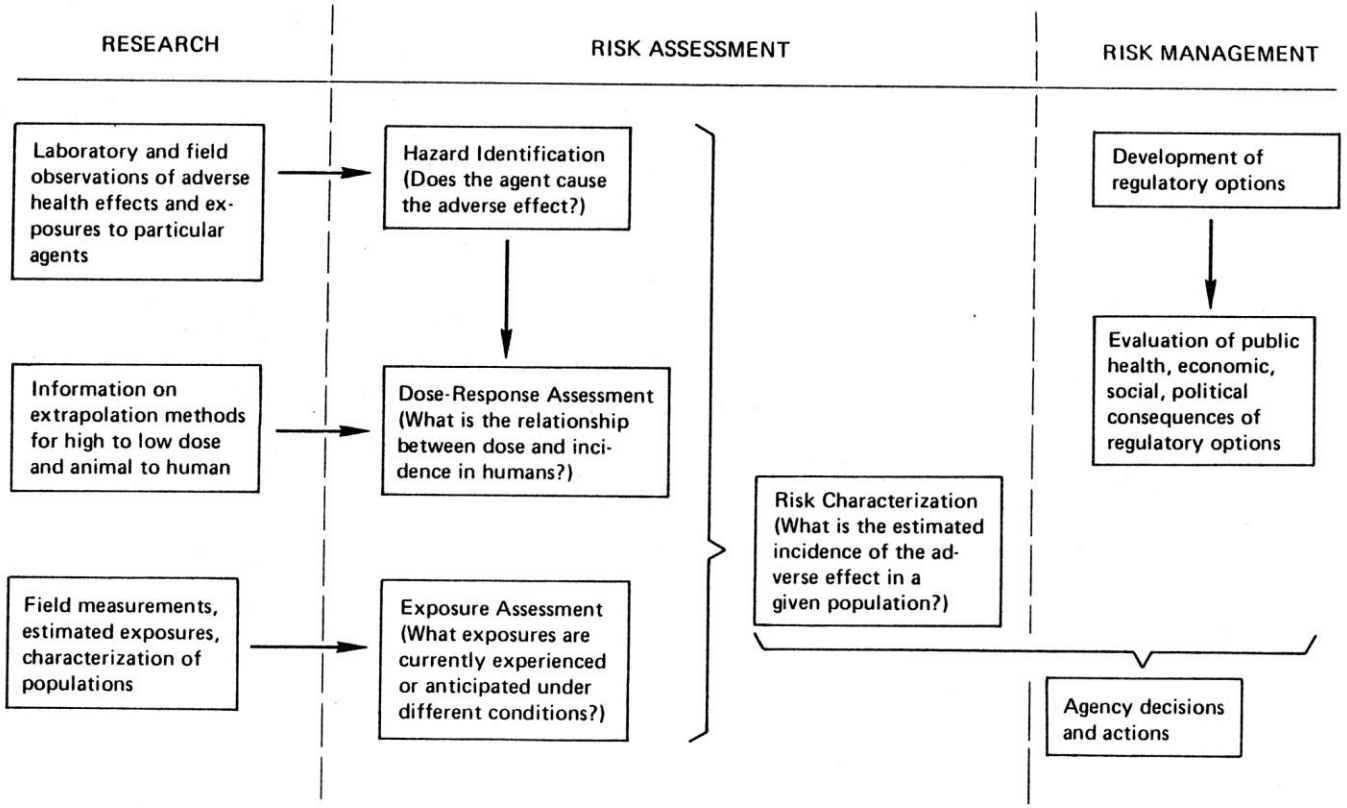
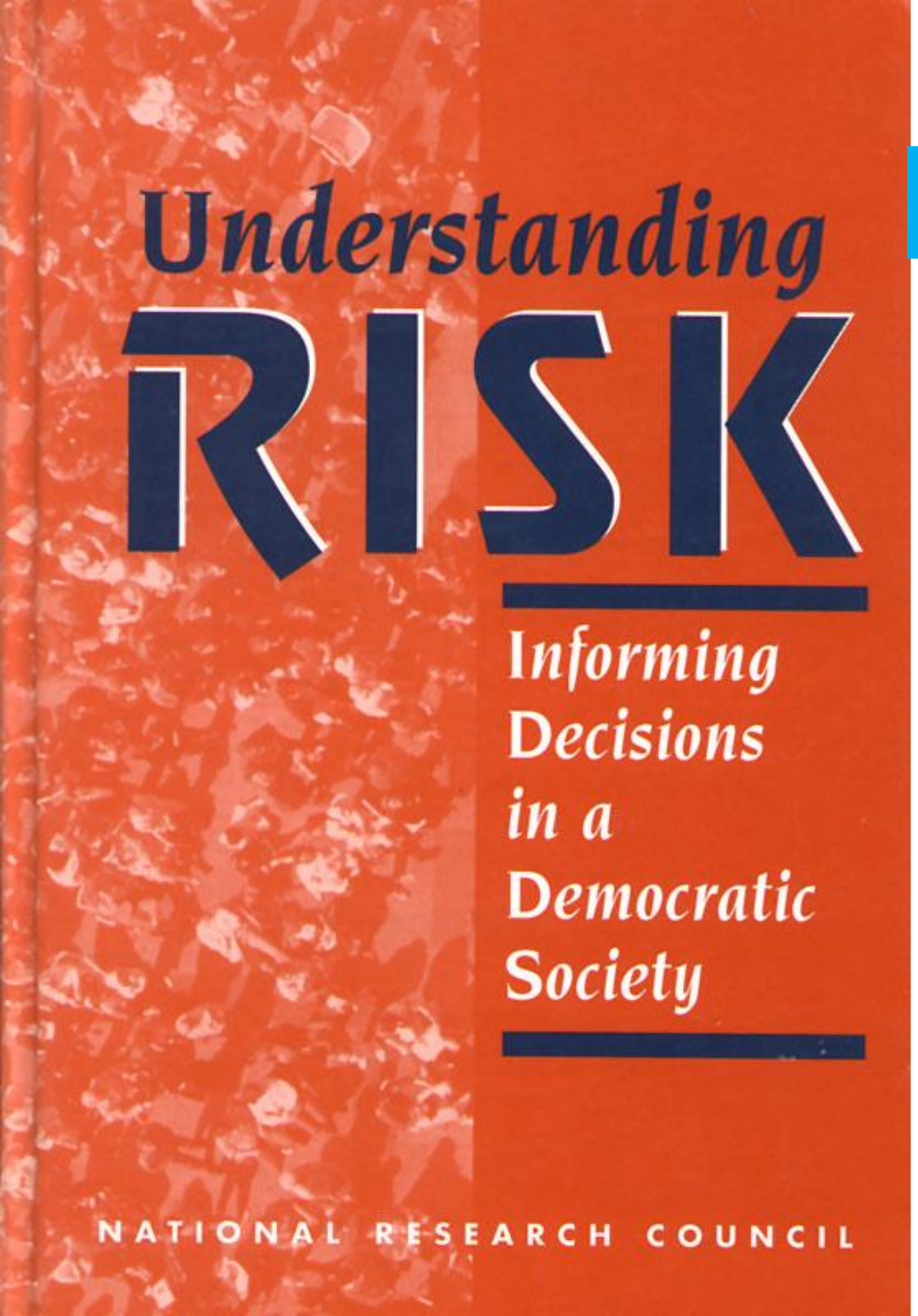


FIGURE I-1 Elements of risk assessment and risk management.

Source: National Research Council, *Risk Assessment in the Federal Government: Managing the Process* ("Red Book"), 1983

Risk Analysis in Support of Decision Making

- Risk assessment: process, deliverable; summary of science
- Risk management: also a process, leads to decisions; policy choices driven by values and goals
- Risk characterization: the communication or connection between risk assessment and risk management - focus of 1996 NAS/NRC report



This 1996 report is available online at:
http://www.nap.edu/catalog.php?record_id=5138

Members of the authoring committee included Mitchell Small, D. Warner North and fifteen others.

The Project Officer was Paul C. Stern

Charge to Committee

The way the nation handles risk often breaks down at the stage of "risk characterization," when the information in a risk assessment is translated into a form usable by a risk manager, individual decision maker, or the public. Oversimplifying the science or skewing the results through selectivity can lead to inappropriate use of scientific information in risk management decisions, but providing full information, if it does not address key concerns of the intended audience, can undermine that audience's trust in the risk analysis.

1996 report, page *x*

Revised Charge by Committee

"Risk characterization" is a complex and often controversial activity that is both a product of analysis and dependent on the processes of defining and conducting analysis. The study committee will assess opportunities to improve the characterization of risk so as to better inform decision making and resolution of controversies over risk. The study will address: technical issues such as representation of uncertainty; issues of translating the outputs of conventional risk analysis into non-technical language; and social, behavioral, economic, and ethical aspects of risk that are relevant to the content or process of risk characterization.

1996 report, page xi

Stakeholder Involvement

- Many people have interpreted recommendations for stakeholder involvement as letting stakeholders speak, letting them write comments, and (perhaps) letting them have seats at the negotiating table.
- The main *Understanding Risk* recommendation is for involving stakeholders in an **analytic-deliberative process**. This means going beyond words and political negotiation. It means giving stakeholders opportunities to **observe, learn, and comment in an iterative process of analysis and deliberation on policy alternatives**.

Process Diagram from Understanding Risk

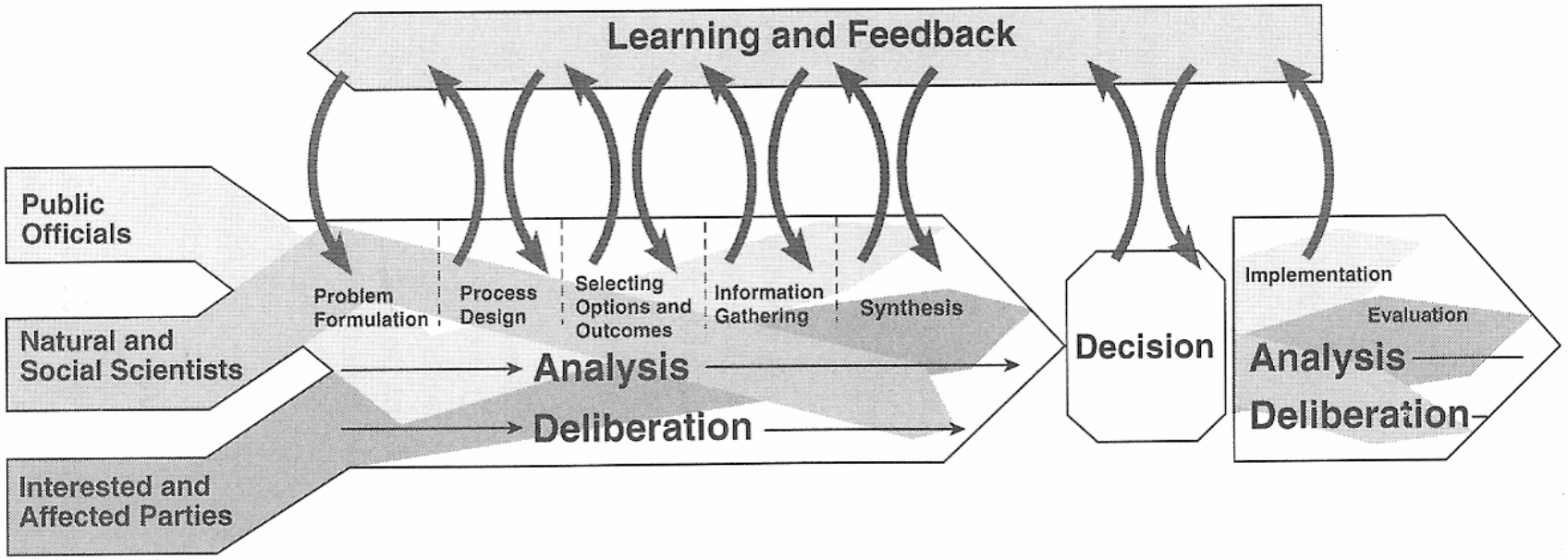


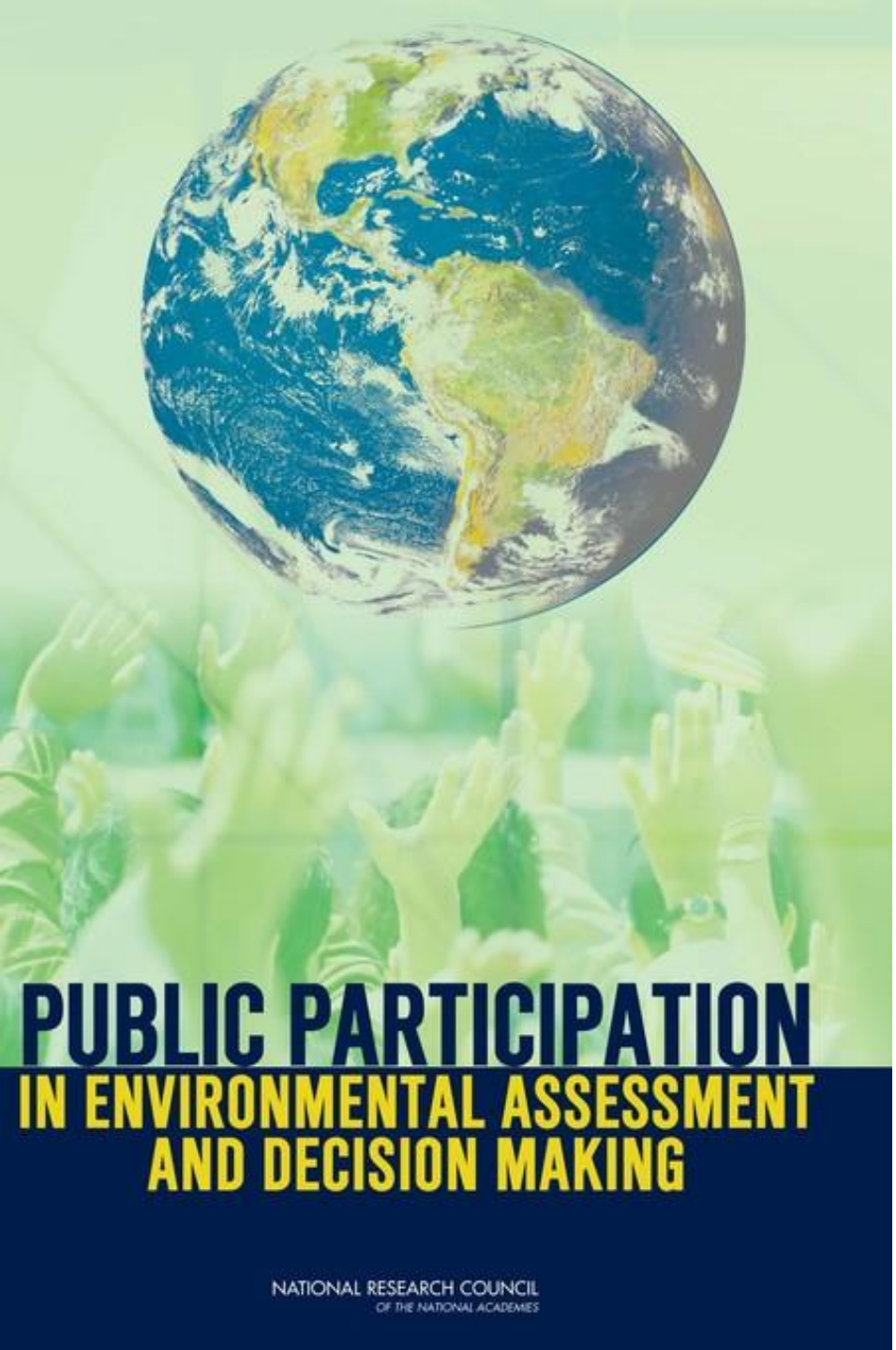
FIGURE 1-2. A schematic representation of the risk decision process.

1996 report, page 28

Five Key Bullet Points

- Getting the **science right**
- Getting the **right science**
- Getting the **right participation**
- Getting the **participation right**
- Developing an **accurate, balanced, and informative synthesis.**

Source: 1996 report, pages 6-7.



This 2008 report is available online at:
www.nap.edu/catalog.php?record_id=12434

Members of the authoring panel included D. Warner North, one other member of 1996 report committee, and ten others.

The Project Officer was Paul C. Stern

Goals of PP: Improve quality, legitimacy, capacity

- **Quality:** properly include (1) values, interests, concerns; (2) range of actions; (3) consequences of actions and their uncertainties (4) best available knowledge and methods (5) improved knowledge and methods as these emerge.
- **Legitimacy:** process perceived as fair and competent, consistent with laws and regulations.
- **Capacity:** for all participants, (1) become better informed and more skilled in participation; (2) become better able to engage scientific knowledge and values/concerns; (3) develop shared understanding, ability to communicate it, mutual trust.

condensed and paraphrased from 2008 report, pages 1-2

Conclusion #1

When done well, PP improves the quality and legitimacy of a decision and builds the capacity of all involved to engage in the policy process. It can lead to better results in terms of environmental quality and other social objectives. It can also enhance trust and understanding among parties. Achieving these results depends on using practices that address difficulties that specific aspects of the context can present.

2008 report, page 2

Disclaimer Following Conclusion #1

The panel found that participatory processes have sometimes made matters worse.

2008 report, text on page 2 immediately following Conclusion #1

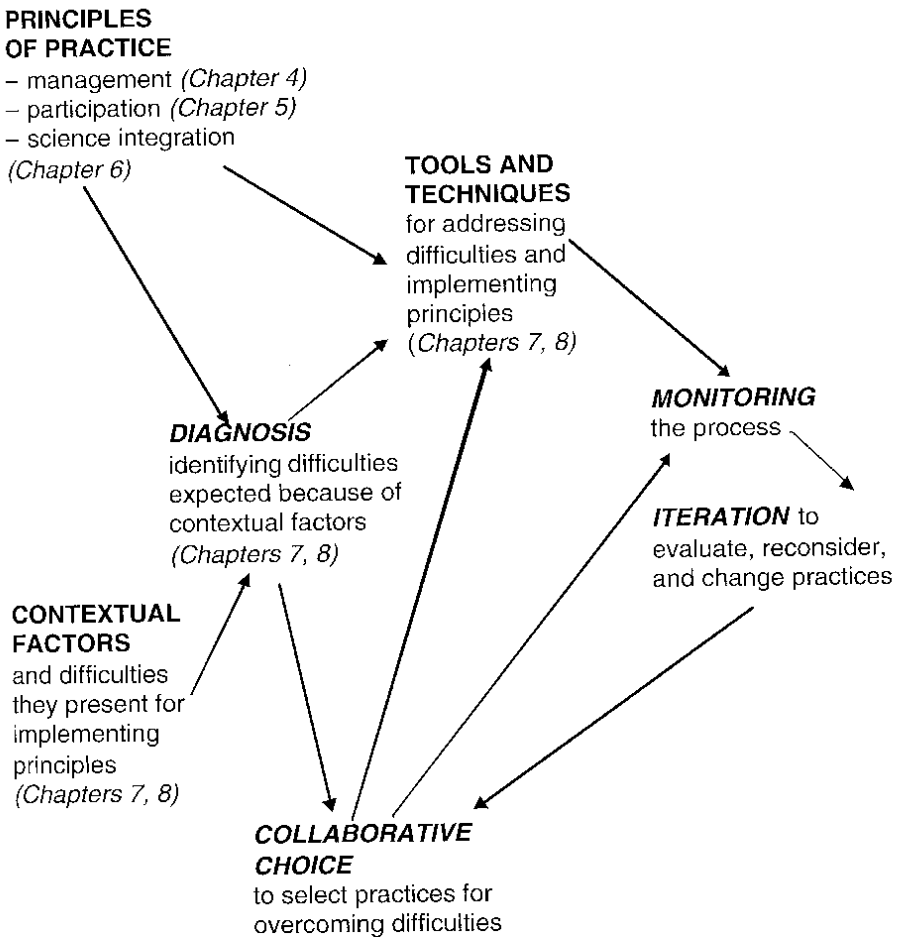


FIGURE ES-1 Elements of best process for public participation in relation to the principles of good public participation and variations in context.
NOTE: The four elements of best process are indicated in italics. Arrows indicate lines of influence: principles and contextual factors contribute to diagnosis; principles, diagnosis, and collaborative choice influence the selection of tools and techniques; the tools and collaborative choice determine what is monitored and how; monitoring leads to iteration; and iteration, via collaborative choice, feeds back to the selection of tools and techniques.

Diagram of Report Contents, Public Participation in Environmental Assessment and Decision Making Report, 2008,

from page 5

Repeated Quote from 1996 Report in 2008 Report

[S]uccess depends critically on **systematic analysis** that is appropriate to the problem, responds to the needs of the interested and affected parties, and treats uncertainties of importance to the decision problem in a comprehensible way. Success also depends on **deliberations** that formulate the decision problem, guide analysis to improve decision participants' understanding, seek the meaning of analytic findings and uncertainties, and improve the ability of the interested and affected parties to participate effectively in the risk decision process. The process must have an appropriately diverse representation of the spectrum of interested and affected parties, and of specialists in risk analysis, at each step.

Quote appears twice in 2008 report, on pages 152 and 234.

Original text is on page 3 of 1996 report. Emphasis added.

Importance of Problem Formulation

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Shale Gas Development: Global Risk Perspective

- Shale gas resource is abundant in many areas of the world.
- Natural gas from shale can replace coal and oil in many uses, reducing CO_2 emissions, in rapidly developing countries such as China.
- Concern is needed for increased methane emissions from shale gas development.

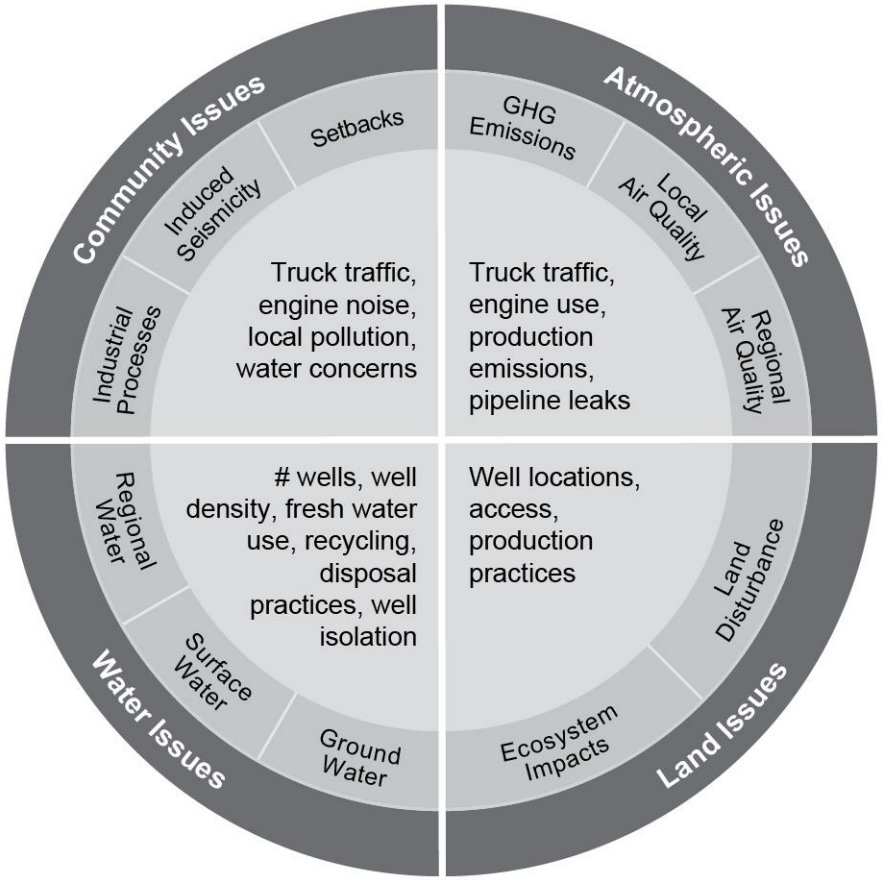
Shale Gas Development: National Energy Perspective

- Development of shale gas has reduced natural gas prices more than 50% in five years; replaced significant amounts of coal for electric generation lowering US CO_2 emissions reduced US oil imports and improved US balance of payments.
- Lower-cost natural gas from shale competes with renewable energy technologies and nuclear power: may provide a bridge and a backup to intermittent renewables until better technologies are available, or may delay adoption of non-fossil technologies.

Shale Gas Development: Regional Risk Management Perspective

- Shale gas development offers economic benefits to producers and consumers in the region and elsewhere.
- Shale gas development poses risks of adverse effects on human health and the environment – air pollution, surface and groundwater contamination, regional water supply, land disturbance, ecosystem impacts, and industrial scale development in rural areas and small communities.
- These risks may be larger to the extent that best practices are not used.

Source for Regional Perspective: Mark Zoback's Figure



Zoback and Arent, in press, The Bridge, 2013

Caveat

- The preceding 3 slides are intended as **illustrating** the multiple levels at which risks and benefits of shale gas development are perceived. A **comprehensive formulation** at any of these levels is beyond my scope in the time allotted!

My Endorsement of Others' Suggestions - via A&D processes

- Plan and manage community impacts (Sara Fullenwider's "Hindsight" slide)
- Fracking/drilling fluid chemicals disclosure – seek agreement. (SEAB rec #2)
- Plan proper disposition of produced water and contaminants. (SEAB rec #1 – regional issue)
- Water – regional plan ("one lane," allocation SRBC), other lanes coordinated on quality/treatment, land use, biomes, etc. (many)
- Air emissions, surface water quality, surface spills, health effects – seek improved safety culture; monitoring and sanctions for poor performance – (many participants)
- Well integrity: evolve best practices, safety culture; inspect, as in residential construction (Zoback analogy)
- Ground water quality, possible methane leaks – get baseline data, monitor (several)

Conclusion

- Shale gas development is yet another complex and controversial public policy issue involving risk.
- Public and stakeholder participation following the guidance in the 1996 and 2008 National Academy Press reports seems promising.
- Getting the process details right so that some success is achieved is challenging. In my opinion, the approach is worth trying.