

LECTURE NOTES: EMGT 234

PERCEIVED RISK, TRUST, and DEMOCRACY

SOURCE:

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1. INTRODUCTION

Objective:

Examine 3 remarkable trends within our society pertaining to perception and management of risk.

Trend 1: Americans **perceive** themselves as increasingly vulnerable to life's hazards and believe that our land, air, and water are more contaminated by toxic substances than ever before, **despite** spending billions of dollars to improve health and safety.

Trend 2: Risk assessment and risk management have become much more contentious. Risk-communication efforts thus far have not been able to resolve the conflict.

Trend 3: Trust/distrust has been recognized as an important aspect of the risk perception problem. Distrust has been shown to be strongly linked to risk perception and to political activism to reduce risk.

“How did we arrive at current perceptions of risk and distrust?”

2. THE IMPORTANCE OF TRUST

**Trust is important for all forms
of human social interaction**

1. Recent studies point to **lack of trust** as a critical factor of underlying conflicts surrounding the management of technological hazards.
2. Importance of **trust issue** not appreciated in Risk Management due to its familiarity?

Examples:

- Public's lack of concern about **risks from tigers in urban zoos** shows that acceptance of risks is strongly dependent on confidence in risk management.
- People view **medical technologies** based on use of radiation and chemicals (i.e., x-rays and prescription drugs) as:
 1. high in benefit,
 2. low in risk,
 3. clearly acceptable.

Although high in risk, our high degree of trust in the physicians who manage these devices makes them acceptable.

- People view **industrial technologies involving radiation and chemicals** (i.e., nuclear power, pesticides, industrial chemicals) as
 1. high in risk,
 2. low in benefit,
 3. unacceptable.

Polls have shown that the government and industry officials overseeing the management of nuclear power and non-medical chemicals are not highly trusted.

Nuclear Power\Chemical Industry Case:

1. Government agencies have made risk assessment the centerpiece of their regulatory efforts. More than \$1 billion has been spent on technical risk assessments.
2. Public perceptions and acceptance of risk from nuclear and chemical technologies are not much influenced by technical risk assessments.

Perceptions in contrast with the view of the technical community, i.e. that nuclear wastes can be disposed of safely in an underground repository (see Table I).

TABLE I.

The following comments reflect expert viewpoints on the risk from nuclear-waste disposal and the public's perceptions of these risks.

"Several years ago... I talked with Sir John Hill,... chairman of the United Kingdom's Atomic Energy Authority. 'I've never come across any industry where the public perception of the problem is so totally different from the problems as seen by those of us in the industry... 'Hill told me. In Hill's view, the problem of radioactive waste disposal was, in a technical sense, comparatively easy."
(L.J.Carter, *Nuclear Imperatives and Public Trust*. Resources for the Future, Inc, Washington D.C., 1987, p. 9)

"Nuclear wastes can be sequestered with essentially no chance of any member of the public receiving a non-stochastic dose of radiation. ... Why is the public's perception of the nuclear waste issue at such odds with the expert's perception?" (A.M. Weinberg, *Public Perceptions of Hazardous Technologies and Democratic Political Institutions*. Paper presented at Waste Management '89, Tucson Arizona, 1989, pp. 1-2.

"The fourth major reason for public misunderstanding of nuclear power is a grossly unjustified fear of hazards from radioactive wastes... there is general agreement among those scientists involved with waste management that radioactive waste disposal is a rather trivial technical problem." (B.L. Cohen, *Before It's Too Late: A Scientist's Case for Nuclear Energy*. Plenum, New York, 1983, p/119)

"The risk is as negligible as it is possible to imagine... It is embarrassingly easy to solve the technical problems, yet impossible to solve the political ones." (H. W. Lewis, *Technological Risk*. W.W. Norton, New York, 1990, pp. 245-246.

Conclusion: "Crisis in Confidence"

Breakdown of trust in the scientific, governmental, and industrial managers of nuclear technologies.

- Analogous crises of confidence exist in chemical industry.

Industry & Government Response:

Use Risk Communication Research to align public perceptions and technical risk assessments.

Realizations thus far:

1. Risk Communication can prevent blunders that exacerbate conflict
2. Little evidence that risk communication has made significant contribution to reducing the gap between technical risk assessments and public perceptions.

Explanation:

Limited effectiveness of risk-communication efforts because lack of trust:

- Risk manager trusted → communication is easy.
- Trust is lacking → no communication will be satisfactory.

“Trust is more fundamental to conflict resolution than is risk communication.”

3. CREATION AND DESTRUCTION OF TRUST

Quote: Abraham Lincoln

"If you *once* forfeit the confidence of your fellow citizens, you can *never* regain their respect and esteem" [italics added].

"The Asymmetry Principle":
Trust is fragile, it is easier to destroy than to create.

Psychology Study: Rothbart and Park

150 people were asked to rate 150 descriptive traits (adventurous, gentle, lazy, trustworthy, etc.) in terms of the number of behavioral instances necessary to establish or disconfirm the trait.

Results Study:

- Favorable traits (like trustworthiness) are hard to acquire (i.e. many behavioral instances needed) and easy to lose.
- Unfavorable traits are easy to acquire and harder to lose.
- The number instances required to disconfirm a negative quality, once established, (e.g., dishonesty) was greater than the number required to disconfirm a positive trait. (Trustworthiness in particular, as Abraham Lincoln indicated).

Psychological Explanations for "The Asymmetry Principle":

- 1. Negative (trust-destroying) events are more visible or noticeable than positive (trust-building) events.**

Negative events: Well defined e.g. accidents, lies, discoveries of errors, mismanagement, etc.

Positive events: Fuzzy or indistinct, e.g. How many positive events are represented by the safe operation of a nuclear power plant for one day? Is this one event? Dozens of events? Hundreds? There is no precise answer

- 2. When events do come to our attention, negative (trust-destroying events) carry much more weight than positive events.**

Study Subjects:
103 college students.

Question :
Rate the impact on trust of 45 hypothetical news events pertaining to the management of a large nuclear power plant in their community.

Some were Trust Increasing:

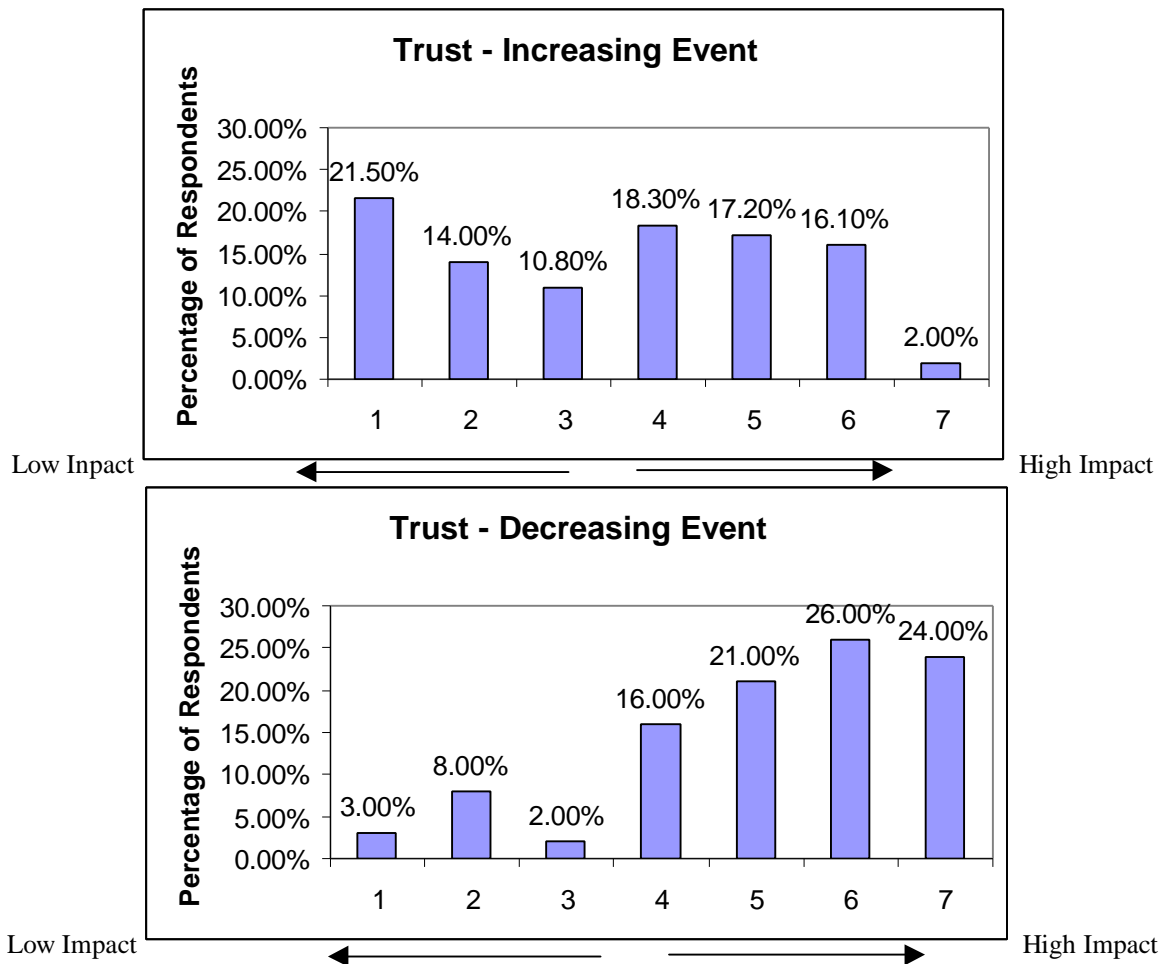
1. "There have been no reported safety problems at the plant during the past year".
2. "The county medical examiner reports that the health of people living near the plant is *better* than the average for the region"

Some were Trust Decreasing:

1. "A potential safety problem was found to have been covered up by plant officials."
2. "The county medical examiner reports that the health of people living near the plant is *worse* than the average for the region."

	Impact on Trust						
	Very Small 1	2	3	4	5	6	Very Powerfull 7
Trust-Increasing Event: "The county medical examiner reports that the health of people living near the plant is better than the average for the region"	21.50%	14.00%	10.80%	18.30%	17.20%	16.10%	2.00%
Trust-Decreasing Event: "The county medical examiner reports that the health of people living near the plant is worse than the average for the region"	3.00%	8.00%	2.00%	16.00%	21.00%	26.00%	24.00%

Cell entries indicate the percentage of respondents in each impact category



- The percentage of Category 7 ratings is much higher for Trust Decreasing events than Trust -Increasing events.
- Only one event had large positive impact:

"An advisory board of local citizens and environmentalist is established to monitor the plant and is given legal authority to shut down the plant if they believe it to be unsafe"

3. Sources of bad (trust-destroying) news tend to be seen as more credible than sources of good news.

Study: Examined people's confidence in the ability of animal studies to predict human health effects from chemicals.

Results:

- In general, confidence in the validity of animal studies is not high.
- However, if chemical is carcinogenic in animals, people believe chemical is carcinogenic to humans.

4. Distrust, once initiated, tends to reinforce distrust:

1. Distrust inhibits personal contacts and experiences that are necessary to overcome distrust.
2. Initial trust or distrust colors our interpretation of events, thus reinforcing our prior beliefs.

Example: Three Mile Island Incident

Trusting persons: Saw the event as the "defense in depth" principle, noting that the multiple safety systems shut the plant down and contained most of its radiation.

Distrusting persons: perceived that those in charge did not understand what was wrong or how to fix it and that catastrophe was averted only by sheer luck.

4. "THE SYSTEM DESTROYS TRUST"

Thus far, discussed psychological explanations for the reinforcement of distrust.

System amplifies the asymmetry principal for three reasons:

1. **Technological change allows media to inform us right as it happens. Much of what the media reports is bad (trust-destroying) news.**

Example: Koren and Klein

Compared the rates of newspaper reporting of two studies:

1. **Bad news:** Showed an increased risk of leukemia in white men working at the Oak Ridge National Laboratory.
2. **Good news:** Failed to show an increased risk of cancer in people residing near nuclear facilities.

Result: Newspaper coverage was far greater for the study showing increased risk.

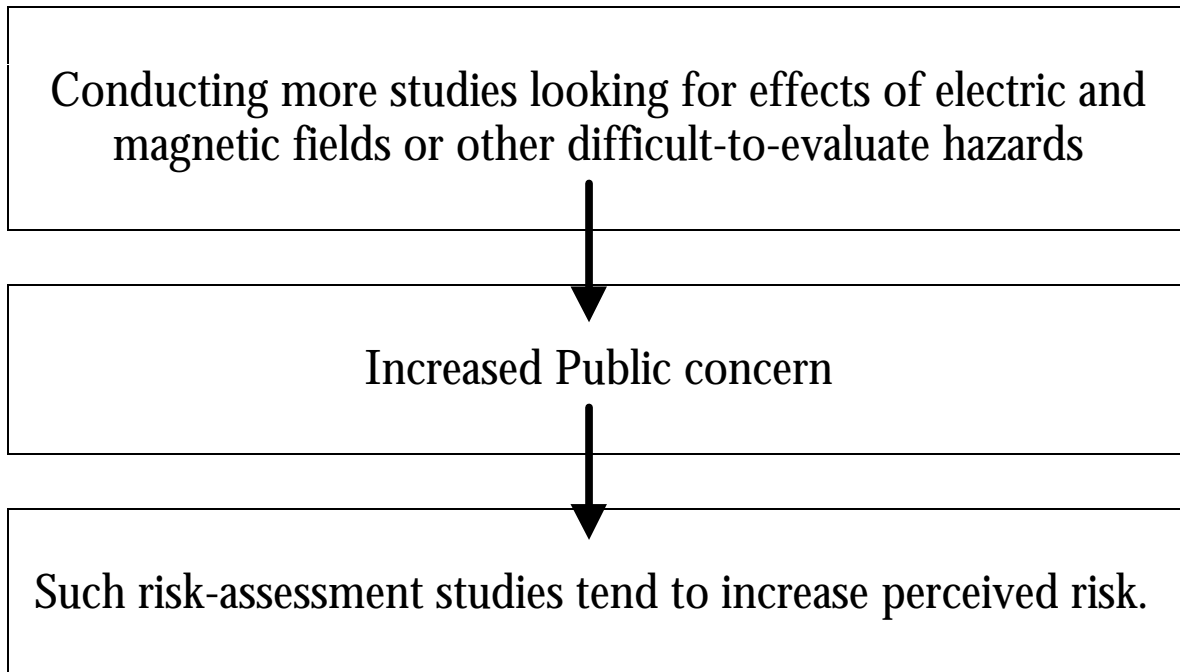
2. **The rise of powerful special interest groups: well-funded (by a fearful public), sophisticated.**

Use their own experts and the media to communicate their distrust to the public in order to influence risk policy debates and decisions. (Brent Spar Example, RCAC Alaska)

3. We tend to manage our risks within a system that pits expert vs. expert, contradicting each other's risk assessments and further destroying the public trust.

In the absence of trust, science (and risk assessment) can only **feed distrust**, by uncovering more bad news.

Example:



Even the case when studies fail to find association with ill-health.

5. WHERE NEXT? RISK AND DEMOCRACY

1. No solution to risk-management problems, but diagnosis of root causes of risk conflicts has been established.
2. The need for new approaches to risk management is recognized.

Two Suggested Approaches:

French Model:

Less public participation, more centralized control.

In France:

- Perception of risk of nuclear power extremely high.
- Public has high degree of trust scientific elite for guidance in policy matters. The French nuclear power program is run by the state, not private industry. Electricite de France has long had a strong reputation for being competent and putting service above profits.

Other Model:

- Restoration of trust that goes far beyond "public relations" and "two way communication" requiring a degree of openness and public involvement encompassing **levels of power sharing** and **public participation in decision making** that have rarely been attempted.
- In case this fails: Develop ways to work constructively in situations where trust is not attainable.

General Conclusions:

- **Long way to go in improving our risk management processes.**

“While everyone can appreciate that a complex, highly sophisticated engineering is required to safely store nuclear materials for thousands of years, few have appreciated the political requirements necessary to design and implement such a solution. While vast resources have been expended on developing complex and sophisticated technologies, the equally sophisticated political processes and institutions required to develop a credible and legitimate strategy for nuclear waste management have not been developed. The history of high-level radioactive waste management describes repeated failure to recognize the need for institutional reform and reconstruction.”

Is analysis in this paper depressing or not?

1. Understanding the root causes of social conflict and recognizing the need to create better risk-management processes are essential first steps toward improving the situation.
2. It is far more depressing **not to understand** the complex psychological, social, cultural, and political forces that dictate the successes and failures of risk management.