

Addressing Negative Perceptions of Risk-Informed Applications

- my perception of the perceptions -

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Embedded Topical:

Risk Management for Complex Socio-Technical Systems [RM4CSS]

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Opening Thought

Misperception of Misperceptions

- Public opposition to **X** is widely interpreted as the result of the public's misperception of the risks
- A strategy of accurate risk communication from trusted sources has been advocated
- Survey results:
 - Some respondents perceive both risks and benefit
 - For others benefit appears to dominate their judgments
 - Their perception of risk is of limited importance in the formation of attitudes toward **X**
 - Calls into question the relevance of risk communication strategies for bringing about change in public opinion

Opening Thought

Reference

X == genetically modified (GM) food and crops

Abstract from [Risk Analysis](#) 2004 Feb;24(1):185-94.

GM foods and the misperception of risk perception.

[Gaskell G](#), [Allum N](#), [Wagner W](#), [Kronberger N](#), [Torgersen H](#), [Hampel J](#), [Bardes J](#).

Source

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Factors Causing a Negative Perception

- Change is always difficult
 - Most risk-informed programs change an existing program
 - I am comfortable with the existing program (been doing this for 30 years and never had a problem)
 - Why “fix” it if it ain’t broke
 - My area/expertise is not important anymore
- Change is even harder when it is changing to something you don’t do or control
 - What is not well known is not trusted
 - I don’t trust something if what I used to do is now being controlled or influenced by something else
 - Must prove its worth/trust

Example Negative Perceptions of Risk-Informed Applications

- Most risk-informed applications allow reductions from the traditional program
- PRA models are not technically accurate and optimistic
 - Where there is a lack of experience/data, they make up numbers instead of being conservative or doing research to develop better analyses
- Most complaints from the risk community relate to cost; not about making plants safer
 - What you complain about is what is really of most importance to you

The First Step is to Recognize

There is a Problem

- There is some truth to the perceptions
- Risk community sometimes causes negative perceptions in how it handles issues, for example:
 - All PRAs use conservative approaches as simplifications to detailed analyses, especially if they do not impact the results
 - If you heard the risk community talk about “conservatism” you would think it was anathema
 - When a conservatism impacts the results, then more detailed analyses usually are needed, but that increases costs
 - Some seek “quick fixes” without developing sound technical bases, without doing research/testing
- One bad experience reinforces the distrust

Implications of the Way Risk is Communicated

- Most risk-informed applications use RG 1.174
 - For plants with CDF below 10^{-4} /year, RG 1.174 acceptance guidelines allow small increases in risk
 - Very small increases if slightly above 10^{-4} /year
 - Some applications reduce risk, but it is easier to show that they will result in no more than a small (or very small) risk increase instead of showing they reduce risk
 - What is not conveyed is the improved selection processes, better understanding of maintenance/inspection aspects, and the trade-offs of focusing on the most important items instead of treating all items equally
- Do we presume these benefits are self-evident or just not needed to gain the approval?

Addressing Perceptions

- Past studies on risk-informed applications should be updated and disseminated upward and outward
- Recognize this is not an either/or world, but a both/and world
 - Strive for Win-Win situations
 - Don't compromise technical integrity for expediency

Addressing Perceptions

- Recognize no model or analyst is perfect
- Continue to strive to improve PRAs
 - Don't create fudge factors
 - Develop sound technical bases for new methods
 - Continual improvement requires continual investment
 - Research/Testing
- Communicate about the uncertainties in the results/insights
 - Defense-in-Depth, Safety Margins, and conservatism (when there is a lack of knowledge) are vital in having a balanced, risk-informed approach

Closing Thought on Addressing Perceptions

- PRA is a powerful tool that can help communicate between various audiences
- Recognize the different audiences when communicating
- Listen to the inputs of the audiences
- Don't strive to correct the perception, strive to understand it
 - Often it is our approach to communication that needs correction