Risk Analysis: Always a Help, Never a Panacea

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Background

- Editor-of-Chief of Risk Analysis
- Been at Rutgers for 37 years
- Focus on environmental health policy
- Interest began in high school when National Environmental Policy Act was passed
- NEPA necessary but not sufficient process
Risk Assessment

• (1) What can go wrong?
• (2) What are the chances that something with serious consequences will go wrong?
• (3) What are the consequences if something does go wrong?
Risk Management

• Making choices about which risks are higher priority than others
• Using economics, ethics/morality, public perception, values, and politics to reduce these risks.
• An art and a science
Alternatives to Risk Analysis

• (1) do nothing
• (2) follow ideology
• (3) follow laws, rules regulations, which can be counterproductive (outright ban, restrictions on equipment and raw materials)
Chemical weapons: Clear Recommendations

- Destruction of hundreds of thousands of rounds located at 8 sites and Johnston Island
- Congress and international treaty says destroy them and can’t cross state boundaries
- What technology(ies)?
- Volume, convenience?
- Do fault-tree analyses to isolate risks
Risk analysis-based suggestions

• Re-order priorities to minimize handling
• Isolate bad rounds
• Use incineration in some locations, thermal degradation in platinum reactors for others
• No movement of rounds during lightening or severe winds
• Build plant like a submarine
• Add on carbon filter to end of process
Challenges for Port Security

• Scenario selection: open system, difficult to select plausible yet challenging scenarios
• Probabilities for likelihood: not deliberate vs. terrorist
• Economic impacts: space and time