



U.S. Nuclear Waste Technical Review Board

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Collaborative Social Science Research: The Other Side of the Coin

Presented to:
JOPRAD Workshop

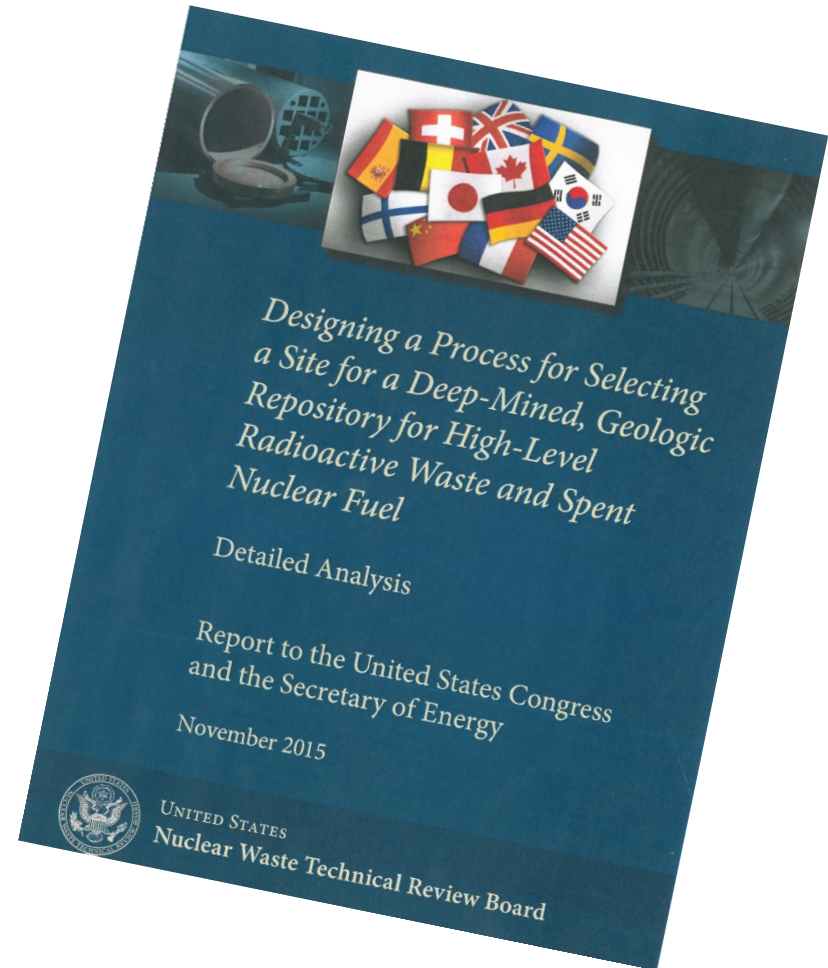
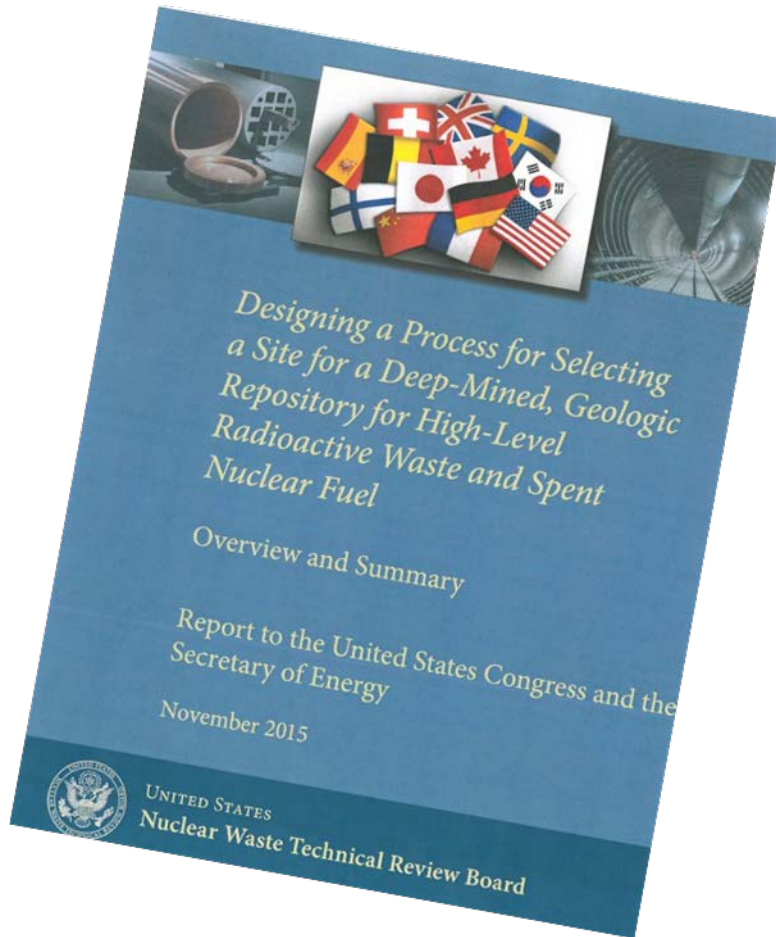
Presented By:
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**November 16, 2017
Prague, Czech Republic**

The views expressed are those of the author. They do not represent the position of the U.S. Nuclear Waste Technical Review Board (NWTRB), an independent federal agency.



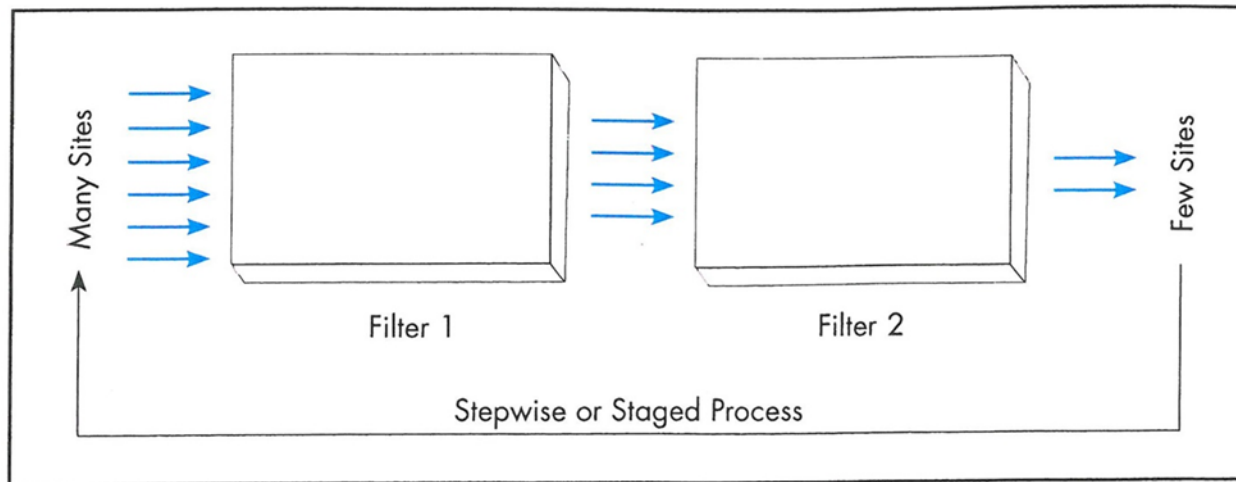
NWTRB Reports on Siting Repositories



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Technical Suitability and Social Acceptability Filters



Outcomes

Social Acceptability Filter

		Passed	Failed to Pass
		Technical Suitability Filter	Passed
Process Disrupted			11
Failed to Pass	1		1

* Includes three from the U.S. that ultimately never reached fruition.

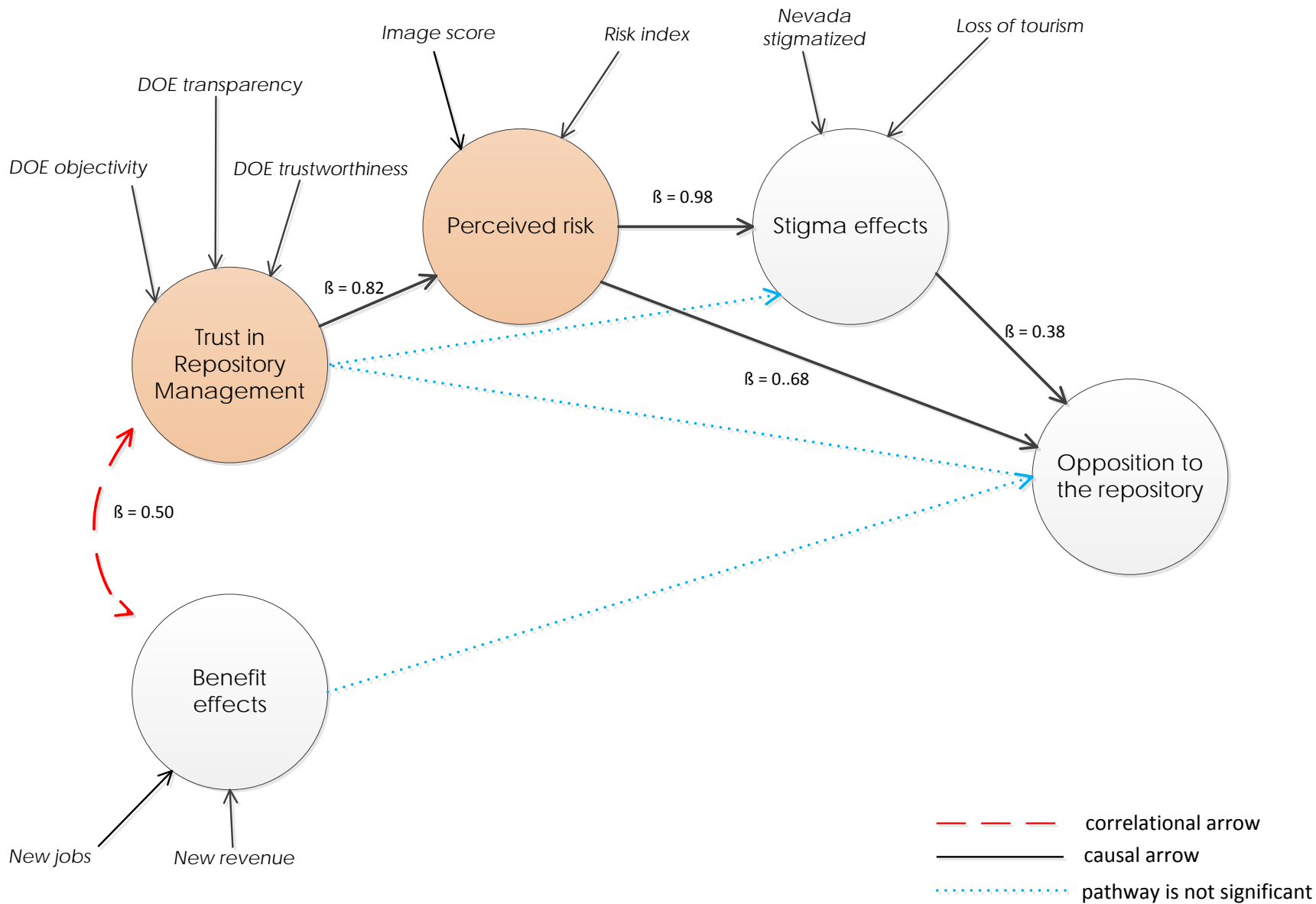


Two Sides of the Coin

- Social acceptability and technical suitability are *both* prerequisites for siting a deep-mined, geologic repository for high-level radioactive waste and spent nuclear fuel.
- Virtually all collaborative research programs have focused on work to understand better the scientific and engineering relationships that would support a claim a site is technically suitable.
- I understand that this group is far along in fashioning a program for future collaborative research. But perhaps there should be a rebalancing the social and the technical, if not now, at some other opportunity.



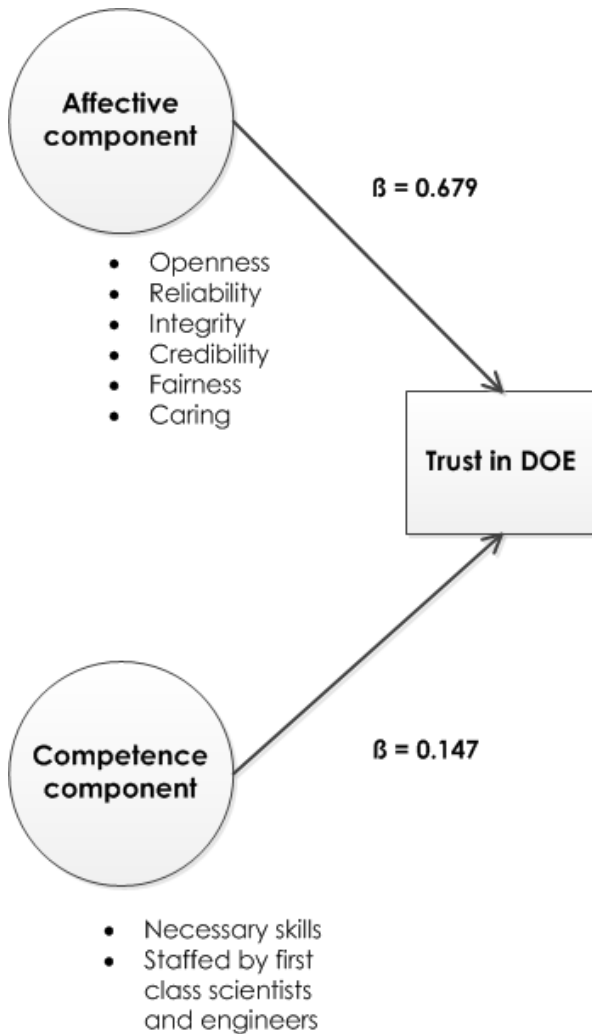
PUBLIC SUPPORT AND OPPOSITION TO A REPOSITORY



Flynn et al. 1992

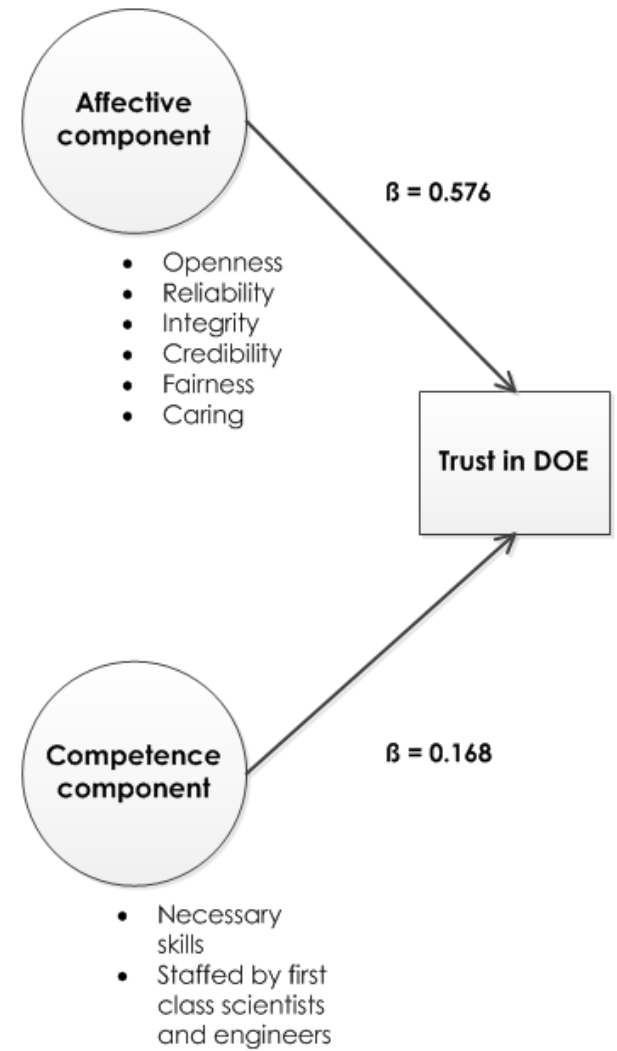


WHAT IS TRUST?



1992

$R^2 = 0.595$



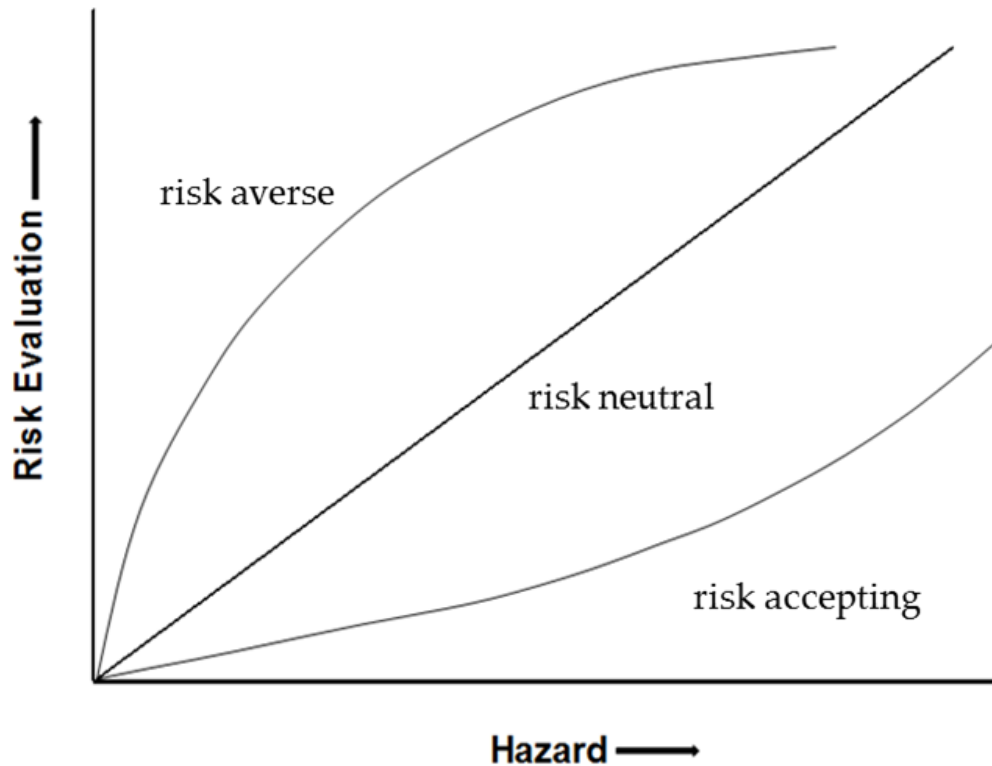
1994

$R^2 = 0.459$

Metlay 1999



RISK PERCEPTIONS

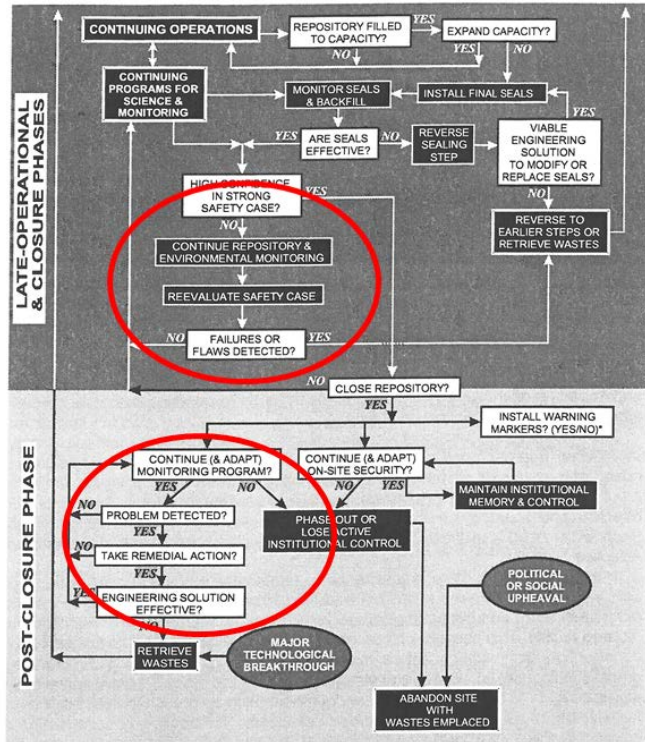


- Voluntary
- Immediate
- Known to exposed
- Known to science
- Controllable
- Familiar
- Catastrophic potential
- Dread
- Severity

Slovic et al. 1986

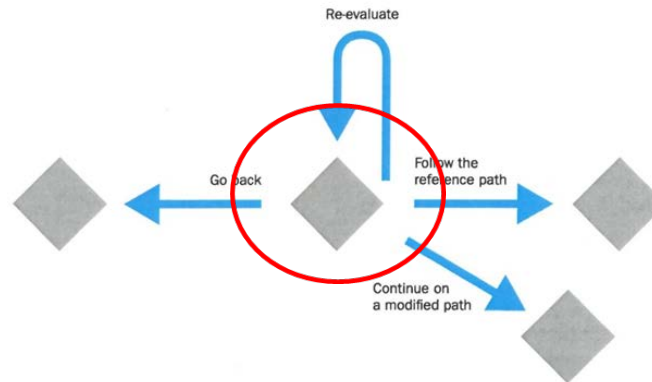
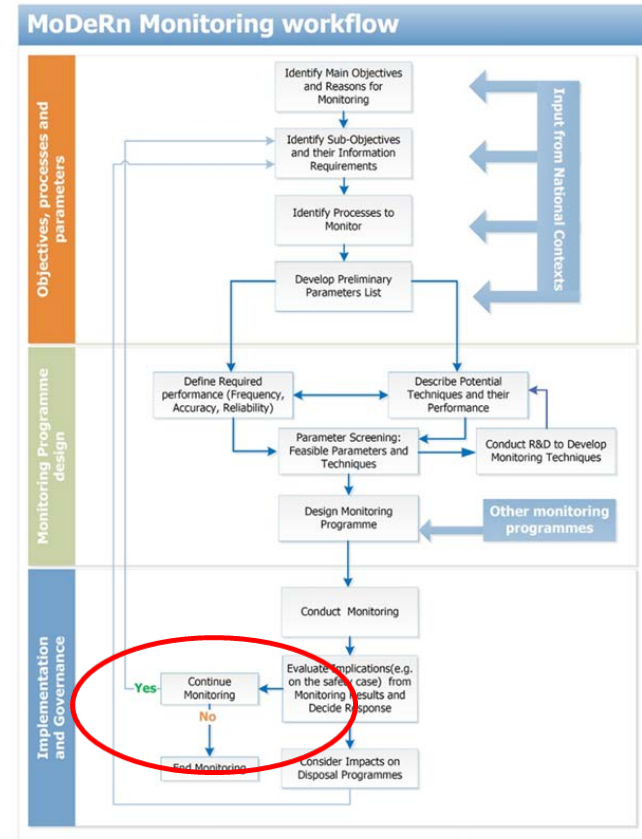


ORGANIZATIONAL DECISION-MAKING UNDER UNCERTAINTY



NAS 2003

MoDeRn 2014



NEA 2012



In order to carry out a stepwise repository development process, the implementer will have to (1) interpret and diagnose any potential problem and (2) make difficult trade-offs among a variety of considerations, such as occupational and environmental exposures, cost, technical feasibility, and public trust and confidence.

- Heuristics and biases (cognitive errors)
 - Anchoring
 - Availability
 - Representativeness
 - Confirmation
- Bureaucratic pressures
- Social construction of knowledge



My hope is that this talk has planted a seed in your collective mind that there is, in fact, another side of the coin and that it deserves serious attention.



References

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