

---

## Low Dose Risk, Decisions, and Risk Communication

Project ID: 69904

Dr. James Flynn, Decision Research (Decision Sciences Research Institute)

Dr. Paul Slovic, Decision Research (Decision Sciences Research Institute)

### Executive Summary

The project provides basic research in the areas of risk perception and decision making as applied to the requirements for communication on behalf of the Low Dose Radiation Research Program, U.S. Department of Energy, Office of Science, Office of Biological and Environmental Research. The results of the Low Dose biological research work are expected to have application to policies and programs dealing with low dose exposures to humans and the environment. Widespread adverse views about radiation exposure make communicating with citizens, groups, communities, and organizations difficult. While the basic lay and expert responses are well defined, they are only partly understood and risk communication needs considerable development if it is to be effective in addressing public concerns. The context for risk communication on behalf of public agencies must also be conducted in a societal context and through public decision processes that impose constraints and difficulties.

The project began with a comprehensive overview of the problems faced by risk communication of radiation exposure risks. The existing literature on the subject is extensive but effective capabilities for risk communication are extremely limited. In part this is due to the complexity of the contexts within which decisions have to be made. Therefore one problem of prime concern is to simplify the demands on risk communication by identifying the important determinants of public responses within a variety of societal contexts. The roles of individual and group perceptions, confidence and trust in expert capabilities and performance, affective responses to facts and interpretations, and ethical values based upon cultural worldviews, all contribute to controversies and make considered judgments and decisions problematic. These social psychological conditions are modified or amplified by societal forces in particular the social amplification of risk. This research project is dedicated to structuring an understanding of these conditions that is comprehensive but flexible enough to allow effective understanding of the problems risk communicators face in specific cases.

Our approach to understanding radiation risk and risk communication builds on three lines of social science research: (1) the perception of risk, (2) the social amplification of risk, and (3) the theories of constructed preferences in judgment and decision making. These areas of existing and developing study are incorporated into a new conceptual design, which is designated as The Social Geography of Risk Communication. This framework defines perceptions, responses to information, and development of judgments as social and psychological events are experienced by individuals, social groups, effected communities, states or regions, and at the national level.

The research proceeds from the existing research bases by introducing conceptual frameworks specifically adopted for risk communication (e.g., the social geography of risk communication) to apply traditional social science methods and techniques so understanding of radiation stigma is enhanced. This is expected to lead to new guidelines and tools for risk communication practitioners. The focus of research during this three-year effort will be on understanding individual, group, and community responses to controversial radiation risks particularly those properly described as "low dose." Research methods, including advanced experimental interview techniques and the development of decision pathway surveys, will be modified and applied to low dose issues. There will be a major focus on value-based decision making as a means of understanding how constructed positions on radiation exposure are created. This approach utilizes risk analysis as one of the key elements in making decisions about technological risks but also reaches out to include other important elements

of societal decisions. The process focuses on reaching the ability to consider tradeoffs and compromises, the necessary outcomes for a civil society.

The research team will present a poster on the project.