

Preface

A full day's symposium at the 1989 annual meetings of the American Association for the Advancement of Science in San Francisco provided an in-depth examination of the social and political factors associated with the disposal of high-level nuclear waste. The symposium comprised two thematic panels consisting of nationally recognized experts in a variety of relevant fields. The first panel—consisting primarily of practicing policymakers—focused on the policymaking process, and the second—consisting of social scientists—examined the public's reactions to nuclear waste disposal and the repository siting process. Most of the chapters in this volume are revised and updated papers from the second panel, all of which report results of original empirical research on citizens' views of nuclear waste repository siting.

We have added an introductory chapter to provide background and context for those chapters and a concluding chapter to summarize and discuss the implications of the empirical chapters' findings. We have also included two chapters, not presented at the 1989 symposium, covering important features of high-level waste disposal: one on long-term trends in public attitudes toward nuclear energy and nuclear waste policy (by Eugene A. Rosa and William R. Freudenburg) and the other assessing the effects on Las Vegas convention business if a high-level nuclear waste repository (HLNWR) were sited in Nevada (by Douglas Easterling and Howard Kunreuther). The aim of the first of these two chapters is to locate public perceptions of nuclear waste within the evolution of public concerns with nuclear energy more generally. That of the second is to ensure coverage of an important economic consideration in siting a HLNWR. With the exception of the Rosa and Freudenburg chapter, which relies on available historical data, all other

empirical chapters report original data, collected between 1986 and 1991, dealing with public perceptions, attitudes, beliefs, and opinions concerning nuclear waste and repository siting.

How Americans view nuclear waste, and especially how they feel about it, are critically important to waste disposal policy and management. Yet the character of public sentiment and its role in the policy process is not well understood. The importance of public input to nuclear waste policy, reflecting a commitment to democratic process and a response to the concerns of affected parties, is explicitly recognized by the Nuclear Waste Policy Act of 1982 (NWPA), with its provision for extensive participation by the public, affected states, and Indian tribes. Many members of Congress and other knowledgeable observers are convinced that successful implementation of a high-level radioactive waste repository program will be possible only if there is public support for the siting process and public confidence in the principal implementing agency, the U.S. Department of Energy (DOE). These convictions made their way into NWPA itself, as that act required DOE to conduct public hearings across the nation where sites were being considered and to engage in detailed discussion with states and Indian tribes as a part of a "consultation and cooperation" process.

In most respects these ambitious efforts have failed to generate confidence in the siting process or to convince the public that DOE is a technically competent and credible agency. The American public is deeply concerned about the risks associated with radioactive waste and deeply skeptical of DOE plans for its disposal. All signs indicate that these concerns will continue to be a major obstacle to the successful implementation of a waste repository program. This is apparent from the fact that nearly five years after Congress attempted to resolve the controversy over siting a high-level nuclear waste repository by limiting consideration to a single site at Yucca Mountain, the state and residents of Nevada (along with other critics) have managed to thwart the final siting. Furthermore, the disposal of *low-level* nuclear wastes has become ever more problematic. The failure to develop multi-state compacts for dealing with low-level waste on a regional basis has led the states of Washington and Idaho to threaten to prohibit importation of wastes from other states to existing low-level disposal sites within their borders.

Consequently, an improved understanding of public concerns, their source and resiliency, is crucial to the future of nuclear waste policy. It is also important for learning how to deal with the broader challenge of managing the wide range of technological risks that abound in modern society and the challenge of how to implement such management tasks through democratic procedures.

We hope that by assembling some of the best recent work by sociologists,

psychologists, political scientists, and economists on the topic we have provided a timely, original, and multidisciplinary assessment of the public's views of nuclear waste and repository siting issues. Because the bulk of the data and interpretations reported here focus specifically on repository siting, the findings are especially relevant for policymakers and other professionals concerned with the public context of waste policy. The findings should also interest social scientists concerned with nuclear energy issues, scientists and engineers working on the technology of waste disposal, and policymakers at all levels of government who need to understand public perceptions and opinions of risky technologies in order to discharge their policy obligations in a publicly acceptable fashion. More generally, they should prove to be of interest to anyone—scholars, policymakers, citizens—concerned with one of the major challenges to modern societies: how to manage the growing number of risky technologies on which they have become so dependent.

Among the most important themes to emerge from the various studies reported in this volume is that radioactive waste is perceived to be a particularly dangerous hazard and that the public has little trust in DOE's ability to protect it from this hazard. Furthermore, the high level of perceived risk and the low level of trust are key factors underlying public opposition to repository siting, more important in predicting opposition than is public knowledge about waste disposal. The consistency of the findings, emerging as they do from a diverse set of studies employing different sampling and measurement techniques within different geographical locales and at various stages of the repository siting "saga," suggests that they have a high degree of validity. Hence, we have considerable confidence in the policy implications of these findings.

Many debts are incurred in the process of completing any book, and this one is no exception. We especially thank the contributing authors for their generosity, cooperation, and patience in responding to our continual and sometimes fastidious editorial requests. They helped to transform what was initially a collection of loosely related papers into an integrated book. We also want to acknowledge the indirect contributions provided by John Petterson, of Impact Assessment, Inc., and C. P. Wolf, of the Social Impact Assessment Center. The research reported in chapter 6, conducted as part of their innovative assessment of the social impacts of siting a HLNWR at Hanford, was the original stimulus for this volume.

Financial and clerical assistance from institutions, typically important in research and writing, was especially invaluable for this project. We gratefully acknowledge support from the University of Wisconsin's Urban Corridor Consortium, the Herbert Fisk Johnson Professorship in Environmental

Studies at the University of Wisconsin-Green Bay, the Everett McKinley Dirksen Congressional Leadership Research Center, and, at Washington State University, the departments of Sociology and Rural Sociology, and the Social and Economic Sciences Research Center. Thanks are due to Rebecca Spithill and Beth Hull, who provided valuable research assistance, and to Patti Waldo, Tammy Small, Donna Poire, and Darcie Young for able typing and proofreading. Special thanks are also due to Diana Wuertz for preparing the index. We also thank Richard Rowson, former director of Duke University Press and his successor, Larry Malley, for their understanding, encouragement, and patience in bringing this volume to fruition.

Riley E. Dunlap
Michael E. Kraft
Eugene A. Rosa
September 1992