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SPOTLIGHT ON FACULTY RESEARCH

A Q&A with Professor and Associate Dean of the Faculty Michael R. Greenberg on his research work regarding nuclear power and the disposal of spent fuel, nuclear weapons and chemical weapons. Professor Greenberg's upcoming book, coauthored with Bernadette M. West, Karen W. Lowrie, and Henry J. Mayer, is *The Reporter's Handbook on Nuclear Materials, Energy, and Waste Management* (Vanderbilt University Press, 2009.)

Q. Much of your recent research focuses on nuclear power. How does this topic fit within your research agenda of the past five years?
I have been working on nuclear power, spent fuel produced by nuclear power, and by-products resulting from decommissioning nuclear and chemical weapons since the early 1970s. Public perceptions and preferences regarding nuclear power are something I started writing about during the mid-1980s as a result of a request made by the United States Nuclear Regulatory Commission (NRC). They had noticed that people were moving into communities that had nuclear power plants, which distressed the NRC because they want to keep people away from nuclear facilities. They charged me and (the late Rutgers Professor) Don Krueckeberg with figuring out why people would voluntarily move to municipalities that had nuclear facilities.

The remainder of my research has focused on cleanup and reuse of brownfields in urban environments, homeland security, public perception of the environment, and more generally the field of risk analysis.

Q. What does your research tell us about the reasons why individuals fear nuclear power?
Some individuals do fear nuclear power, and yet many do not. More than 1,000 public opinion polls have asked people about nuclear power. Most of the surveys, however, are not very useful because of the inadequate context for the survey questions. Our surveys, along with two or three other groups in the United States and United Kingdom, are driven by specific hypotheses that try not only to measure public preferences and perceptions but also correlate these with such variables as trust, values, knowledge, demographics, personality, etc. At this time, a majority of Americans favor new nuclear power plants and that proportion seems to be growing. Furthermore and notably, disproportionately people who live near such facilities are more likely to favor them. Many nuclear proponents also favor investments in solar and wind power.

The strongest supporters of nuclear power and strongest opponents of continuing to rely on oil are educated, affluent white males. Our group, along with others, has

developed some theories to try to explain why this particular population has this preference, whereas disproportionately poor, relatively less educated, Afro Latina American females favor a different portfolio of energy, and white females tend to favor yet another energy mix.

Q. What steps has the Department of Energy (DOE) taken to address these fears? What additional steps might you recommend for the Department to undertake in order to build better relations with communities across the country?
Good question! I wish I had a simple answer. During the last 20+ years I have made a variety of suggestions to the DOE and NRC that would help them gain a better understanding of public preferences, especially around locations where new nuclear power plants, waste management, and laboratory facilities would be located. Several of those suggestions have been looked upon favorably, and policy changes have been made. Other suggestions have not been accepted. For context, among all of the federal agencies and departments, the Department of Energy was the one most cloaked in secrecy because of their history that began with nuclear secrets of the Manhattan Project. When I started working with the DOE, I could not even get a map that showed the locations of facilities! It has been a slow process, and we have tried a variety of ways of try to get them to engage with the public more than they historically have done. Progress is being made. For example, a very recent effort is a book we wrote that will appear in early 2009 (published by Vanderbilt University Press). It provides guidance to reporters who cover nuclear-related issues.

Q. Overall, what does your work tell us about the public's ability to assess the true risks of utilizing nuclear power?
The theory is pretty good. The public dreads hazards that they know relatively little about and have the potential to produce catastrophic consequences. Everyone of my generation learned about that during World War II and the Korean War. And whether we talk to people in the United States, China, France, Japan, or elsewhere public reactions to nuclear power historically were grounded on the vision of a mushroom cloud. President Eisenhower in his famous United Nations speech attempted to disentangle nuclear power from nuclear weapons. That has been accomplished only to some extent. In short, the public substantially overestimates the risks associated with nuclear materials compared to other potential hazards.

Q. What is next on your research agenda with respect to nuclear power?
There clearly is much more public support for increasing reliance on nuclear power, and utilities are starting to commit resources toward that end. However, a lot of work has to be done on the waste management side of the issue -- that is, the ongoing effort to have a permanent repository at Yucca Mountain in Nevada has proven to be a Trojan horse, in essence undermining efforts to manage spent nuclear fuel. The country needs other alternatives, some of which, my colleagues and I have been working on. We also need a realistic assessment of the life cycle costs of building, operating, securing, transporting, and managing civilian nuclear waste. In my opinion, our inability to realistically assess life cycle cost is a serious problem. I suppose that I will also be doing more public opinion surveys, with the objective of convincing the federal

government that they should put together a team of unbiased experts to do the surveys, rather than rely on teams hired by interest groups (which typically lack credibility), the media to conduct marginally useful polls, or a few odd academics like me who conduct more scientifically acceptable surveys, but cannot afford to do them often enough to answer all the questions that need to be answered.

ABOUT THE AUTHOR

Michael R. Greenberg studies environmental health and neighborhood redevelopment polices. He is professor and director of the National Center for Neighborhood and Brownfields Redevelopment of Rutgers University and associate dean of the faculty of the Edward J. Bloustein School of Planning and Public Policy. He has been a member of National Research Council committees that focus on waste management, such as the destruction of the U.S. chemical weapons stockpile and nuclear weapons. He has received awards for research from the U.S. Environmental Protection Agency, the Society for Professional Journalists, the Public Health Association, the Association of American Geographers, and Society for Risk Analysis. He serves as associate editor for environmental health for the *American Journal of Public Health*, and is editor-in-chief of *Risk Analysis: An International Journal.* His books include *Urbanization and Cancer Mortality* (1983), *Hazardous Waste Sites: the Credibility Gap* (1984), *Public Health and the Environment* (1987), *Environmental Risk and the Press* (1987*), Environmentally Devastated Neighborhoods in the United States* (1996), *Restoring America's Neighborhoods: What Local People Can Do* (1999), the *Reporter's Environmental Handbook* (2003), and *Environmental Policy Analysis & Practice* (2008).

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