

## Resolving the dilemmas of hazardous waste management: Public resistance and the response of community leaders

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### Abstract

Our work suggests several areas of research interests for those involved in hazardous waste management and facilities siting. First, the NIMBY syndrome may not be an intractable phenomenon that opposes development, but rather a more limited phenomenon that exaggerates risk when it is close by (within 5 or 10 miles). If majorities find hazardous waste facilities neither health and safety risks nor environmental risks, then the main elements would appear to be that of proximity, and this can include effects on property values and associated factors.

Second, the demographic profile would suggest that a producer society that is successful economically would create the very conditions that promote siting — higher incomes, more political involvement, and high levels of education — that would work with natural factors of an aging population profile to be tolerant of such activities.

The confounding factors, such as the link between level of knowledge and opposition to hazardous waste siting, would suggest that broad uninformed elements of the population are in fact supportive of siting.

We believe that manner in which issues are framed by competing elites plays an important role in public response when dealing with highly technical issues, and that a successful and resonant “theme” can work with public attitudes to promote siting activities. Our reading of studies of the nuclear power issue tells us that multiple attempts were made to find a public responsiveness, and that the media were important in casting the issue as one of corporate irresponsibility and greed. The data provide clues as to the political and cultural roots to attitudes concerning hazardous waste facilities, among them the finding that political involvement leads to more support of siting activities. Associated with this data is the indication that these attitudes are not strongly related to social class, so that involvement itself may be a strong correlate of acceptance.

In sum, the most consistent finding concerns the perceived necessity — and lack of perceived risk — for siting hazardous waste facilities. The acceptance

of this necessity, across groups, suggests that a primary condition for siting success is present. Such a situation would imply that the political involvement of the community in setting the parameters of siting could ameliorate contentious opposition, and the political inclusion of individuals may be more important to success than widespread education efforts that might tend to polarize positions and lead to "framing" by interested parties in an effort to capture public imagination. Political involvement, including compromise, sharing of responsibility, and the reinforcement of traditional attitudes associated with democratic governance, might very well maximize the potential for siting activities. We caution, however, that our findings are tentative, and that further research is needed to confirm some early indicators. The survey data do intimate that values imbedded in the political culture are important variables in analyzing reactions to emerging technical issues, such as nuclear power plants and hazardous waste facilities.

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## The role of fly-ash as a heterogeneous catalyst in the undesirable formation of chlorinated dibenzo-*p*-dioxins in municipal waste incineration

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### Abstract

The formation of chlorinated dibenzo-*p*-dioxins in municipal waste incinerator fly-ash may be catalyzed by some component of the fly-ash itself. To test this hypothesis, the physical and chemical characteristics of fly ash samples will be correlated with observed dioxin levels. Certain of these traits may be associated with high dioxin levels.

We collected over a dozen fly-ash samples. They are all from relatively small municipal waste incinerators with electrostatic precipitators and no chemical addition. This is simply a consequence of which operators responded to our request for samples.

The samples were thoroughly characterized by SEM, pore structure, surface area, and surface and bulk chemical analysis. The samples appeared to all be