NIMBY–TIMBY: ANALYSIS OF STAKEHOLDER PERSPECTIVES ON HAZARDOUS WASTE CONTROVERSIES IN OKLAHOMA

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Introduction

Local opposition to unwanted hazardous waste facilities has spawned an extensive social science literature on the so-called "NIMBY (Not In My Backyard) Syndrome" (Brion 1991; Bullard 1994; Greve 1989; Morris 1994; O'Looney 1995; Rabe 1994; Rosenbaum 1998). "NIMBY," a pattern of intense citizen opposition to local sitting of risky activities or technologies (Mazmanian and Morrell 1990:126), has been a major obstacle to hazardous waste facility sitings throughout the United States (Brion 1991; Bullard 1994; Greve 1989; Morris 1994; O'Looney 1995; Rabe 1994; Rosenbaum 1998). NIMBYism has been variously attributed to differences in perception of risk (Armour 1991; Kunrether, Fizgerald, and Aarts 1993: Mazmanian and Morrell 1990; Visocki and Brennan 1993), to citizen distrust of government and industry (Hunter and Leyden 1995;Kraft and Carly 1991; Leroy and Nadler 1993, Rabe 1994), to feelings of loss of citizen control (Edelstein 1988), and to inequities in distribution of costs and benefits (Armour 1991; Portney 1991). A comparative study of six hazardous waste controversies in Oklahoma found that a lack of responsiveness by state officials to local citizen activism contributed to the NIMBY phenomenon (Lawler, Focht and Hatley 1990).

Multiple regression analysis of data from a statewide survey of 801 Oklahoma respondents found three variables to be most important in accounting for citizen participation in NIMBY controversies: perceived risk, perceived personal political efficacy, and history of past political participation (Focht, Hirlinger and Lawler 1998).

A related, but distinguishable phenomenon, which has been called "TIMBY" ("Threats In My Backyard") (Focht 1989), concerns the discovery of pre-existing hazards in a community (P. Brown 1992; Couto 1985; Edelstein 1988; Kraus 1989). TIMBY situations present many of the same issues as NIMBY conflicts: the imposition of environmental risk, desire for local control or influence over the decision process, concerns over equity and fairness, community disruption, problems of institutional trust, etc. Though TIMBY differs from NIMBY in important ways, there is disagreement in the literature as to what the relevant differences are.

Smith and Desvousges (1986) found that citizens are willing to pay ten times the amount to reduce risk at a TIMBY site than they would pay to avoid risk from a proposed NIMBY site. The authors attribute this difference to citizens' expectations of a right to protection from the involuntary imposition of NIMBY risk, whereas in TIMBY situations, the contamination is already in their backyards and they want to get it out. On the other hand, TIMBY movements for site cleanup are more likely to encounter opposition from some local citizens concerning possible negative publicity and generation of panic that might accompany action to eliminate the threat, and to trigger various manifestations of psychological denial (Janis 1967:3). A major expected difference from NIMBY is that, in TIMBY controversies, the status quo is likely to be preferred by industry and opposed by many citizens. However, Wolf (1980:477) found that "(r)esidents in industrial zones often become inured after many years to the noxious industrial activities around them," suggesting that citizens may be more inclined to accept risks from existing TIMBY hazards than from the

newly proposed, unfamiliar, NIMBY hazards. Gerrard adds that "communities which already have risky facilities tend to have local cultures that have accepted such risks and often will accept still more risks (Gerrard 1994:111).

This study compares three NIMBY disputes and two TIMBY disputes in Oklahoma. The purposes of the study are twofold: to gain a valid understanding of the subjective viewpoints of stakeholders in actual NIMBY and TIMBY controversies and to compare the perspectives of stakeholders in the two controversies to identify patterns of similarity and difference in attitudes toward proposed hazardous waste sites and existing ones.

Q Methodology

Q methodology is designed to illuminate the subject's own definition of the conflict situation. Most attitudinal studies of NIMBY employ the familiar "R" methodology in which a survey instrument reflecting the investigator's hypotheses are administered to a random sample of respondents, statistically analyzed, and generalized to a larger population (Brown 1980; Stephenson 1935; 1953; 1978). The tradeoffs in this statistical capacity to generalize are loss of considerable richness in responses, as the subject's own definition of the situation is subordinated to that of the investigator; and the danger of misinterpreting responses according to the investigator's preconceptions, rather than the subject's own views.

Q methodology was developed to overcome these limitations. The Q technique is designed specifically for the direct measurement of an individual's subjective point of view (Brown 1980). The investigator begins by asking a participant to place a sample of statement in a significant order according to his/her reactions or feelings toward them. The cards are sorted along a continuum, from "most unlike" the respondents' beliefs to "most like" the respondents' beliefs. The Q sort configurations are then factor analyzed. Through factor rotation, a single array of factor scores is derived for each factor. Each of the resulting factor arrays represents a group of individuals who sorted statements in a similar fashion. Although the investigator may attempt a tentative interpretation of each factor, the ultimate meaning attributed to the factors must be validated by the persons who load most purely and highly on them. These factors refer to aspects of a given individual manifested over a sequence of different conditions, rather than to underlying properties, which various items have in common.

As outlined by Stephenson (1978), Q methodology consists of the following steps:

1. Identification of a condition of instruction: a definition of a concrete functional situation that will serve to "focus" the subject's attention; e.g., asking the subject to give his/her views about a set of statements concerning a given topic;
2. Development of a concourse: a population of statements about the situation which reflect the spectrum of issues or viewpoints related to the topic;
3. Selection of the P sample: a set of persons to be interviewed;
4. Selection of the Q sample: a subset of statements reflecting the diversity of meanings of the statements in the concourse;
5. Administration of the Q sort: communicating the condition of instruction to the P sample, and asking respondents to sort the statements according to their reactions to them;
6. Factor analysis of the Q sort correlation matrix: using statistical procedures designed to identify common factors representing distinctive perspectives shared by persons loading highly on them;
7. Interpretation of the meaning of each revealed factor: by deduction from placement of items in the common factor score arrays; and
8. Validation of the inferred meanings: by discussing the results with respondents who loaded most highly or purely on these factors.

Unlike R methodology, Q methodology does not purport to extrapolate its findings to an entire population or to report the proportions of persons who hold any particular view. While lack of a statistical basis for generalizing to a larger population of respondents is a major limitation of the Q technique, the method does provide a fuller account of the various perspectives and viewpoints of stakeholders.

Q methodology has found a wide range of applications in the social sciences (Brown 1982; 1996; During and Osuna 1994; Jacobson and Yan 1998; Sexton *et al.* 1998; Thomas *et al.* 1993; Waddington and Braddock 1991; Yan 1998). Yet, only two studies used Q to investigate issues related to hazardous waste controversies. Thomas (1990) examined the views of college students about media reporting of a low-level radioactive waste repository in Boyd County, Nebraska and Hill (1992) investigated views of citizens toward the Diablo Canyon Nuclear Power Plant in California.[1]

No studies used Q to investigate stakeholder perspectives in TIMBY cases. Our paper seeks to fill this gap by uncovering the viewpoints that govern the positions of the various TIMBY stakeholders, as well as to provide additional empirical evidence concerning NIMBY conflicts.

The Cases

Stakeholders from five rural Oklahoma communities involved in hazardous waste siting controversies were included in this study. Three of these – the Ramona injection well, the Haystack waste disposal complex, and the Olandis incinerator – involve local NIMBY opposition to proposed new facilities. Two of the cases – the Cushing refinery and the toxic contamination incident in Ponca City – concern TIMBY reactions to existing facilities.

Ramona Injection Well

Ramona, a small town (1990 population = 508) in northeastern Oklahoma about 30 miles north of Tulsa, became embroiled in a bitter battle over the proposed siting of a hazardous waste injection well. In 1982, Environmental Solutions, Inc. (ESI) contracted with a local rancher to lease 2.5 acres for the site in the center of a 10,000 acre ranch, thereby circumventing the State's legal requirements of personal notification to "affected property owners" within one mile of the site boundary. Upon leaning about the proposal, several Ramona citizens formed the Toxic Waste Impact Group (TWIG) on March 5 1985, to oppose the facility. Unable to prevail before the Oklahoma State Department of Health, TWIG turned to the courts, where the group won two favorable district court rulings and obtained a stay pending review by the Oklahoma Supreme Court. To date, the district court's stay remains in effect.

Haystack Waste Disposal Complex

Haystack Mountain, a semi-arid area in northern Greer County in southwestern Oklahoma, was selected by Materials Management and Recovery Systems, Inc. (MMRS) in 1984 for a 71-acre commercial hazardous waste disposal facility, to include a landfill, a drum disposal pit, two surface impoundments, and other units. Anticipating public concern, MMRS hosted public meetings on January 25 and February 1 1984, in the towns of Mangum (1990 population = 3344) and Sayre (1990 population = 2881) near the proposed site. The meetings generated negative public reaction, leading to formation of a citizens group known as the Haystack Environmental Group, Inc. (HEGI). HEGI mounted effective opposition in the Oklahoma Legislature, the County Commissions of Beckham and Greer Counties, and the Oklahoma State Department of Health. In response to HEGI's efforts, the Chamber of Commerce of Elk City (1990 population = 10,428) passed a resolution opposing the facility. These efforts delayed the project until the summer of 1989, when MMRS went to district court to challenge OSDH's ruling that the company's application had to be revised and resubmitted. The district court decided against MMRS. Although the application has not been withdrawn at this writing, MMRS has not yet resubmitted it.

Olandis Incinerator

In early 1988, Olandis, Inc. announced its intention to build a multimillion-dollar hazardous waste incinerator 17 miles northwest of Boise City (1990 population = 1509). Boise City is an economically depressed community of declining population that depends heavily upon tourism from its location near Black Mesa State Park, the Dakota Sands, and the Santa Fe Trail. The facility, once operational, was expected to employ 95 workers. In an effort to avert opposition, Olandis offered the community a $1.1 million financial incentive package, including $180,000 a year for the Boise City Memorial Hospital, $700,000 a year for purchase and maintenance of an Air Evac helicopter, and $20,000 a year for the county ambulance service. Ironically, these medical expenditures aroused citizen concerns about health

[1] One of us (Focht) reviews several studies of stakeholder views, including these two, in another paper in this volume.

risks form the facility. Many leading citizens were attracted by the offer and wrote to the Oklahoma Governor in support of it. Opponents, however, voiced concerns about air pollution, and contamination of the Cimarron River and the Ogallala ground water aquifer, as well as fears that the facility would adversely affect tourism. Citizen opponents in the area remain defiant, and continue to be on guard should Olandis submit a permit application.

Cushing Refinery

Cushing is a small town (1990 population = 7218) located in southern Payne County, 25 miles southeast of Stillwater the county seat), and 71 miles northeast of Oklahoma City. Once the beneficiary of a booming oil economy, the city has since fallen on leaner times. The surrounding area is used primarily for wheat and alfalfa farming and cattle ranching. In 1915, Deep Rock Refinery was constructed on a 330-acre site two miles north of Cushing and used for crude oil refining and storage. In 1956, the Kerr-McGee facility purchased the site. From 1963 until 1966, the Kerr-McGee facility was used to enrich nuclear fuels under license to the Atomic Energy Commission. In 1966, the facility was decommissioned and returned to petroleum product handling. Kerr-McGee currently employs about 130 people at the Cushing facility. Approximately 17 million cubic feet of hazardous waste, including spent acids and caustics, spent industrial solvents and heavy metals, had been disposed of at the site.

Citizen concern arose in 1988, when a Cushing police officer learned that the Fire Department would not respond to a call at the site because of its belief that the ground was "hot." In the spring of 1989, he organized a group of townspeople as Citizens for Environmental Safety (CES) to demand further information about the threat. The U.S. Environmental Protection Agency (EPA), which had already been investigating the problem, determined that hazardous substances had migrated from the site to surface and ground waters and surface soil near the site. In October 1989, EPA published notice of a proposal to list the site on the National Priorities List for Superfund Cleanup, and announced a 60-day period for public comment.

On December 4 1989, the Cushing City Commission held a public hearing to discuss possible endorsement of NPL listing. Kerr-McGee representatives opposed the listing, denying that the site posed a substantial hazard and claiming that the listing would interfere with their intended cleanup. A representative from the Oklahoma Department of Health maintained that the site characterization had been completed and that remediation plans were being finalized. The City Manager proposed, and Kerr-McGee agreed to, establish and oversight committee composed of selected CES members and other citizens to monitor the cleanup. At a subsequent meeting, the Commission agreed to endorse listing the site on NPL. In February 1991, however, EPA removed the site from Superfund consideration, because under EPA's new methodology for risk analysis, the Hazard Ranking System (HRS) score for the site fell below the minimum threshold for listing.

The facility is presently under remediation under a consent order between OSDH and Kerr-McGee. CES remains active, but small and somewhat dispirited. Members complain that Kerr-McGee and OSDH are not sharing enough information for them to understand or meaningfully evaluate the process. They feel abandoned by EPA and cannot get answers to questions raised by EPA's own field investigators.

Ponca City Refinery

Ponca City (1990 population = 26,359), located in north central Oklahoma 102 miles north of Oklahoma City, became the center of a chemical contamination controversy in November 1986, when the city fire marshal ordered the evacuation of two homes in the Circle Drive neighborhood on the south side of the city. Following a period of heavy rain, the water table had risen to ground surface in many parts of south Ponca City. The water was found to contain high levels of hydrocarbons that generated an explosive mixture of volatile vapors. The neighborhood lay immediately south and east of a refinery operated by Conoco, the oil company that is the city's largest employer (more than 4000 employees). Many in the neighborhood became alarmed at the news of the evacuation and expressed doubts about the safety of their homes. Conoco denied responsibility. The company claimed that the contamination was due to operations of their predecessors rather than their own activities and questioned whether the contamination posed a significant health risk.

The residents held a fundraiser that drew more than 700 citizens. The funds were used to hire a contractor to study the water quality. Though he found benzene in the ground water in excess of 25,000

parts per billion, the Oklahoma State Department of Health (OSDH) refuse to accept the data because government investigators did not obtain it. In December 1986, Circle Drive residents organized an interest group, Ponca City Toxic Concerned Citizens (PCTCC), and began to share complaints of numerous health problems that they attributed to Conoco. Beginning in May 1988, a group of some thirty PCTCC members camped on the State capitol lawn in Oklahoma City for nearly three months until ordered to vacate the premises by the State Office of Public Affairs.

A majority of Poncans, however, continued to support Conoco. Conoco supporters formed their own group, Poncans for Progress, which was able to get 9100 signatures during the summer of 1988 on a petition supporting Conoco. PCTCC found an ally in a national environmental organization, the National Toxics Campaign, which sampled the water in the area and provided organizational assistance. In September 1989, PCTCC members filed a class action lawsuit against Conoco in federal district court for compensation for damages to the residents' health and welfare.

Conoco put forward a multistage ground water remediation plan to recover petroleum product and to restore ground water quality. In December 1989, EPA issued a permit for the discharge. In July 1990, Conoco and PCTCC entered into an out-of-court settlement that provided for the buyout of 200 homes and restitution damages for an additional 200 homes, all in the Circle Drive are. As a condition of this buyout agreement, PCTCC dissolved and the former members agreed not to further challenge Conoco's operations.

Methods

P Sample

The P sample of stakeholder participants consisted of actual participants in the five controversies, including local citizens, industry representatives, and state officials. We used archival research and word of mouth to develop an initial list of stakeholders. Persons on the list were then contacted, asked to participate, and asked to provide the name of another stakeholder. Seventy-two persons, consisting of equal numbers of NIMBY and TIMBY stakeholders, were willing to participate. A demographic profile of these respondents is shown in Table 1. Some of the industry representatives who had been involved in the NIMBY controversies declined to participate in the study or were otherwise unavailable (e.g., they had relocated to other states), which accounts for their low representation in the P sample.

Table 1

Stakeholder Sample Profile

COMMUNITY	CITIZEN	GOVERNMENT	INDUSTRY	OPPONENT	PROPONENT	NEUTRAL	TOTAL
Boise City	4	1	0	2	3	0	**5**
Haystack	12	1	1	12	2	0	**14**
Ramona	11	5	1	10	4	3	**17**
Cushing	9	2	2	6	4	3	**13**
Ponca City	15	5	3	12	6	5	**23**
Totals	**51**	**14**	**7**	**52**	**19**	**11**	**72**

Condition of Instruction

The condition of instruction given to all participants was: "What are your beliefs about the following statements concerning the siting of hazardous waste disposal facilities in your community?" Since all respondents had previously experienced a siting or remediation controversy, they were encouraged to rely on their prior experience.

Q Concourse

An initial concourse of statements was prepared by the investigators from a questionnaire containing open-ended questions administered to twenty members of a statewide environmental group. We later expanded this concourse to include statements obtained in preliminary interviews with the respondents. While no claim is made that this concourse is exhaustive, the investigators submit that it captures the range and diversity of statements that would be made by stakeholders regarding hazardous waste siting proposals.

Q Samples

The Q sample consists of 47 statements, which were selected to reflect the breadth and diversity of the Q concourse. Statements were selected to achieve "stimulus representation," that is, to provide a set of 40 to 50 statements that mirrors "the range of commentary being voiced" (Brown 1980:260). A review of the statements suggested a division into four broad groups of topics: ***institutional trust***, encompassing those statements concerning whether or not governmental or industrial institutions should be trusted in making siting decisions; ***political participation***, including those statements that refer to stakeholder access to information and involvement in the decision making process; ***technical concerns***, consisting of those statements that deal with technical issues such as risk, economics, procedures, and technology; and ***community-based concerns***, comprising those statements that involve matters relating to social impacts, such as environmental justice, disruption of group ties, etc. In selecting the Q sample, an attempt was made to include a balance of statements in each of these four groups.

The initial Q sample was pre-tested twice: first with a group of graduate students and university faculty and second with several citizens from the communities involved who were not included in the P sample.

Q Sorts

Subjects were given a shuffled deck of paper slips on which were typed the statements to be sorted. A written statement of the condition of instruction was handed to the subjects and read to them. All subjects were asked to read the entire collection of statements and to sort them into three groups reflecting how the subjects initially judged the statements. Subjects were then asked to mark with a "+" those statements with which they most agreed, to mark with a "–" those statements which they most disagreed with or which were most inconsistent with their viewpoint, and to mark with a "0" those statements about which they felt neutral, ambivalent, or uncertain.

Next, respondents were given a 47-item form board styled as a quasi-normal distribution. Respondents were instructed to enter the numbers of the two statements "+" that were most like their viewpoint into the rightmost two spaces on the form board. They were then asked to move to the other end of the form board and to repeat the process for the two statements marked "–" that were most unlike their viewpoint. They then moved back and forth until they had exhausted their "+" and "–" statements. They continued to fill in the form board until all of the statements marked "0" were placed according to their perceived nuances of preference.

Q Factor Analysis

The data obtained from the Q sorts was entered into a software program for Q factor analysis known as PC Quanal (van Tubergen 1980). Orthogonal factors were extracted by the principal components method and rotated to a simple structure by varimax rotation. Five criteria were used to determine retention of factors of interpretation:

1. an eigenvalue greater than one;
2. a factor loading equal or greater than 0.4;
3. a bipolar splitting criterion of 30%; and

4. the theoretical importance of the factor.

Findings

Factor analysis of the Q sort data produced a five-factor solution for the NIMBY stakeholders and a four-factor solution for the TIMBY stakeholders. To validate and elucidate interpretation of the Q sorts, respondents were telephoned in open-ended interviews in which they were encouraged to elaborate on the proposed interpretations and to clarify possible researcher misinterpretations. The factors were given titles that characterize the perspectives represented by the factors.

NIMBY Stakeholder Perspectives

Five factors, explaining 61 percent of the total variance and accounting for all 36 respondents, satisfied the retention criteria and were analyzed. Table 2 lists the factor scores for each of the 47 items on each of the five factors.

Table 2

Factor Array Z Scores (Population = NIMBY, N=36)

#	STATEMENT	A	B	C	D	E
1	Waste facility siting means economic growth and prosperity for the community	-1.7	1.2	-.9	-.1	-1.0
2	Offering cash payments to a community is the same as a bribe	.7	-.3	.5	.4	-.2
3	When jobs are scarce, an increase in employment is good even if there is resulting pollution	-1.8	-1.3	-.9	-1.2	-1.8
4	If environmental restrictions limit the ability of a company to make a profit, the restrictions should be lifted	-1.7	-2.1	-1.3	.1	-1.5
5	Industry works with communities to maintain a good public image	-.6	.0	.1	-.4	.3
6	Scientific risk assessment should be the major consideration in siting decisions	-.2	1.4	.8	.5	.8
7	Citizens need to control which risks they have to put up with	.9	-.2	.0	.0	1.4
8	We should not take any chances with the environment	1.5	-1.0	.7	1.4	1.9
9	I tolerate risk as a fact of life, but I don't like it	-.4	.2	1.2	.3	-.1
10	It doesn't matter how much we pollute today because tomorrow's technology will solve the problem	-2.2	-2.3	-1.7	-2.3	-1.5
11	The world would be a better place to live if we could go back to old days	-.6	-.5	.1	-1.0	1.0
12	It is better to put facilities in communities with high unemployment; the people there need the jobs	-1.3	-1.1	-.4	-.6	-.2
13	The people who benefit the most from a waste facility are not the ones who bear the risks	1.8	-1.0	1.7	-.5	1.2
14	Government and industry know what they are doing; they are the experts	-2.0	-.2	-.6	-1.2	-1.4
15	Cost effectiveness is more important to industry and government than environmental issues	.2	-.2	-1.6	.7	-.7
16	The government adequately enforces environmental laws to protect human health and safety	-1.4	.0	1.0	-1.3	-1.0
17	Industry usually complies with environmental laws even when it costs them money	-1.5	-.2	.7	-.6	-1.0
18	Environmental laws are full of loopholes for industry advantage	1.3	-.3	-1.3	.2	-1.6
19	The character of a community changes after a waste facility is located there	.1	.3	-.5	.1	-.4

20	Allowing a waste facility to locate in a community divides a community	.5	.5	.5	-1.1	.2
21	Waste facilities give a community a bad reputation	.6	-.6	.5	.3	.0
22	Citizens should be involved in every step of a siting decision	1.2	.2	.9	.5	1.3
23	Citizens have ample opportunity to be involved in siting decisions in their community	-.6	1.3	.7	-.8	.4
24	Industry, government and the public should decide together what level of pollution should be allowed	.2	-.9	1.2	1.5	.9
25	All information should be shared in easily understood language a as soon as it is available	.4	1.3	.5	1.7	1.4
26	Who provides information makes a difference to me; the person must be honest	1.0	1.2	2.0	1.9	.8
27	It is really hard to know if decision makers have the same values as I do	.6	-.1	2.0	1.0	.6
28	It is impossible to know whether or not a process is really safe without adequate technical education	.3	1.8	1.1	1.0	.6
29	If the public were more familiar with the operation of a waste facility, they would be more willing to consider it	-.9	.5	-.4	.3	-.2
30	Citizens should have their own experts	.9	.3	.3	.3	.9
31	We would all be better off if the legal procedures were easier to follow	.5	1.0	1.0	.9	.5
32	Government shouldn't be trusted in making siting decisions	.4	-.1	.0	.4	-1.2
33	Government uses citizen opinion against them	-.3	-.7	-.8	-.6	-.8
34	Economic special interests have too much influence in siting decisions	.7	-.4	-1.2	.8	-.9
35	The people living in a community know best what is good for them	.7	-.8	.2	-.3	1.4
36	Citizens should initially oppose all proposals for siting by industry	-.6	-1.9	-.7	-1.7	.0
37	It is better to be active today than to be radioactive tomorrow	.7	1.4	.6	.3	1.6
38	If you have enough money, you can get away with polluting	.9	.1	-2.2	-1.1	-.7
39	Conflict in decision making is necessary and healthy	.1	.9	-.3	-.7	.2
40	Consensus is impossible when activists become involved in environmental decisions	-.6	.3	-.2	-.3	-1.0
41	The chief function of government is to support the economy	-1.0	-.4	-.5	-.8	-1.6
42	Just being physically present in situations where environmental decisions are made is not enough	.4	.4	.5	-.3	.0
43	The siting process is unfair because the results provide greater risks to the people who are ethnically different or poor	.3	-1.4	-1.0	-.3	-.2
44	Environmental radicals are necessary to bring balance to the issues	-.4	-.4	-1.9	-1.5	-.2
45	There are clean technologies available that must be used now to reduce pollution	.9	1.7	.5	1.8	1.8
46	Government and industry skew their risk estimates to suit their own purposes	.2	.2	-1.1	.4	-.6
47	Industry must be required to recycle, reduce wastes, and use safer techniques and raw materials	1.4	1.9	.4	2.3	.0

Disaffected Skeptics. This factor (factor A) accounts for 26.2% of the total variance and 43% of the explained variance. All those who loaded significantly on this factor are citizens (18 of the 27 citizens in the P sample – three of whom also loaded on the fourth factor: Pragmatic Guardians). All but one (a self-reported neutral) were active NIMBY opponents. They are risk averse and distrust government and industry to ensure their safety, which motivates them to insist on substantive participation in all stages of

the decision process to ensure that their concerns are addressed. They also believe that economics rather than environmental concern underlies support for siting proposals and that environmental risks and economic benefits are not equitably distributed. They are skeptical that participation will produce an outcome that they will perceive as fair and equitable.

Technocratic Rationalists. Accounting for 10.1% of the total variance and 16.5% of the explained variance, this factor (factor B) represents the perspectives of three citizens, two government officials, and one industry representative (one official and one representative also significantly loaded on the third factor: moderate supporters). Five of the six respondents were supporters of the facility; the sixth was a weak opponent who was a bus operator concerned about loss of tourism. They believe that environmental decisions should be based primarily on rational criteria such as risk-cost-benefit analysis, which requires that tradeoffs and risks are necessary if economic progress is to be realized. Though they acknowledge environmental concern and the importance of equity, they are not necessarily sympathetic to citizen involvement. In fact, they believe that current decision processes are fair and just and that opportunities for public participation are adequate. They believe that lay citizens should become technically informed before they engage in automatic opposition.

Technocratic Rationalists are quite comfortable with the rational balancing of economic development against environmental protection and believe that opponents are acting irrationally or out of ignorance. Given the choice, they may prefer preemption of lay citizens if efforts at technical education and co-optation fail to convince them of the overall desirability of the siting proposal.

It appears that the perspectives revealed by Disaffected Skeptics and Technocratic Rationalists lie at the extremes of viewpoints in the NIMBY population. Disaffected Skeptics seem to have little in common with technocratic rationalists (factor correlation coefficient = .317). In fact, 19 of the 47 items' z scores lie more than one standard deviation apart (are distinguishing items). They disagree strongly on the roles that technical and economic criteria play in siting decision-making and prefer egalitarian criteria based on justice and community wide concerns. They are more likely to see economic considerations such as compensation, economic-environmental tradeoffs, and economic influence in decision making as illegitimate. Technocratic Rationalists, on the other hand, are much more sympathetic to the importance of technical criteria in siting decision than are skeptical citizens and much less sympathetic to citizen involvement in siting decision making and local control of risks.

Moderate Supporters. This factor (factor C) explains 9.5% of the total variance and 15.6% of the explained variance. Six respondents loaded significantly on this factor: four of the seven government officials, one industry representative (one official and the representative also loaded on the Technocratic Rationalist factor), and one citizen. All were supporters of the siting proposal. Their perspective is similar to but more moderate than that of the Technocratic Rationalists. For example, Moderate Supporters are more willing than Technocratic Rationalists to acknowledge the legitimacy of non-technical decision criteria such as cultural values, equity, and predisposition to risk acceptability. They differ from the Disaffected Skeptics in that they are far more willing to trust government and industry. Moderate Supporters share an abiding faith in current decision processes and institutions and therefore are not predisposed to oppose proposals emanating from them. On the contrary, they do not see the need to include groups that are predisposed to opposition. Moderate Supporters recognize that citizens should be involved in decision-making but do not necessarily agree that there should be increased opportunities for this.

Pragmatic Guardians. This factor (factor D) accounts for 9.4% of the total variance and 15.5% of the variance explained by the five factors. Pragmatic Guardians exhibit mixed demographic characteristics: seven are citizen opponents (three of whom also loaded on the Disaffected Skeptics factor), one is a neutral government official, and one is an industrial proponent. This curious group of significant loaders is moderately skeptical of the ability of technology to solve pollution problems and of government and industry to provide adequate protection from these risks. Interestingly, this group is more willing to trust industry. They also realize the importance of education about the complex issues involved. Finally, they realize the importance of consensus in siting decision-making and believe that people should not be too quick to jump to conclusions about siting proposals. This interpretation suggests that Pragmatic Guardians prefer a serious, thoughtful, objective exploration of the impacts of a decision and give the benefit of the doubt to industry. Most of all, they are interested in collaborative decision making based on a careful review of all available facts.

Local Controllers. This factor (factor E) accounts for 5.8% of the total variance and 9.5% of the explained variance. Only two respondents, both opponents to the proposed hazardous waste facility siting, significantly loaded on this factor: a citizen and a local government official (and neither was confounded). They are primarily interested in local control over environmental decisions.

This insistence on local control may be due to risk aversion. They do trust local government to act in their interest, but do not trust their technical competency. Interestingly, this perspective differs from all others in that it includes a sentiment for a return to bygone days. These opponents wish to maintain a sense of control over quality of life issues and resent imposition of costs and risks by non-local entities. With the provision of expertise, Local Controllers would prefer the local government make these decisions in close collaboration with residents.

A relatively high factor correlation between the perspectives of Local Controllers and Disaffected Skeptics (r = .613) and between Local Controllers and Moderate Supporters (r = .609) were noted. A quick comparison suggests that each group supports inclusion of non-technical criteria and citizen involvement in decision-making.

Consensus. Only eight items were held in consensus among all five factors and only two of these are salient. None of the five perspectives seems to endorse a jobs-for-environment tradeoff or a willingness to allow pollution today in the belief that tomorrow's technology will deal with it. Though all parties agree on the importance of environmental protection, they disagree on how and by whom these decisions should be made.

TIMBY Stakeholder Perspectives

Four factors for the TIMBY stakeholders account for 61% of the total variance across the 36 sorts. Table 3 presents the factor scores of each statement on the four factors.

Table 3

Factor Array Z Scores (Population = TIMBY, N=36)

#	ITEM	A	B	C	D
1	Waste facility siting means economic growth and prosperity for the community	-.7	-.2	-1.3	-.8
2	Offering cash payments to a community is the same as a bribe	-.2	-1.2	.0	-1.9
3	When jobs are scarce, an increase in employment is good even if there is resulting pollution	-1.6	-.6	-1.5	-1.5
4	If environmental restrictions limit the ability of a company to make a profit, the restrictions should be lifted	-1.3	.1	-1.8	-1.1
5	Industry works with communities to maintain a good public image	.3	.5	-.4	-.8
6	Scientific risk assessment should be the major consideration in siting decisions	1.3	2.3	-.3	.0
7	Citizens need to control which risks they have to put up with	.7	.2	.2	1.5
8	We should not take any chances with the environment	.0	-.3	1.7	.4
9	I tolerate risk as a fact of life, but I don't like it	.7	1.5	.2	1.5
10	It doesn't matter how much we pollute today because tomorrow's technology will solve the problem	-2.1	-2.0	-1.9	-1.1
11	The world would be a better place to live if we could go back to old days	-1.2	-.8	-.7	1.5
12	It is better to put facilities in communities with high unemployment; the people there need the jobs	-.8	.0	-.8	-1.9
13	The people who benefit the most from a waste facility are not the ones who bear the risks	.4	.7	1.0	.0
14	Government and industry know what they are doing; they are the experts	-.5	-.1	-1.9	-1.1
15	Cost effectiveness is more important to industry and government than environmental issues	-.6	-.5	.9	-.4

16	The government adequately enforces environmental laws to protect human health and safety	.6	-.2	-1.9	-.8
17	Industry usually complies with environmental laws even when it costs them money	.1	1.4	-1.8	-.8
18	Environmental laws are full of loopholes for industry advantage	-1.1	-.6	1.2	-1.5
19	The character of a community changes after a waste facility is located there	-.4	-.3	-.2	.0
20	Allowing a waste facility to locate in a community divides a community	-.1	.4	.1	.4
21	Waste facilities give a community a bad reputation	-.7	-.5	-.4	1.9
22	Citizens should be involved in every step of a siting decision	.9	.3	1.0	.8
23	Citizens have ample opportunity to be involved in siting decisions in their community	.2	.5	-1.0	-.4
24	Industry, government and the public should decide together what level of pollution should be allowed	1.9	.8	.5	.8
25	All information should be shared in easily understood language a as soon as it is available	1.6	1.3	1.0	-.8
26	Who provides information makes a difference to me; the person must be honest	1.1	1.4	1.0	.8
27	It is really hard to know if decision makers have the same values as I do	.4	.6	.9	.4
28	It is impossible to know whether or not a process is really safe without adequate technical education	.0	1.9	.2	1.1
29	If the public were more familiar with the operation of a waste facility, they would be more willing to consider it	.8	1.5	-.6	-1.1
30	Citizens should have their own experts	1.0	-.7	.3	.4
31	We would all be better off if the legal procedures were easier to follow	1.4	1.2	.7	1.1
32	Government shouldn't be trusted in making siting decisions	-1.0	-.6	.7	.4
33	Government uses citizen opinion against them	-.8	-.7	-.2	-.4
34	Economic special interests have too much influence in siting decisions	-.4	-.5	1.1	.0
35	The people living in a community know best what is good for them	.5	-.5	.1	.8
36	Citizens should initially oppose all proposals for siting by industry	-1.2	-2.1	-.8	1.9
37	It is better to be active today than to be radioactive tomorrow	.7	.7	1.0	.8
38	If you have enough money, you can get away with polluting	-1.4	-1.1	1.0	-.4
39	Conflict in decision making is necessary and healthy	.8	.2	.1	.0
40	Consensus is impossible when activists become involved in environmental decisions	-.9	-.4	-1.0	-.4
41	The chief function of government is to support the economy	-1.7	-1.6	-.7	.0
42	Just being physically present in situations where environmental decisions are made is not enough	.7	1.0	.5	1.1
43	The siting process is unfair because the results provide greater risks to the people who are ethnically different or poor	-.2	-1.0	.4	1.1
44	Environmental radicals are necessary to bring balance to the issues	.8	-1.6	-.5	-.4
45	There are clean technologies available that must be used now to reduce pollution	1.4	.4	1.5	.0
46	Government and industry skew their risk estimates to suit their own purposes	-1.3	-1.0	.9	-1.5
47	Industry must be required to recycle, reduce wastes, and use safer techniques and raw materials	1.7	.1	1.6	.4

Technical Consultants. Proponents and neutrals, including five of the seven government officials, two of the five industry representatives, the community opinion leader and two citizen supporters, share this perspective. This factor (factor A) accounts for 19.6% of the total variance and 32.1% of the explained variance. It reveals optimism in technological progress. Those who load on this factor also trust government and industry institutions. This perspective seems compatible with increased citizen participation – with one caveat: citizens should reserve judgment until they have had a chance to educate themselves on technical matters.

Apparently, someone with this perspective adopts an accommodative, power sharing view of decision-making. In fact, and unique among the four factors, Technical Consultants agree that environmental radicals are necessary to bring balance to the issues.

Seen in context with the other items salient to abducting this perspective, radical involvement in siting decision-making is conditioned upon their being technically informed, open minded, and willing to work toward consensus. In fact, Technical Consultants' emphasis on shared power in decision-making is strongest among the four factors. They agree with Disaffected Controllers that risk reduction is important and that sacrificing the environment for jobs is unsatisfactory.

Technical Consultants seems an apt label for this perspective because of their willingness to include all stakeholders in decision-making but limit their input to technical, economic, and legal issues. Non-technical issues are either mildly rejected or judged to have no salience at all.

Technical Paternalists. This factor (factor B) accounts for 11% of the total variance and 18% of the explained variance. Only six respondents load on this factor: two government officials and two citizens (one of each is confounded on the Technical Consultant factor) and two industry officials. All six are either proponents or neutral toward the TIMBY proposals. This perspective has much in common with Technical Consultants, as apparent in the factor correlation coefficient, r = .665). Technical Paternalists believe that the dominance of technical criteria requires that environmental decision-making should be left to elites (consistent with the paternalist approach identified by Ducsik (1978) as the decide-announce-defend (DAD) approach to decision-making). In their opinion, citizens should remain neutral on siting proposals until they have educated themselves on the technical merits of the proposal.

Technical Paternalists do not believe that citizens should have their own experts. While they can accommodate open and free access to information, they are not as willing to share power and are generally not supportive of citizen involvement in decision-making. They are especially opposed to participation by ideological opponents.

Technical Paternalists trust industry's motives and are convinced of the value of technological progress. They further believe that current decision processes produce just and fair results, though the process is inefficient by being too legalistic and complicated. Finally, they do not support government intervention in the economy.

In sum, Technical Paternalists prefer scientific and economic criteria in making environmental decisions in a rational manner. They also believe that they alone are competent to make these decisions; lay citizen involvement that is uninformed is not welcome.

Disaffected Controllers. This factor (factor C) is the dominant factor, accounting for 26.1% of the total variance and 42.7% of the explained variance. Eighteen respondents, all citizens, loaded significantly on this factor (one was confounded on the Technical Paternalist factor!). Sixteen of the 18 are opponents; the other two are neutrals. Disaffected Controllers are risk averse concerning protection of environmental quality. They believe that environmentally appropriate technology should be used to protect the environment from insult. The problem, in their opinion, is that neither government nor industry can be trusted to protect environmental quality. They believe that the influence that money provides supersedes environmental protection, and that institutions' claims of safety based on scientific risk estimates are ruses to disguise their true motives. They do not believe that there are adequate compensating net benefits to the community from waste facility siting. In fact, whatever benefits, costs, and risks that do accrue are inequitably distributed. The solution, in their opinion, is to increase citizen involvement in decision-making and facilitate access to information.

The distinguishing feature of this perspective is the pervasive distrust of government and industry to protect the environment. The remedy in their opinion is aggressive citizen oversight to ensure that the

environmental quality interests of the community are protected. However, as mentioned previously, access to information is not paramount – their concerns are not technical but rather trust-related.

Communitarians. Only one citizen opponent loads significantly on this factor (factor D), accounting for 4.4% of the total variance and 7.2% of the explained variance. The major concern from this perspective is the importance of preserving community identity, traditions, and welfare.

This perspective is sustained by an aversion to risk and pervasive distrust of government and industry. In contrast to Disaffected Controllers, however, Communitarians recognize the importance of technical knowledge to understanding safety and environmental risk; however, having this knowledge has nothing to do with siting opposition. The best explanation for this finding may be that non-technical criteria concerning protection of quality of life are simply more important and this requires local control of decision-making by the public.

Comparison of NIMBY and TIMBY Perspectives

Conflicts over hazardous waste are often portrayed as struggles between opposing worldviews, with little basis for accommodation between antagonists (Douglas and Wildavsky 1982; Thomson, Ellis and Wildavsky 1990; Dake 1992). Our Q study reveals a more complex reality in which diverse coalitions of stakeholders on both sides are often drawn into conflicts that obscure important differences among allies and exaggerate the incompatibility of positions between opposing sides. This is most evident in NIMBY conflicts, but also appears among the TIMBY participants. Table 4 presents a summary of each of the five NIMBY and four TIMBY perspectives.

Both NIMBY and TIMBY controversies include participants who are divided by fundamentally incompatible beliefs and values. At one end are Technocratic Rationalists (NIMBY) and Technical Paternalists (TIMBY) who generally trust government and industrial institutions; have faith in technological progress; favor decision making based on scientific, technical, and economic criteria; wish to limit citizen participation to those who are technically informed; believe that the decision process should be streamlined so as to be more efficient but not changed so as to encourage more citizen participation and the inclusion of non-technical concerns; are not particularly risk averse; are willing to make risk-benefit tradeoffs; and prefer that citizens adopt a neutral stance and learn the "facts" before deciding on whether to oppose a facility. This perspective is held by those who are employed in industry and government (though a few citizens also share this view) and represents a technically rational epistemology.

At the other end are Disaffected Skeptics (NIMBY) and Disaffected Controllers (TIMBY), primarily citizens in our P sample, who are offended by the technocratic perspective and who reject its arguments. In fact, it is the technocratic arguments themselves that erode their trust in decision-making. The more that defenders of the technocratic approach insist that decisions be made in accordance with technical criteria and processes, the more opponents become dissatisfied and distrust the proponents. It is a synergistically antagonistic relationship – a social amplification phenomenon that rapidly devolves into gridlock. These opponents reject the legitimacy of technocratic decision-making and cannot be appeased by technically rational arguments and information. Their distrust feeds their unwillingness to defer to the expertise or discretion of government or industry. Moreover, they resist power sharing for fear of elite manipulation. The only recourse that may gain their cooperation is to delegate decision-making power, including issue framing and selection of decision rules.

Our study also shows, however, that there are NIMBY and TIMBY stakeholders who may be more open to accommodation. Among NIMBY stakeholders, four such orientations emerge: Moderate Supporters (NIMBY), Pragmatic Guardians (NIMBY), Local Controllers (NIMBY), and Technical Consultants (TIMBY). Perhaps the diversity of the demographic makeup of these perspectives contributes to their moderate views: Pragmatic Guardians and Technical Consultants included government officials, industry representatives, and citizens and the other two perspectives included government officials and citizens. In addition, while NIMBY Moderate Supporters and TIMBY Technical Consultants share a faith in science/technology and economics, they remain receptive to cooperative solutions involving the public in decisions concerning pollution.

Table 4

Comparison of NIMBY and TIMBY Perspectives

NIMBY	TIMBY
Disaffected Skeptics They are risk averse; believe that money governs siting decisions; distrust industry, government, scientific risk analysis, and technical decision criteria; believe siting processes are unfair; and believe citizen participation and access to information are desirable, but are skeptical of their efficacy.	**Disaffected Controllers** They are risk averse; believe that money governs siting decisions; distrust industry, government, scientific risk analysis, and technical decision criteria; believe siting processes are unfair; favor aggressive citizen oversight, although not concerned about information sharing; and believe that aggressive citizen oversight can make a difference.
Technocratic Rationalists They trust science, technology, scientific risk analysis, and economic criteria for siting decisions; view siting as fair; accepts risk-benefit tradeoffs; and are unsympathetic to citizen involvement unless it is informed.	**Technical Paternalists** They trust government and industry; favor scientific risk analysis, risk-benefit tradeoffs, and technical criteria in environmental decision making; view siting processes as fair; oppose citizen control; but favor information-sharing and citizen education and see no need to include radical opponents in citizen participation.
Moderate Supporters They acknowledge legitimacy of both technical and non-technical decision criteria; trust government, industry and the established decision system; see no need to include radical opponents; and favor citizen involvement, but not necessarily increased opportunities for participation.	**Technical Consultants** They trust government, industry, and technology; favor citizen participation, but think citizens should inform themselves about technical matters; and favor including environmental radicals for balanced perspective.
Local Controllers They are risk averse; trust local government's protection of interests, but not its technical competence; long for return to bygone days; resent imposition of costs by outsiders; and favor local control of environmental decisions.	**Communitarians** They are risk averse; distrust government and industry; recognize importance of technical knowledge; and seek to preserve community identity, traditions, and welfare.
Pragmatic Guardians They distrust technology and government, but trust industry; favor information and education and believes that people should suspend judgment about siting until they have all the facts; favor collaborative, deliberative siting decisions.	

Pragmatic Guardians (NIMBY), Local Controllers (NIMBY), and Communitarians (TIMBY) all share a distrust of government and industry expertise that is characteristic of the more skeptical perspectives, they differ from skeptics in other respects. Pragmatic Guardians and Communitarians are more amenable to working with industry and government and Local Controllers and Communitarians are less interested in environmental/technological issues *per se* than in impacts on the local community. These findings suggest that by meeting concerns about equity, citizen participation, and/or local control, it might be possible to reach accommodation between facility supporters and various components of the opposition.

Although the term "NIMBY" may connote selfishly parochial motivations, we find that only Local Controllers (NIMBY) Communitarians (TIMBY) manifest predominantly local concerns. This finding supports the conclusion of Kraft and Clary (1991) that citizen participation in hazardous waste disputes cannot simply be attributed to parochialism.

Another difference evident between NIMBY and TIMBY stakeholders is that TIMBY opponents (those most strongly believing that cleanup is required) were more supportive of the industry position than were NIMBY opponents (those most opposing facility siting) who were generally unwilling to cooperate with the facility – even when the community would likely benefit from the siting in other respects. Similarly, the lines of division are less clear in TIMBY communities. Many of those who oppose the status quo and want cleanup are willing to work with the polluting facility, presumably due to the recognition that compensating benefits are present. Thus, risk-benefit tradeoffs are less desirable when the benefits are hypothetical than when they are real.

Q analysis does not permit generalization about the incidence of the various attitudes in the general population of stakeholders – information that could be important in assessing the feasibility of incentive packages or compromise solutions to NIMBY and TIMBY conflicts. Nevertheless, the attitudinal patterns uncovered by Q analysis may provide a basis for construction of more meaningful survey instruments for testing in larger populations. We expect Q- and R-based approaches will complement each other in providing a more adequate profiles of NIMBY and TIMBY stakeholders in future studies.

References

Armour, Audrey M. 1991. *The Siting of Locally Unwanted Land Uses: Towards a Cooperative Approach.* New York: Pergammon Press.

Brion, Denis J. 1991. *Essential Industry and the NIMBY Phenomenon*. New York: Quorum Books.

Brown, Phil. 1992. "The Popular Epidemiology and Toxic Waste Contamination: Lay and Professional Ways of Knowing," *Journal of Health and Social Behavior* 33:267-81.

Brown, Stephen R. 1996. "Q Methodology and Qualitative Research," *Qualitative Health Research* 6:561-4.

Brown, Stephen R. 1980. *Political Subjectivity: Applications of Q-Methodology in Political Science*. Westford, MA: Murray Printing Co.

Bullard, Dennis J. 1994. *Dumping in Dixie*, 2d. ed. Boulder, CO: Westview.

Couto, Richard A. 1995. "Failing Health and New Prescriptions: Community-Based Approaches to Environmental Risks," Carol E. Hill, ed., *Current Health Policy Issues and Alternatives: An Applied Social Science Perspective.* Athens, GA: University of Georgia Press.

Dake, Karl. 1992. "Orienting Dispositions in the Perception of Risk: An Analysis of Contemporary Worldviews and Cultural Biases," *Journal of Cross-Cultural Psychology* 22:61-82.

Douglas, Mary, and Aaron Widavsky. 1982. *Risk and Culture: An Essay on the Selection of Technical and Environmental Dangers*. Berkeley: University of California Press.

Durning, Dan, and Will Osuna. 1994. "Policy Analysts' Roles and Value Orientations: An Empirical Investigation Using Q Methodology," *Journal of Policy Analysis and Management* 13:629-36.

Edelstein, Michael. 1988. *Contaminated Communities: The Social and Psychological Impacts of Residential Toxic Exposure*. Boulder: Westview Press.

Focht, Will. 1989. "Groundwater Remediation Controversy in Ponca City: A Case for Negotiated Decision Making." Presented at the annual meeting of the Oklahoma Academy of Science, University of Central Oklahoma, Edmond, OK.

Focht, Will, Michael W. Hirlinger, and James J. Lawler. 1999. "Opposition to Noxious Sitings in Oklahoma: A Citizen Participation Model of the NIMBY Phenomenon," *Oklahoma Politics* 7:1-24.

Gerrard, Michael B. 1994. *Whose Backyard, Whose Risk? Fear and Fairness in Toxic and Nuclear Waste Siting*. Boston: MIT Press.

Greve, Michael S. 1989. "Environmentalism and Bounty Hunting," *Public Interest* 97:15-29.

Hill, Stuart. 1992. *Democratic Values and Technological Choices*. Stanford, CA: Stanford University Press.

Hunter, Susan, and Kevin M. Leyden. 1995. Beyond NIMBY: Explaining Opposition to Hazardous Waste Facilities," *Policy Studies Journal* 23:601-619.

Jacobson, Thomas L., and Wenjie Yen. 1998. "Q-Analysis Techniques for Studying Communication Content," *Quality and Quantity* 32:93-108.

Janis, Irving L. 1972. *Victims of Groupthink*. Atlanta: Houghton Mifflin Co.

Kraft, Michael E., and Clary, Bruce B. 1991. "Citizen Participation and the NIMBY Syndrome: Public Response to Radioactive Waste Disposal," *Western Political Quarterly* 44:299-328.

Kraus, Celene. 1989. "Community Struggles and the Shaping of Democratic Consciousness," *Sociological Forum* 4: 227-39.

Kunreuther, Howard C., Thomas D. Aarts, and Kevin Fitzgerald. 1991. *Siting Noxious Facilities: A Test of the Facility Siting Credo*." Wharton School of the University of Pennsylvania.

Lawler, James J., Will Focht, and Earl L. Hatley. 1994. "Citizen Participation in Hazardous Waste Controversies: NIMBY and Beyond," *National Social Science Journal* 8:138-151.

Leroy, David H. and T. Scott Nadler. 1993. "Negotiate Way Out of Siting Dilemmas," *Forum for Applied Research and Public Policy* 8:102-7.

Mazmanian, Daniel, and David Morrell. 1990. "The NIMBY Syndrome: Facility Siting and the Failure of Democratic Discourse," Norman J. Vig and Michael E. Kraft, eds., *Environmental Policy in the 1990s: Toward a New Agenda*. Washington, DC: CQ Press.

Morris, Jane Anne. 1994. *Not In My Backyard: The Handbook*. San Diego: Silvercat Publications.

O'Looney, John D. 1995. *Economic Development and Environmental Control: Balancing Business and Community in an Age of NIMBYs and LULUs*. Westport, CT: Quorum 1995.

Petulla, Joseph M. 1987. *Environmental Protection in the United States*. San Francisco: San Francisco Study Center.

Portney, Kent E. 1991. *Siting Hazardous Waste Treatment Facilities: The NIMBY Syndrome*. New York: Auburn House.

Rabe, Barry G. 1994. *Beyond NIMBY: Hazardous Waste Siting in Canada and the United States*. Washington, DC: Brookings.

Rosenbaum, Walter A. 1998. *Environmental Politics and Policy*. Washington, DC: Congressional Quarterly.

Sexton, D., P. Wadsworth, and A. Jardine. 1998. "Applying Q Methodology to Investigations of Subjective Judgments of Early Intervention Effectiveness," *Topics in Early Childhood Special Education* 18:95-101.

Stephenson, William. 1953. *The Study of Behavior: Q Technique and Its Methodology*. Chicago: University of Chicago Press.

Stephenson, William. 1978. "Concourse Theory of Communication," *Communication* 3:21-40.

Thomas, Dan, Craig McCoy, and Allan McBride. 1993. "Deconstructing the Political' Spectacle: Sex, Race, and Subjectivity in Public Response to the Clarence Thomas/Anita Hill 'Sexual Harassment' Hearings," *American Journal of Political Science* 37:699-720.

Thomas, Dan B., and Larry R. Baas. 1996. "The Postelection Campaign: Competing Constructions of the Clinton Victory in 1992," *Journal of Politics* 2:309-331.

Thomas, L. Lee. 1990. *The Media, and the 1990 Nebraska Governor's Race: An Application of Q-Technique*. Lincoln: University of Nebraska, School of Journalism.

Thomson, Michael, Richard Ellis, and Aaron Wildavsky. 1982. *Cultural Theory, or Why All That Is Permanent Is Bias*. Boulder: Westview Press.

Van Tubergen, N. 1980. *QUANAL. A Q Factor Analysis Computer Software Program.*

Visocki, Kathryn, and Sherol S. Breman. 1993. "Regional Compacts and Waste Disposal," *Forum for Applied Research and Public Policy* 8:86-91.

Waddington, P.A., and Quentin Braddock. 1991. "Guardians or Bullies? Perceptions of the Police Amongst Adolescent Black, White and Asian Boys," *Policing and Society* 2:31-45.

Wolf, Sidney M. 1980. "Public Opposition to Hazardous Waste Sites: The Self-Defeating Approach to National Hazardous Waste Control Under Subtitle C of the Resource Conservation and Recovery Act of 1976," *Boston College Environmental Affairs Law Review* 8: 463-540.

Yan, Wenjie. 1998. "A Structural Analysis of the Changing Image of China in the New York Times from 1949 through 1988," *Quality and Quantity* 32:47-62.