EMERGENCE OF COLLECTIVE ACTION AND ENVIRONMENTAL

NETWORKING IN RELATION TO RADIOACTIVE WASTE MANAGEMENT

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ABSTRACT

This paper explores the relationship between the national environmental movement and nuclear technology in relation to a local emergent group. The historical development of nuclear technology in this country has followed a path leading to continued fear and mistrust of waste management by a portion of the population. At the forefront of opposition to nuclear technology are people and groups endorsing environmental values. Because of the antinuclear attitudes of environmentalists and the value orientation of appropriate technologists in the national environmental movement, it seems appropriate for local groups to call on these national groups for assistance regarding nuclear-related issues.

A case study is used to illustrate how a local action group, once integrated into a national environmental network, can become an effective, legitimate participant in social change. The formation, emergence, mobilization, and networking of a local group opposed to a specific federal radioactive waste management plan is described based on organizational literature. However, inherent contradictions in defining the local versus national benefits plus inherent problems within the environmental movement could be acting to limit the effectiveness of such networks.

Introduction

The disposal of radioactive waste presents special problems for environmental groups. The longevity of the hazard, variety of radionuclide sources, varying composition of waste, and variety of pathways for exposure of the public make analysis of potential environmental effects difficult and possible only by those with substantial technical expertise. On the social/political side of the problem, claimed by technical experts to be the most difficult aspect of waste management, the not-in-my-back-yard (NIMBY) syndrome makes locating a disposal site for nuclear waste almost impossible.

Radioactive waste currently exists in sites located throughout the country where research and processing of radioactive materials was performed under contract to the U.S. government, and some of this material was disposed of inappropriately by today's standards. The existence of the sites is often unknown to nearby communities. Waste created by the Manhattan Engineer District under contract to the U.S. Atomic Energy Commission (AEC) is currently being dealt with under two federal programs through the U.S. Department of Energy (DOE). The Formerly Utilized Sites Remedial Action Program (FUSRAP) and the Surplus Facilities Management Program (SFMP) are federally funded programs to clean up, stabilize, and/or dispose of radioactive waste in certain locations around the country.

In this paper, the national environmental movement is examined in relation to nuclear technology and the use of elements of the national environmental movement by a local group is discussed relative to its organizing a challenge to federal waste management plans for a local area in Missouri. In addition,

a case study is used to show how group formation, emergence, mobilization, and networking are consistent with existing theory based on orgnizational literature. The situation illustrates four basic issues in collective action regarding environmental problems in general and radioactive waste disposal in particular: (1) conflict between local and national goals of environmental organizations; (2) limited choices by local emergent groups for networks on radioactive waste; (3) funding at a national level for cleanup of existing waste creating a zero sum problem in some programs; and (4) the mechanism of group emergence mobilization and legitimation given the above situation.

History of Fear

Radioactive waste is inextricably tied with nuclear technology, resulting from production of nuclear weapons, nuclear power, and experimental work of university test reactors. The waste streams from these activities cannot be separated from the processes in the mind of the public, and radioactive waste has been associated with negative attitudes (Harris 1975), stress (Freundenburg 1984), and fear (Hohenemser et al. 1977) for the last 40 years. Current organizational responses to radioactive waste cannot be understood properly until viewed in the context of the historical circumstances that led to the development of the nuclear industry. This, in turn, must be viewed in relation to the environmental movement in this country.

The importance of the social history of nuclear power has been succinctly summarized by Hohenemser et al. (1977). The early years of the technology were dominated by military development and were characterized by public fear of the atomic bomb. As indicated by Hohenemser et al. (1977:27), "Since 1965,

the public view of nuclear energy has undergone a dramatic and unexpected metamorphosis....threats to the natural environment and a general distrust of high technology have replaced earlier fears." This transition from fear of military weapons to fear for the natural environment and distrust of high technology corresponded to the emergence of the environmental movement in the United States. The early 1970s saw coalitions of groups attacking nuclear power and the AEC. By 1973, Ralph Nader and the Sierra Club teamed up to oppose nuclear power on several fronts (Hohenemser et al. 1977). By 1975, a Harris poll showed environmentalists leading the public in concerns about nuclear power plant safety. Fully 63 percent of the environmentalists indicated nuclear power plants were "not so safe" or "dangerous" compared to only 18% of the general public.

Environmentalism

The environmental movement consists of many diverse groups and individuals representing the values of preservationists and conservationists. This shared concern for the environment "is probably sufficient to justify treatment of these organizations as a movement" (Schnaiberg 1980:367). National environmental groups have been strongly represented in opposition to nuclear power and waste storage (Gladwin 1980). Between 1970 and 1978, waste transportation and storage elicted the strongest opposition from national environmental groups (Gladwin 1980). Storage was also the primary focus of local and regional environmental groups.

A subcomponent of the environmental movement is the movement toward appropriate technology (AT) or soft technology. The AT movement calls for

light capital investment, technological simplicity, decentralization, and self-sufficiency. Nuclear technology is capital-intensive, highly complex, and centralized. Thus, the movement is by definition antinuclear. Morrison (1980:296-297) has indicated that the antinuclear segment of the AT movement has radicalized the image of the environmental movement by advocating civil disobedience. Jones (1984), citing Primack (1980) and Bookchin (1980:12), has stated that there is an "anarchist streak" in the AT movement that is "anti-government and, in some cases, resistent to hierarchical organization of any kind." Whereas environmental organizations are largely antinuclear, those within the movement endorsing AT/soft technology values are more likely to be more radical in their opposition and tactics.

In contrast to the AT/soft technology movement, Schnaiberg (1980) has indicated that the environmental movement has largely been a reformist movement. Lowe and Worboys (1980:438) have called the environmental movement "essentially conservative". Established environmental groups have generally made significant headway working within the regulatory system at the national level. National groups in existence prior to the environmentalism of the 1960s as well as groups such as the Environmental Defense Fund and Environmental Action have grown in membership and leadership and have sought regulatory reform and justice through the national legal system. The national-level approach taken by paid professional scientists, lawyers, and community organizers working for these environmental groups contrasts with the AT movement values of decentralization, local or regional organization, simple technology, and self-sufficiency. These tendencies away from centralization of power and government control are used by Jones (1984) to indicate an inherent conflict between the AT movement and the environmental movement at large.

Mainstream environmentalists and appropriate technologists differ in membership, tactics, and outlook. Compared to the general population, people endorsing the values of the broader environmental movement are generally characterized as better educated (Harry et al. 1969; Devall 1970; Jognacci et al. 1972; Buttel and Flinn 1974), younger (Dillman and Christenson 1972; Jognacci et al. 1972; Hornback 1974), politically more liberal (Constantini and Hanf 1972; Dunlap 1975; Buttel and Flinn 1976a), and more likely to be metropolitan city dwellers (Hendee et al. 1968; Jognacci et al. 1972). Such people are more likely to belong to national organizations that support paid professional staff members. Morrison (1980) believes that environmentalists are typically more conservative than specific elements of the AT movement. In addition, Morrison (1980:296) indicates that "a substantial part of the domestic soft technology movement has a distinct counter culture, anti-establishment, and mildly left-leaning flavor." The movement is likely to use direct action tactics and attract other members from the political left, and counter culture is the most important source for AT member recruitment.

In tactics and outlook, the AT and environmental groups also diverge. Jones (1984) indicates that AT adherents may be more radical but less politically involved than members of the broader environmental movement. They are less concerned with influencing national policy through legislation and more concerned with changing values of individuals. The AT's tendency away from centralization, organization, and government regulation makes this portion of the antinuclear movement ill-equiped to bring about social change through the present system. Whereas AT adherents may be more opposed to nuclear power on ideological grounds than their mainstream environmental counterparts, the AT movement has less to offer in terms of organization and

support for emerging local groups. Thus, grassroots mobilization at the local level is more likely to rely on environmental organizations that are organized on a national level than to turn to more local AT groups. Additionally, where national goals and policy conflict with local ones, it may be that national environmental groups are not the best source of aid for local emergent groups.

The FUSRAP and SFMP programs present special problems to potential environmental groups for the following reasons:

1. At the national level, funding for the programs creates a zero-sum situation among sites. If more money is spent in one location, less money is available for another location in that same fiscal year. Thus, complete removal of the material from one site may mean that action at another site must be limited to maintenance of an existing potentially hazardous situation.

2. The national good may be at variance with what is defined locally as desirable. Locals may demand stringent cleanup criteria or storage designs that require a large portion of national funds, but societal resources would not allow for all sites to be cleaned up to a level defined as desirable by locals in every location. National policy may be to reduce the hazard to below existing standards at all sites, whether that means removal or remedial action.

The above reasons make the waste management problem under FUSRAP and SFMP significantly different from other waste management problems such as high-level-waste repositories.

A paradoxical situation emerges when local emergent groups form a network with state and national environmental organizations to produce a local benefit that may be at odds with the broader national good.

Social Setting for Group Emergence

The previous section has sought to put antinuclear values firmly within the environmental movement while, at the same time, focusing on the role of the AT/soft technology movement within the larger movement. This is important because local group action near St. Louis, Missouri, emerged in 1982 within the historical context of the environmental movement. The Weldon Spring Ordnance Works (located near St. Louis) is a defunct, contaminated uranium/ thorium processing facility with a substantial quantity of radioactive waste stored at the site. Some of the stored wastes threaten to pollute the environ- ment. In addition to potential pollution problems from the existing waste, the U.S. Department of Energy has considered using the site as a regional radioactive waste disposal site.

The purpose of this case study is to analyze the emergence and legitima- tion of the local group from the perspectives of social theories of collective action to see which of these theories provide the best insight into the radio- active waste situation. Group emergence, mobilization, and legitimation are considered from theoretical perspectives and in terms of the benefits of forming networks with national organizations.

Several authors have explicitly or implicitly recognized the need for a "facilitative social context" (Quarantelli 1984) from which collective action

could emerge. This setting is necessary for action to occur but is not sufficient to cause it to occur. However, the components of this conducive setting differ, depending on the theoretical perspective adopted.

Resource mobilization theorists (e.g., Tilly, Gamson) and traditional theorists of collective behavior (e.g., Smelser 1963) assume a cognitive component to the setting, a general discontent or grievance, and a shared belief of what is unsatisfactory among the population. They differ in the sufficiency of this setting to provoke collective action. Resource mobilization theorists say it is not sufficient without organizational factors (Aminzade 1984; Turner 1981), and traditionalists emphasize belief as a strong mobilizing force (Aminzade 1984). Both sets of theorists see these elements of a movement as necessary and fairly widespread.

In the case of radioactive waste, a feeling of general discontent is replaced by general fear of a technological hazard. In general, the hazard is perceived as more risky if exposure to it is involuntary, and it is potentially catastrophic, has effects on later generations, and is uncontrollable (Covello 1983). All these characteristics apply to natural disasters and most apply to technological hazards. Technological hazards, as man-made risks, are a special concern to citizens, however, because they are perceived as understood by scientists and potentially controllable. Thus, part of the facilitative social setting to collective action on radioactive waste is the cognitive component of perception that action to effect control of the hazard can reduce the level of risk.

The functional component of the social setting creates the "possibility of acting" (Quarantelli 1984). This component has a number of elements that have been identified by various researchers. The first element is the availability of flexible resources (Walsh 1981; Campbell and Garkovich 1984)-- which, for example, may be time, money, or knowledge that is not already committed. This has been called "structural conduciveness" (Campbell and Garkovich 1984) or "structural availability" (Snow et al. 1980). People with discretionary time and resources are often found in communities with some wealth, i.e., with families above the poverty income level. Women not employed outside the household, or business people who see it as their role to be active in community causes, are examples of people who may have discretionary time. Other functional aspects of the social setting are population centers and local media circulation for communication (Aminzade 1984). This "structural conduciveness" is consistent with the structural position of environmentalists, but not necessarily appropriate technologists, within American society.

Collective action is more likely when "an organized protest ideology is already available" (Walsh 1981:18). There have been many well-publicized examples of successful, organized citizen actions on technological hazards-- e.g., against nuclear power plants, or at Three Mile Island or Love Canal. The orientation of the environmental movement and the appropriate technology component provide a ready base for a protest ideology.

In the case of the emergent group and existing hazardous waste site in Missouri, we have identified the cognitive and functional components of the facilitative social setting. The collective action organizations have emerged from communities with flexible resources of people with discretionary time and

money; there has been a cognitive component of some general knowledge about the risks and controllability of radioactive waste sites and pollution from such waste; there have been both population centers and local media for communication; and there are examples of successful, organized protest on such issues.

However, conducive structural characteristics of the social setting do not guarantee collective action (Martin and Wilkinson 1984). The costs of starting an organization are too high if all that exists is a supportive social setting (Klandermans 1984). It is a necessary, but not sufficient, condition.

Emergence

In the Missouri case, group emergence was stimulated by two primary events. The first event was via mass media and consisted of an announcement by DOE that radioactive waste from outside of the area and state might be stored at the Weldon Spring Site (WSS). The second event was the announcement of a public information/scoping meeting to be held by DOE. The local group emergence was stimulated by these two events and will be discussed in reference to the relevant organization literature.

Several conditions have been hypothesized as important for group emergence. Walsh (1981), studying the technological hazard of Three Mile Island, hypothesizes that there is sudden perception of a major grievance and this grievance persists. The grievance takes on a crisis, or emergency, aspect similar to that of a natural disaster in terms of aroused community concern. Turner (1981) concurs with Walsh that the grievance is a major factor.

Mazur (1981), in writing about protests against various technologies (e.g., nuclear power plants), says that the stimulus for organized protest is a public warning about potential dangers of the technology. Mazur belives that the mass media are a vehicle for the stimulus. The importance of the media in this role has been discussed by others (Greene et al. 1980; Gusfield 1981). The media are often the first source of information regarding the hazard and continue to be the main source for the life of the issue. Identification of the "emergency" provides the stimulus or incentive for a group to organize. Citizens faced with the emergency in their community know (usually again via the media) that organized action in other communities and on a national level has resulted in changes. "Data for 1979 indicate a massive upsurge in reported conflict, particularly in regard to hazardous waste disposal sites and nuclear power plants, as a result of the Love Canal and Three Mile Island disasters respectively. Such incidences induced waves of related environmental battles by attracting media coverage and arousing public concern" (Gladwin 1980:251). Gamson (1975) also found that most of the challenging groups he studied emerged during periods of social turbulence when many other challenging groups were also forming. Thus, a context of protest and perhaps a precedent of successful protest may increase the likelihood of an organized group forming.

In the particular case we have observed, a newspaper article about the technological hazard, i.e., the radioactive and hazardous waste, served as the first stimulus for collective action. In this case, the waste had been present in the community for some time, but only after the appearance of an article announcing action by DOE to add more wastes did the "emergency" exist. In response, a few citizens gathered together quickly to form the core of an

organization whose goal was to make sure that the risks of the hazard to the community would be as low as possible. A second stimulus followed quickly after the first announcement in the media, i.e., the scheduling by DOE of a public meeting in the community to inform the public of the situation and of DOE plans. Publicity on this meeting first appeared in the local media. The emerging group contacted a state-wide environmental organization for advice on organization, publicity, and media coverage. This was followed by publicity on the part of the newly formed organization to draw a large show of support to their cause and to indicate their representativeness to DOE.

Mobilization and Legitimation

Once the local group emerged, it needed to mobilize resources and recruit members. The task appeared difficult for the case group of 40 people. The group needed to convince DOE to alter technical plans in relation to something the group knew nothing about (radioactivity and waste management). This section discusses how the group mobilized and became legitimized and educated by networking with state and national environmental groups.

A major task of mobilization is to recruit members to participate in the organization. Olson (1965) stresses the rationality of the decision to participation, i.e., one will participate if the benefits outweigh the costs, generally measured in terms of economics and the effectiveness of the participation. Others recognize that the "benefits" of participation may be psychic rather than economic, based on emotional commitment to a cause, not necessarily on the effectiveness of the group, and this idea is supported by others (Aldrich 1979; Moe 1980; Turner 1981; Walsh 1981). Emotional commitment would provide

sufficient motivation for those with environmental values to participate whereas the threat of harm would be a sufficient incentive for others. Those who live in the most threatened areas or know most about the hazard would have the strongest inducement to join (Perry et al. 1980). The group must publicize its cause and its existence to attract that participation.

At first, the Weldon Spring group generated its own publicity. It did this by printing leaflets and distributing them in public places. It also relied on social contacts, which have been found to the most effective means of acquiring new members to political organizations (Snow et al. 1980). But the greatest recruitment means in this and other cases of technological hazard (e.g., Three Mile Island) were the public meetings organized by DOE (see also Walsh 1981). During these meetings, members of the small core group spoke, gained recognition for the group and familiarity with its name, had petitions signed, and recruited new members on the spot. They also used the public forum to begin the process of being defined as legitimate representatives of the community in the eyes of DOE. The new group also attracted attention from the media, further extending its area of recruitment (Gusfield 1981). These activities characterized initial mobilization of the group and started the process of legitimation.

A major issue in the emergence of a new collective action organization is the establishment of organizational structure and behavior. Social movement organizations are more likely to emerge during periods of general social protest and when professional organizers or existing collective action groups are available. In this case study, some of these elements already existed, which helped the process. An important element seemed to be the existence of

state and national environmental groups. These groups served as models for structuring the new emergent groups. In terms of some organizational theorists, the new organization went to other members of their potential "action set" to begin the development of an organizational "network" (Aldrich 1979). The emergent group went to larger organizations with similar causes, similar "opponents" (e.g., federal agencies), and records of success to borrow structure, tactics, and definition of the controversy (Meyer and Rowan 1977; Aldrich 1979; Walsh 1981; Krebs 1984). The new group also chose the action repertoires of these organizations rather than inventing new ones (e.g., releasing balloons from the site to track potential airborne contamination routes, as was done at Three Mile Island [Walsh 1981] and other places) (Tilly 1978 as cited in Turner 1981). The national organizations were also important in providing basic educational material on radioactive waste management. The organizations in this case study turned to state environmental organizations focused on hazardous waste (the Missourians Against Hazardous Waste) and to national organizations (the Sierra Club, Legal Environmental Action Foundation, and EAF, for example).

The new organizations received not only ideas for organizational structure and tactics from these national extralocal organizations, but also resources such as information about hazardous wastes, familiarity with the language used to discuss their technological hazard, and other services. Perhaps most importantly, they also established a communications network with these similar organizations through which they could gain advice as the situation changed (Moe 1980; Martin and Wilkinson 1984). Such extralocal ties have been found to be important in acquiring community funding from federal agencies (Turk 1970; Martin and Wilkinson 1984). Resource mobilization and organization

theorists have both found that organizations with little power, i.e., few internal resources, must go to other organizations for those resources (Aldrich and Pfeffer 1976; Peterson and Markle 1981). In this case, the group obtained funding from the Catholic church and a local municipality.

Legitimation of the new organization is also aided by extralocal ties with the organization action set. Becoming the legitimate representative of the community means that the organization has the authority to speak for the community and this authority is recognized by others (Gamson 1975). Once the organization reaches this status, it does not have to be concerned about its actual representativeness and can focus its energies elsewhere (Moe 1980). The organization may also become a full-fledged participant in the decision-making process, even to the extent that it may carry out some activities of the decision (Moe 1980; Scott and Meyer 1983). Ties with already legitimate extralocal organizations help in the legitimation process for the new organization because these ties provide knowledge, skills, and backing to increase authority (Scott 1981; Turner 1981). Support and recognition from a legitimate institution such as the Sierra Club adds credence to the actions of the emergent organization. The institutionalized and legitimated structures of extralocal ties copied by the new organization also make it easier to interact with other organizations and agencies already familiar with the structures (Meyer and Rowan 1977; Aldrich 1979; Aldrich and Whetton 1981).

In the situation we have observed, the emergent organization sought the advice, knowledge, and skills of state and national environmental organizations prior to and after mobilization. The list of organizations brought into their network is made up of large, well-known environmental organizations as well as

smaller ones; these organizations were identified through member contacts or overlapping memberships, or through contacts with a national "linking pin" organization (Aldrich 1979). This finding is consistent with that of Gladwin (1980), who found that environmental opponents were more likely to be of local origin and integrated into larger rather than smaller coalitions.

In using these national organizations, the local group learned a particular mode of protest behavior. Existing political pressure as an interest group, formal interactions with DOE, and discussions with national environmental legal counsel all represent the inherently conservative approach of mainline environmental groups like the Sierra Club. These tactics have probably increased their legitimacy in the situation and contributed to the willingness of DOE to interact actively with them.

There is potentially, however, an inherent conflict between the goals of the local organization and the national ones it turned to for guidance and resources. The national organizations attempt to influence environmental policy at the national and local level, but local interests in this case may be in opposition to national ones. The local group sought to halt the import of any additional radioactive waste to the Weldon Spring site. The group has also lobbied for stringent cleanup criteria and storage facilities that could be extremely costly. The conflict is that it might be more in accordance with national policy to reduce the hazards of radioactive waste for the largest number of people by concentrating its storage at Weldon Spring. Additionally, the costs of the cleanup and facility standards desired by the local group may cut drastically the funds available for other cleanup projects. Thus, in achieving their goals to aid in local efforts to reduce hazards from radioactive

wastes, national environmental groups may be undermining their own efforts to achieve the cleanest environment nationally.

The appropriate technology movement has goals that are perhaps more consistent with those of the local group in this case. However, the lack of a visible national organization of this movement made it inaccessible to the organizers of the local groups. The local citizens needed help quickly to respond to the sudden publicity and the imminent public meeting that served as catalysts for the mobilization of the group. They did not have the leisure to look for nor perhaps the knowledge of the existence of groups more ideologically similar on a local level.

Discussion

In this paper, we have attempted to illustrate some of the basic issues in opposition to management of radioactive wastes. We have been concerned with the development of a local opposition group--its emergence, mobilization, and legitimation--in the context of organizational literature indicating the similarities and differences between the national environmental and appropriate technology movements. It may be argued that the more radical AT/soft technologists are the most antinuclear in outlook but the least able to lend organizational support because of their focus on decentralization, self-sufficiency, etc. Environmentalists could and do oppose certain radioactive waste plans based on more general concerns of environmental protection. The complexity of nuclear technology and the fear associated with the technology act to make radioactive waste a special environmental problem. Connections between the more conservative environmental groups and local emergent groups emerge because

of the lack of access to AT groups, thus predisposing the local groups toward
conservative (and effective) action.

In the case under study, a local organization emerged in a facilitative
social setting and was legitimized with the help of state and national environ-
mental organizations. The more conservative mainstream environmental organiza-
tions predominated in the network that was established by the new group. The
appropriate technology component of the larger environmental movement probably
contributed substantially to negative attitudes about nuclear technology but
had nothing to offer in terms of organizational assistance. The mainstream
environmental groups were helpful in providing professional staff, organiza-
tional skills, political connections, working machinery, clout/power, and
legitimacy. The network building between local, state, and national organiza-
tions was an important aspect of the development of the local environmental
group If Morrison (1980) is correct in asserting that soft technology is the
cutting edge of the environmental movement, a substantial change in networking
could be expected in future conflicts. This would lead one to agree with
Morrison's conclusion that the "softening" of the environmental movement will
"change the future conflicts of environmentalists and their adversaries"
(1980:298).

Connection of local groups to national groups presents special problems
in defining benefits. If FUSRAP and SFMP problems were addressed by national
environmental groups, conflict between local environmental groups and national
environmental groups could emerge. Local groups faced with site-specific
programs are not concerned with the zero-sum aspect of funding. If environ-
mental groups acknowledged that the concept of finite resources also applied

to federal funds available for radioactive waste management of FUSRAP and SFMP wastes, national environmental organizations could find themselves at odds with local environmental organizations.

Interestingly, the local group's wishes are probably not consistent with the national good. Demands by the local group for modification of waste storage plans and comprehensive testing are likely to increase the remedial action costs to the extent that less funding will be available for remedial action at other sites in the nation. Although demands may be rational from the local point of view, a national comprehensive plan (given limited resources) would likely call for a different solution to the waste problem locally. The national environmental groups do not appear to have put the problem in this larger context.

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