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ISSUE NETWORKS AND ACTIVISM

Sarah Michaels

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Abstract

Using an investigation of a technical policy issue, this paper addresses issues of recruitment and representation within issue networks.

Kingdon's concept of issue networks is extended to explain who participates in a specific cluster of issue networks, to identify potential recruits and to spell out the essential role non-activists play as the target audience for activists. Examples of who constitutes a network and what that composition means for 'representation' are drawn from overlapping earthquake policy issue networks in British Columbia, Canada and Washington State, United States. Understanding the discernable processes and structures of earthquake information exchange reveals how and why people's interests coalesce around an issue which is not a high priority to the wider society. This research suggests that career related rationales provide the overwhelming motivation for issue network participation.

ISSUE NETWORKS AND ACTIVISM

Understanding the expansion of the modern welfare state, according to Laumann and Knoke (1987, p. 396), involves recognizing that a growing number of spheres of an individual's multiple activities have become explicitly politicized. These activities revolve around regional considerations, class and religious identities, place of residence, consumption patterns, family size, educational status and beliefs about what constitutes a desirable quality of life. This last category includes attitudes to risk.

In today's world, there is an overwhelming array of issues which demand the urgent attention of individual citizens. But no individual however well intentioned and capable tackles them all. For many the challenges of day to day existence rule out devoting time and energy to ward off evils which will not for certain threaten life or livelihood within the next hour. For others, consuming passions be it in private or public life determine where resources are spent. Who then takes action on concerns which have the potential not only to create hardships for individuals but which can curtail a society's ability to address collective priorities?

This paper examines one facet of how and why people mobilize around an issue which is not a high priority for the larger society. The way in which they do so reflects how individuals are integrated into society through personal dealings with real individuals (Fischer 1982, p. 3). This paper identifies participants and potential recruits and also explains the essential role non-activists play as the target audience for activists. This is done by extending Kingdon's (1984) concept of issue networks and uses as an example the processes and structures of earthquake information exchange in the Province of British Columbia and the State of Washington.

Issue networks and kindred metaphors are often used to describe policy processes. Yet they have often been applied rather uncritically with little attention to who constitutes the network or what that composition means for 'representation'. Using a case study of a technical policy issue -- earthquake policy -- this paper addresses issues of recruitment and representation within issue networks. The research shows that at least in this instance, the network is comprised of a selected set of activists suggesting understandable motivations for issue network participation.

There are discernable processes and structures of earthquake information exchange. Understanding these processes and structures reveal how and why

people's interests coalesce around a topic and who might become involved in a particular concern. The value of theory, as Feldman (1989 p. 26) notes is that it helps in understanding the conditions that produce observed behavior and to identify other situations where similar behavior may be anticipated. In this case, one can generalize to other settings where people share or potentially share a common concern but bring to it varying levels of understanding and commitment. As Feldman (1989 p. 26) also points out, theories aid in deciding which contextual features are most relevant to understanding action. In this case the concept of issue networks serve to highlight the importance of exchanging information to forging linkages between disparate clusters of people.

Appreciating who gets involved in differing aspects of seismic safety sheds light on the ways in which an issue which does not hold the attention of a wider public gets addressed. Understanding how and why participants get involved explains why some participants are able to take action where others are not and why some play more of a pivotal role than others. Identifying who are prospective participants is the basis for strategic recruitment. Recognizing that the public is not simply an educational sink but validates the commitment of activists changes how one should look at the dynamics between the two. In sum, the approach presented here is a means to understanding the dynamics between participants, prospective participants and targeted audiences in causes not at the top of the public agenda.

This paper begins with a brief overview of who was interviewed for this study. The concept of issue networks is then presented. This discussion considers how issue networks function, their antecedents and where they are located in the political spectrum. The discussion of participants begins with the identification by participants of key actors in the earthquake policy communities of British Columbia and Washington State and then goes on to consider how and why people get involved, why people stay involved and who is not active and why. Six categories of prospective participants and three categories of targeted audiences are identified and described.

I. RESEARCH DESIGN

Between August 1988 and June 1989 forty-eight individuals were interviewed in British Columbia and fifty-three were interviewed in Washington State. Interviews were designed so that each interview provided

a partial cross-check on the others as a means to address reliability and validity given the small number of interviews and the individual character of each interview (Whyte 1977, p. 38). Non-standardized interviews were conducted because "all respondents are not considered equal" (Whyte 1977, p. 37). Since some individuals are more attuned to the subject their responses do carry more weight (Whyte 1977, pp. 37-38; Miles and Huberman 1984, p. 235). While most interviews were conducted with people in occupations directly related to earthquake hazards, a minority of those interviewed were individuals who had insight but not a direct role in either assessing or mitigating the earthquake threat to the Pacific Northwest of the United States or the Pacific Southwest of Canada. By profession those interviewed included seismologists, engineers, emergency preparedness planners, land-use planners, journalists, academics and politicians (Michaels 1990, p. 68). One intent of the interviews was to determine the processes and structures through which individuals concerned about different aspects of seismic safety in the two jurisdictions operated. Issue networks and the companion concepts of policy communities and information webs proved to be the mechanisms through which concerned individuals interacted.

II. ISSUE NETWORKS

Informal forums through which people who know each other through their common concern about specific issues have been labelled issue networks (Heclo 1978, p. 102), sloppy large hexagons (Jones 1979, p. 105), policy communities (Kingdon 1984, p. 123) and connected entities (Havelock 1986, p. 77). The term issue network is used here to describe a configuration of individuals concerned about a particular aspect of the issue and the term policy community is used more broadly to encompass the collection of issue networks within a jurisdiction. Both describe the voluntary and fluid configuration of people with varying degrees of commitment to a particular cause (Heclo 1978, p. 102). Information webs are the mechanisms through which information is conveyed within an issue network, between issue networks within a policy community and beyond a policy community.

It is not easy to describe what an issue network looks like because participants constantly move in and out and not all members are active at the same time. Through time, various links may intensify or fade among policy intermediaries, bureaucracies and the executive (Heclo 1978, pp. 102, 104).

To become part of an issue network requires individuals to watch, read, talk about and try to act on particular policy problems. Since awareness and action are the initiation fees people become involved at many different levels of sophistication and influence. Issue network members range from the expert who advises heads of state to the vocal minority at a town council meeting, from the representative of a powerful interest to the individual with a reputation for being knowledgeable. Routine understanding of an issue serves to stabilize networks because only a limited number and range of participants are recognized as being knowledgeable and legitimate (Laumann and Knoke 1987, p. 379).

Motivation is essential to participation because networks are voluntary and informal. Networks are therefore self selective, homogeneous and focussed on particular interesting subjects (Benveniste 1989, p. 160; Kingdon 1984, p. 134). While Benveniste (1989, p. 160) suggests that network members are motivated by causes and because they want to believe that they are contributing to history, Fischer (1982, p. 3) points out that it is only through personal influences on those around them that most people affect their society.

Membership in issue networks combines technical expertise with policy activism such that people know each other through the issues. Through sustained attention to a particular policy debate, members have a detailed understanding of the finer points of the issue. No one, it appears, is in control of the policies and issues. Secondary to any intellectual or emotional commitment is any direct material interest. In contrast to standard political or economic models where interests define positions on issues, network members provide each other with reinforcement that each other's sense of issues is their interests (Heclo 1978, pp. 98, 102-103).

Issue networks increasingly become the forum in which people who regard each other as knowledgeable or at least needing to be answered to refine public policy issues, debate evidence and work out alternative options. This process rarely takes place in a controlled, well organized way (Heclo 1978, p. 104; Feldman 1989, p. 105). As Rayner (1989, p. 9) notes, societal decision making and problem solving is moved forward by an almost imperceptible form of organization which does not have foci directing its course. This is an appropriate description of issue networks where no one, it appears, is in control of the internal policies and issues.

Issue networks provide a forum for dialogue for people who share a concern about a topic but who do not necessarily share a world view. Participants have the opportunity either to generate mutually acceptable sets of meanings or to create enough "constructive ambiguity" such that they are not required to scrutinize closely supposedly shared meanings (Rayner 1989, p. 5). Consequently, issue networks are able to accommodate people with divergent world views and to provide an explanation for what may at first appear to be incongruous linkages.

Issue networks provide a means of being able to grasp the overall, complex nature of information flow without getting lost in the maze of tracing how and what fragments of information get passed on, and to whom. Issue networks are useful because it is not possible to trace neatly how an idea comes to prominence because the system is generally fragmented, a variety of resources are needed and there is no master controller of the information system (Kingdon 1984, p. 81).

Issue networks become vehicles for focusing on the more important questions of issue emergence, characterization of the networks and identifying successful points of intervention. Issue networks are able to reach an understanding of the context in which policy communities operate far more effectively than individual based models of knowledge utilization. This is because of the explicit acknowledgement that context influences the formation and maturation of issue networks. Underlying their operation is the belief their members have that policy initiation is possible because causes have effects which when changed have different effects and that through political efforts meaningful outcomes can be shaped (Polsby 1984, pp. 159-160).

Antecedents

Chisholm (1989) looks at the history of research into informal networks within organizations going back as far as World War I and the Tammany municipal political machines. But the lineage of the term issue network as it is used here is traced through Bosso's (1987) study of pesticides and politics since World War II. He sets out to determine the nature of political change and policy transformation, including what factors enhance or impede change as well as how the competing images of policy making stand the test of time. He claims that a common thread of all the dominant conceptions about United States policy making involves group theories and is concerned with

how interest groups relate to each other and tie in to government (Bosso 1987, p. 4).

Bosso (1987, p. 4) in his overview of dominant policy making concepts discusses the tension between elitism and pluralism. Elitism involves the domination by the powerful few of politics and policy making. In contrast, pluralism involves competition among rival interests where winners are not necessarily pre-ordained. The gap between these two led to the rise of the subgovernment approach. Theorists of this approach acknowledge that political action is defined by issues but that policy making is a private club to which not everyone is a member or registered guest (Bosso 1987, p. 6). Of most interest here is the "iron triangles" component of this third approach.

Iron triangles are conceived of as informal, enduring structures which tie together executive bureaus, congressional committees and interest group clienteles (Bosso 1987, p. 6). This concept implies "exclusive and autonomous decisional units" (Bosso 1987, p. 7). Heclo (1978, p. 88) suggests that such a rigid conceptualization failed to acknowledge that American politics is characterized by patterns of participation and influence which are both formless and imperfect.

Charles O. Jones (1979, p. 105) presents a clarifying image which refines the concept of issue networks. In his study of energy policy in the 1970s Jones proposes that as a consequence of the Organization of Petroleum-Exporting States (OPEC) oil embargo, national energy policy moved from a situation dominated by *cozy little triangles* to *sloppy large hexagons*. These hexagons were a result of the expansion of the energy policy population - people who felt they had a stake in the issue.

Note that the expansion is up, out and over-up in public and private institutional hierarchies, (e.g., the involvement of presidents of companies and countries, rather than just low-level bureaucrats, and of congressional party leaders rather than just subcommittees); *out* to groups that declared an interest in energy policies (e.g., environmentalists, public interest and consumer groups), and *over* to decision-making processes in other nations or groups of nations... (Jones 1979, p. 105)

Jones (1979, p. 109) notes that an immediate effect of a crisis is to expand the number of participants in decision making. Consequently, the new policy subsystem will not look like the old one because participants, their

relationships with each other and the decision making process may have all changed. This is a particularly important lesson for earthquake policy communities which are gearing up for events which will not only change the context in which they work but which will change the dynamics within each issue network. It is doubly true for the earthquake policy communities in British Columbia and Washington State which at the time of this writing have yet to experience the most damaging event they are anticipating, a great subduction earthquake.

In addition to the lineage of issue networks traceable through Bosso, the conceptualization of issue networks can be traced through Benveniste (1989) to Castells (1983). Castells (1983) develops three categories in which to classify grass roots movements in urban development. The first is collective consumption trade unionism where well defined narrow topics of great importance to participants, such as preserving historic buildings, serve as the focus. Second, community searches for cultural identity are organized around their participants' ethnic and cultural values and lifestyles, such as ethnic minority associations. Third, citizen movements are empowering movements in which participants seek to decentralize power and gain self management, such as to legitimize neighborhood government. Castells points out that movements which encompass characteristics of all three movements tend to last the longest and be the most effective.

Benveniste (1989, p. 188) builds on Castells' three types. Benveniste describes how people with different characteristics come together in informal affiliation groups with similar agendas. First are issue groups which are single issue oriented, such as those in the 1980s who believed that the Strategic Defense Initiative would not generate an effective defensive shield. Second are cultural or ethnic groups which address the needs and viewpoints of groups which as yet have not held power in government or business. Also included in this category are groups which espouse new cultural values within existing institutions, such as managers concerned about ethical issues. Benveniste notes that these groups are well informed about grass roots issues and use networks to cut across hierarchies. Third, empowering groups work to obtain shared authority and responsibility within an organization. Such groups base their claims to participate in decision making on the essential professional knowledge they provide. The rise of such groups indicates the

changing dynamics between professionals and managers and the increasing centrality of expertise and knowledge in both the public and private sector.

Table 1 depicts how issue networks build on Castells' urban development movements and Benveniste's informal affiliation groups. Issue networks as presented here draw directly on Castells' (1983) collective consumption trade unionism with its focus on narrow issues of great importance to its participants. Castells' two other categories are reflected in issue networks indirectly because of how Benveniste expands on them. All three informal affiliation groups identified by Benveniste (1989) are reflected in issue networks but not with equal weight. Single issue oriented issue networks, such as seismic safety in the schools, most closely reflect Benveniste's issue groups. In his second type of group, cultural or ethnic groups, Benveniste includes groups which espouse new cultural values within existing institutions. Earthquake issue network participants see themselves as importing concern over seismic safety into institutions which prior to their activism did not rank seismic safety as a high priority. For example, a manager in British Columbia Hydro introduced concern over the seismic safety of company owned dams. Issue networks reflect Benveniste's last category of empowering groups because of the recognition within them of the importance of the participation of professionals with technical expertise in decision making.

- Table 1 placed here -

Locating Issue Networks in the Political/Administrative Spectrum

Knoke (1990, p. 205) argues that in three arenas - the work place, the polity and the international order - communication ties are generating new social structures within and among social formations. The earthquake issue networks described here provide a bridge between the work place - where seismologists generate research findings, engineers develop construction designs and emergency professionals develop response plans - and the polity - in which public policy is shaped.

Issue networks are nestled into the spectrum of familiar political administration terms between "shared attention groups" and "shared action coalitions." Issue networks are better defined than a shared-attention group or public. Compared to shared attention group members, network members

Table 1. Categories of Association

	<u>Narrow topic orientation</u>	<u>Values and lifestyles based</u>	<u>Decentralization of authority</u>
Urban development movements (Castells 1983)	collective consumption trade unionism	community searches for cultural identity	citizen movements
Informal affiliation groups (Benveniste 1989)	issue groups	cultural or ethnic groups	empowering groups
Network facilitation	issue networks		

are more likely to share a common information base, approach to problem identification and understanding of how to know about policy (Heclo 1978, pp. 103, 104). Since knowledge does not guarantee that agreement will emerge, issue networks may or may not be galvanized into a shared-action group such as a coalition or a tighter, shared belief group such as a conventional interest organization. According to Berry (1977, p. 7) a public interest group is one that seeks a collective good, the achievement of which will not selectively and materially benefit the membership or activities of the organization.

III. PARTICIPANTS, PROSPECTIVE PARTICIPANTS AND TARGETED AUDIENCES

Issue networks tie together two contradictory tendencies; on one hand, the more widespread organizational participation in public policy, and on the other, more narrow technocratic specialization in complex modern policies. (Heclo 1978, p. 103)

Neat distinctions between the governmental structure and its environment tends to break down as more than ever policy making is becoming an intra-mural activity among expert issue-watchers, their networks and their networks of networks. Influence is sought by issue network participants proportional to their understanding of the societal choices being made (Heclo 1978, pp. 106, 103).

The influential systems of policy activists for knowledgeable policy making make democratic politics more difficult because they aggravate problems of legitimacy, public disenchantment, and consensus building. First, only a small portion of the minority of those who seriously attend to public affairs are likely to be mobilized into various networks. The remainder of the population, those who are not policy activists, depend on government institutions to act on their behalf. One must recall that it is these governmental institutions, unlike issue networks, which have the democratic legitimacy through elected representatives to govern (Heclo 1978, p. 118).

Second, more of the public than ever think that government doesn't know what it is doing, despite the increasing role the highly knowledgeable have been playing in government. The feeling of public helplessness has grown even while government has increasingly tried to help. More

communication is the answer only if the problem is a simple information gap between the public and policy experts. This gap is clearly not the problem judging by the response of the public to the answer. More information from the highly knowledgeable leads to the syndrome among the public that "everything causes cancer" (Heclo 1978, p. 118).

Third, elites are encouraged to compete where government is based on popular consent. This derives from the nature of democracy as the institutionalization of conflict (Douglas and Wildavsky 1982, p. 157). While democracy means voting to bring closure to move from debate to action, networks thrive on continually considering alternative courses for action on particular policies. They do not thrive by bringing closure to debate which results in implementation of a single alternative (Heclo 1978, p. 106).

Participants

The accomplishments of an earthquake policy community are based on the activism of its members. Consequently who participates and why determines what each issue network addresses. Participants do not bring equal levels of enthusiasm, resources or expertise to their issue network participation. Policy community members are able to identify particular individuals who are central to the activities of specific issue networks and to the policy community in general.

The earthquake policy community in British Columbia includes bureaucrats at the school board, municipal, regional, provincial and federal levels. It includes people in universities, public agencies, associations and consulting firms. By occupation, geoscientists, engineers, emergency managers, community planners, students, politicians, and homemakers are represented. Occupation and substantive issues form the basis of the issue networks which constitute the earthquake policy community.

Respondents in British Columbia identified key actors in the jurisdiction's earthquake policy community. Table 2 lists the leading key entities, occupation and individuals in the British Columbia earthquake policy community. While some respondents mentioned individuals by name, others distinguished pivotal organizations.

- Table 2 placed here -

Table 2. Key organizations, occupations, and individuals in the British Columbia earthquake policy community as mentioned by five or more respondents (Michaels 1990, p. 87)

	<u>Number of references</u>
<u>Organization</u>	
Pacific Geoscience Centre	21
Universities	13
Emergency Preparedness Canada	
British Columbia and Yukon	
Regional Office	11
Provincial Emergency Program	18
Municipalities	9
National Building Code of Canada	5
<u>Occupation</u>	
Engineers	12
<u>Individual</u>	
Pacific Geoscience Centre Seismologist	13
Emergency Preparedness Canada	
Regional Director	8
Provincial Emergency Program Director	6

Scientific expertise appears to be an important component of key actor status. The most frequently cited key organization is the Pacific Geoscience Centre (PGC) which is a seismology research unit of the Geological Survey of Canada (GSC) within the federal Department of Energy Mines and Resources. In 21 out of 44 interviews the PGC, where earthquakes in the region are monitored and investigated, where basic seismological research is conducted, and where the scientific basis of changes to the National Building Code of Canada are worked out, was mentioned as a pivotal institution.

A PGC seismologist was mentioned most frequently as a key actor in the provincial earthquake scene. He was mentioned by thirteen individuals as one of the strongest players. He is known to be aggressive in making his views known and is effective because of his credibility. As noted by someone who works in the department where the seismologist completed his Ph.D., this PGC seismologist was doing the background work to produce the data needed to act, and he took it upon himself to educate the emergency planners. This respondent went on to add that the media always go to this particular seismologist first because he is regarded as the best public speaker on the topic. As a former professional actor, he is able to adapt his presentation to the audience. As one emergency planner remarked, the seismologist will include technical jargon if the audience can understand it, but if they can't he will give a flamboyant, non-technical presentation. This seismologist has been willing to talk preparedness and not limit himself to seismology.

While the PGC was originally the driving force in promoting earthquake concern, one of the researchers there noted that this has begun to shift. In his view Emergency Preparedness Canada has taken over and is doing the pushing. An emergency manager noted that the seismologist described above no longer views himself as an apostle. The shift from seismologists leading the promotion of earthquake concerns to emergency managers holds out implications for which information webs are utilized and how they are utilized.

Nine of the thirteen people who explicitly mentioned provincial universities as key organizations had doctorates. The University of British Columbia and particularly the Department of Civil Engineering was regarded as the most active academic base for earthquake-related research. A member of another University of British Columbia department considers the Department of Civil Engineering as having the two most respected people in

Canada active in liquefaction research. The department is also known for its research into earthquake resistant structural design. A federal geophysics researcher regards the department as not actually doing the pushing but responding well.

Eleven people mentioned the British Columbia and Yukon office of Emergency Preparedness Canada (EPC), and of these eight people named the regional director as a key actor in the earthquake policy community in the province. The regional director of EPC was regarded by the PGC researchers as the first emergency planner to accept the extent of the potential earthquake threat to the area. He was active in getting out the message of the seismologists as he understood it.

The Provincial Emergency Program (PEP) was mentioned by eighteen people, one third of whom mentioned the director by name. Three people, including one provincial politician, mentioned the Interministry Emergency Preparedness Committee Seismic Safety Sub-Committee formed in late 1988 which includes broad based public sector representation. Two people noted the turn around in the program which began with the current director taking up the post. Four people, while recognizing PEP as a key organization, criticized PEP for its lack of past leadership in earthquake mitigation. Emergency groups, such as volunteer fire fighters and the Association of Professional Engineers of British Columbia (APEBC), were each mentioned by two people as playing key roles.

Three people suggested that other branches of the provincial government have a key role to play because of their present mandates. For example, the Ministry of Energy, Mines and Petroleum Resources is involved through the technical assessment of risk. There is potential for the Building Safety Advisory Committee responsible to the Minister of Municipal Affairs, Recreation and Culture to play a greater role in earthquake mitigation.

The Greater Vancouver Regional District (GVRD) was mentioned as playing a key role by three emergency planners and one engineering consultant. The two provincial emergency managers mentioned both the Regional Emergency Preparedness Committees of the GVRD and of the Capital District (which consists of Greater Victoria). Another emergency manager and a consultant pointed out that the former manager of the GVRD had been an advocate of earthquake mitigation and preparedness and had initiated an earthquake damage prediction study for the region. On his

retirement shortly after initiating the project, there was no internal advocate for the issue. This demonstrates the critical role of the individual in sustaining activity about an issue.

Municipalities were acknowledged in nine interviews to be key actors. Three engineers and one emergency manager acknowledged local emergency managers playing key roles. Two community planners said that for the threat of earthquakes to become a planning issue would require initiatives from the mayor, city council, the manager's office or the director of planning. Two people stated that building officials were key actors in the earthquake policy community since they daily made decisions on buildings and were an integral part of the permitting process.

Four engineers and a geographer who had been involved in developing micro-zonation maps for Victoria mentioned the key role the National Building Code of Canada plays in mitigation. The code is important, one engineer thought, because most of the mitigation is done in structural design. The geographer argued the code is important because it is complied with. One engineer put forth some members of the Canadian National Committee on Earthquake Engineering (CNCEE) as key actors.

Nine engineers and three emergency managers said that practicing engineers were key actors. One research engineer suggested that consultants had the ultimate responsibility for designing the end product to meet code requirements. Two emergency managers specified the engineering consultant who did the first phase of the GVRD study. One research engineer listed the top three engineering consulting firms in the area. All three of the emergency managers and three of the engineers specifically mentioned one engineer who had been active in promoting seismic consideration within his own firm and the APEBC.

One indicator of the links between the earthquake policy communities of British Columbia and Washington State is the knowledge people in one jurisdiction have of key actors in the other. Four British Columbians in discussing key actors recognized the role of three Washingtonians. One person, a seismologist by training, was mentioned by three individuals. Another person, who began her involvement with the issue through the schools, was mentioned by two people. All four of the British Columbians had attended meeting involving Washington State participants.

In defining key actors, one emergency manager suggested that all those who attended the April, 1989, federal/provincial earthquake response conference could be considered key actors. Four individuals constitute the Director of the Provincial Emergency Program's briefing team. They constitute the core of his issue network. All of them are the most well known members of their respective organizations as suggested by the interviewees in this study. They include the Director of PEP himself, the regional director of EPC, the most well known seismologist in the province, and the most well known practicing engineer. Who the PEP director considers members of his issue network was reflected in his choice of whom to invite to the 1989 B.C. Crisis Management Seminar on earthquakes.

While the above discussion has featured key actors within the earthquake policy community, there are key actors within issue networks based on local jurisdictions who have not garnered province-wide prominence. In addition, there are tangential networks which overlap with earthquake-related ones. For example key actors in the tsunami network include EPC, PEP and the Tides and Current Section of the Department of Fisheries and Oceans.

To delineate who constituted the earthquake policy community in Washington State during one snapshot in time, forty-nine interviews were conducted with fifty-three individuals. Those interviewed identified key actors in the Washington State earthquake policy community. Table 3 lists the leading key entities, occupations and individuals in the Washington State earthquake policy community as identified by the respondents.

- Table 3 placed here -

Twelve people, five geologists, three seismologists, a civil engineer, a journalist, an author and a long-time activist mentioned the USGS or one or more of its researchers as being key players. Two geologists, a seismologist, a long-time activist and an author described one geologist, known for his work on finding evidence for past great earthquakes, as a key actor. Three geologists, two seismologists and a journalist mentioned the head of the USGS seismology group at the University of Washington as key. Two seismologists and a geologist described as key the activities of USGS researchers based outside Washington State who are contributing to the understanding of the United States Pacific Northwest.

Table 3. Key organizations, occupations, and individuals in the Washington State earthquake policy community as mentioned by five or more respondents (Michaels 1990, p. 189)

	<u>Number of references</u>
<u>Organization</u>	
United States Geological Survey	12
Division of Geology and Earth Resources	8
University of Washington Geophysics Program	14
Federal Emergency Management Agency	6
Division of Emergency Management	18
Structural Engineers Association of Washington	8
<u>Occupation</u>	
Academics	19
Local emergency planners	7
Engineers	12
Citizen activists	5
<u>Individual</u>	
U.S. Geological Survey Geologist	5
Head of U.S. Geological Survey Seismology Group in Washington State	6
Federal Emergency Management Agency Natural Hazards Specialist	21
Division of Emergency Management Earthquake Planner	16
State Legislator	5

Eight people, four geologists, three seismologists and a social scientist mentioned the Division of Geology and Earth Resources, Department of Natural Resources, Washington State as having a key role to play regarding the earthquake issue in the state. Four people mentioned the division manager as having a role to play because of his position.

While one person mentioned a researcher at the University of Western Washington and another a researcher at Pennsylvania State as being key actors in the Washington State earthquake policy community, seventeen people described individuals or departments at the University of Washington as playing a key role. A political scientist was mentioned as being a key actor by an academic engineer, a seismologist, a planner and a long-time activist. The civil engineering department was mentioned by three engineers within the department and a consulting engineer. Only one academic engineer was mentioned by more than one person as being a key actor.

The University of Washington Geophysics Program or one or more of its researchers was mentioned by fourteen people, five geologists, two seismologists, four engineers, three of whom are on campus, a social scientist, a journalist and a former citizen activist. One seismologist who has run the seismological net for over twenty years was mentioned by ten people, including two seismologists on campus, four geologists, one on campus, three engineers, two on campus and a journalist. Another seismologist was mentioned by seven people, two seismologists, three geologists, a former citizen activist and a journalist. Three people, all of whom were connected with the Geophysics Program mentioned a third seismologist. Four people, a seismologist, a social scientist, a journalist and a former activist mentioned a geologist who works with the seismologist in the Geophysics Program as a key actor. The Geophysics program forms an issue network central to Washington State's earthquake policy community.

While six people mentioned the Federal Emergency Management Agency (FEMA) as an organization which is close to the issue, twenty-one people from across the spectrum of involvement with the earthquake issue singled out a particular individual as a key actor. This individual who has a scientific background had established a reputation for activism prior to her appointment with FEMA. This highlights the importance of individuals within the earthquake policy community.

Ten people, three geologists, two engineers, two activists, a seismologist, a politician, and a journalist recognized the Division of Emergency Management, Washington Department of Community Development as having a mandate to be involved. However, seven people, including a politician, qualified their remarks by suggesting that the Division was less than effective. Beyond these ten, two people mentioned that the head of the division was interested in the earthquake issue. Sixteen people, five engineers, four geologists, four activists, a planner, a social scientist and an author, singled out a particular Division of Emergency Management (DEM) employee for her activism which predates her DEM appointment. The concept of issue networks is valuable in exploring situations such as this one where an agency which has a mandate to play a leadership role does not exercise it fully.

Seven individuals, four activists, two engineers and an emergency management consultant identified local emergency managers as key actors. Two activists and an engineer cited one local emergency manager in particular. A citizen activist and an engineer expressly pointed out the role of the local fire department. Three engineers, a building official, a geologist and a planner explained that municipal building departments were key actors. A long-time activist and a planner noted one engineer in a municipal water department as being active beyond job related responsibilities.

Two engineers and a building official discussed the role of the building code process. One engineer pointed out that the Uniform Building Code (UBC) governs building design. The other one explained how the state adopted the base UBC code before the City of Seattle did which resulted in some discrepancies between the state and the city. A state law has been proposed which would disallow municipalities from adopting their own codes. It is being lobbied for by contractors and builders out of frustration with dealing with variations from jurisdiction to jurisdiction. Revision, adoption and implementation of the UBC forms the basis of an issue network.

Individual engineers were recognized as playing pivotal roles both within technical issue networks and the earthquake policy community generally. One structural engineer was regarded by four engineers and two citizen activists as key. Another structural engineer was mentioned by three engineers. A lifeline engineer was mentioned by two engineers and a long-

time activist. A geotechnical engineer was regarded as a key actor by two engineers.

The one professional association which was regarded by more than one person as being a key organization was the Structural Engineers Association of Washington (SEAW). SEAW was regarded by seven engineers and one long-time activist who is not an engineer as playing a significant role. In particular the Lateral Forces Committee (LFC) is seen as playing an important role in translating scientific information into the building code as well as promoting legislative initiatives. The LFC is noteworthy because it has reached beyond SEAW membership to attract active participants.

Individual politicians and citizens were recognized for their contribution to the earthquake policy community. While three people regarded local politicians in general as key actors, five people, three activists, an engineer and a journalist regarded one state legislator as a champion. Two activists, a seismologist, a geologist and an engineer remarked on the contribution that individual citizens have made and are making to certain aspects of the earthquake issue.

The composition of two seismic specific task groups was suggested as an indicator of who was a key actor either in a technical issue network or in the overall earthquake policy community. Two engineers suggested that key actors could be identified as those who participated in a multi-disciplinary ad hoc seismic committee of SEAW which had drawn up the 1985 seismic map for the state. A geologist and an engineer suggested key actors could be identified as those who had participated in the Washington State Seismic Council in 1985.

How and why people get involved

The reason people become involved determines in which issue networks they participate and how active they become. Looking first at the earthquake policy community in British Columbia and then at the one in Washington State it is clear there is no single way people become involved or one reason why people become active.

During the forty-four interviews in British Columbia there emerged seven categories of reasons why people have become involved. First, career related rationales are the overwhelming reason people became active, either because

earthquake-related activities have been assigned to them or these activities hold out economic opportunity.

An academic, who had been a consultant in the past, a general engineering consultant and a planning consultant each described how his work had evolved to include a component of the earthquake threat. How well people were qualified for their earthquake-related assignments varied enormously. Three people who had university training in geology were well equipped for their new duties. Two others had been assigned earthquake responsibilities because there was no one suitable within the organization. Some people had the latitude to increase the percentage of time they worked on earthquake-related activities. This tended to be true of people at the top, for people working on their own and for dynamic individuals.

Second, a minority of those interviewed had established the base of their interest in technical university training. This included all of the research geophysicists and engineers. One of the divisions within the earthquake policy community in British Columbia is between those who have scientific and technical educations and those who do not.

Third, three individuals had been recruited into the policy community. One academic was brought into the fray through the dynamism of one of his students. Another was recruited by a colleague and had the importance of the issue reinforced through profession related activism and timely media attention. The third individual was drawn in by a friend with whom he shared the same occupation and educational background.

Fourth, while seismic concerns are part of his job responsibilities, one individual was drawn into the issue through his professional related involvement in the building code process. Fifth, four people, all of whom are engineers, explicitly described concern over the potential consequences of an earthquake to provincial society as the reason they became involved. Sixth, one individual became involved out of concern for her child. Seventh, two people were not clear on how their interest had begun. They could not point to a specific reason why they had become active.

Five categories of how and why people become earthquake policy community members were identified during the forty-nine interviews conducted in Washington State. First, the dominant reason people in Washington State have become earthquake policy community members is related to their employment. Many of the people have either been assigned

earthquake-related responsibilities or have recognized the advantages of pursuing one aspect of the issue. Two government engineers became involved through being assigned engineering projects which required an earthquake design component. One local politician explained that her involvement with seismic concerns began when it was an item on the school board agenda.

On occasion, people have built on their long term interest in the phenomenon. In other situations, earthquake-related work has evolved from related assignments such as civil defense or environmental planning. In one situation, a state geologist with a background in metal mining and ore deposits found that after ten years he was receiving more and more questions from the public and local government related to geological hazards.

Two researchers described how the availability of research funding at a formative stage of their careers caused them to pursue earthquake-related research. One seismologist, at the beginning of his career, was able to exploit a technological breakthrough which enabled the results of field seismographs to be relayed to a central site.

Two people described how their earthquake involvement was unrelated to their previous work. One engineer described how, without any earthquake specific background, he was assigned by his firm to write a design manual for lifeline earthquake resistance. An author of general interest books was looking to diversify when his editor suggested earthquakes as a subject. The author then found issues within that subject.

Second, graduate education was the prime means through which one social scientist and several seismologists and engineers became acquainted with different aspects of earthquakes. They carried this interest into their careers.

Third, two people were recruited into the earthquake policy community. One engineer who has job responsibilities related to the process of changing the Uniform Building Code was approached by a seismologist active in earthquake mitigation activities. A politician who in the past had piecemeal involvement with dam and school safety was approached.

Fourth, two parents became motivated to become involved through their concern for their children. One parent had been attending school board meetings because of her general interest in public education. She became active in promoting seismic safety at the State level. Another parent having

seen the video of the KOMO television documentary "On Shaky Ground" began to teach self sufficiency in the aftermath of a major earthquake.

Fifth, a lawyer became involved in the earthquake response issue network through the evolution of non-hazards community activism. His activism in earthquake response grew out of political work he had done with the government.

Why people stay involved

There is a range of reasons why people stay involved in both British Columbia and Washington State earthquake policy communities. There were fewer categories of why and how people stay involved in the British Columbia and Washington State earthquake policy communities than categories of how people became involved initially. The largest category in both circumstances related to occupation based involvement. While one individual explained he had been introduced to the topic through professional public service, more than one individual explained that professional public service was the means of their ongoing involvement.

The overwhelming majority of people maintain their activism through occupation-related responsibilities. The proportion of time which was devoted to earthquake-related tasks varied significantly. While for some people, such as seismologists, earthquakes form the backbone of their work commitment, for others, such as emergency managers, it is enveloped in wider responsibilities and for still others intermittent involvement is based on the initiatives of others.

The occupation related activism of others is dependent on the public level of concern, on the mandate of their organization and on the related issue of funding availability. As a member of the provincial opposition, one politician is active when the issue becomes of concern to his constituents or is debated in the legislature. One senior provincial bureaucrat's involvement depends on how much politicians are prepared to commit government resources to earthquakes, not the least of which is staff time. The same holds true for an individual working in property management for a school district. The Geotechnical and Materials Engineering Branch of the Ministry of Transportation and Highways was more directly involved in hazards assessment in the 1970s before a change in its mandate. Lastly, the amount of time a generalist, consulting engineer devotes to earthquake concerns

fluctuates with whether the jobs he is currently managing are earthquake-related or not, what progress is being made on them and how much attention they demand of him.

Second, people remain involved through professional public service. A number of the engineers and seismologists complemented their work related involvement with the issue through professional public service. In a minority of instances where engineers were involved with the building code process, such as being members of CNCEE, their primary involvement was through these activities.

Two community planners maintained their involvement solely through professional public service. Presently neither of their job descriptions contain earthquake mitigation related responsibilities.

A third category of activists is the least straightforward to classify. They are people who have demonstrated a commitment beyond career rewards. They are mission oriented. Two of the five people in this category have sustained a high level of commitment through changes of occupation.

Who is not active and why

People who are not active in British Columbia's earthquake policy community fall into four categories. The first category down plays the nature of the threat. One senior geologist theorized that the tectonic plates are hot and that the interface between them is viscous. Consequently they are slipping gently and there will be no "megathrust" earthquake.

The second category of current non-activists consists of people who no longer have earthquake-related responsibilities at work. Two people had interim responsibilities until someone else was assigned the earthquake-related tasks. The third individual is a politician who initiated activity at the school board level. Since then he has been elected to a municipal council where the Mayor assigned another councillor the emergency preparedness portfolio.

A third category consists of a citizen activist who left for financial reasons. Her husband felt the family couldn't afford for her to be involved in an issue which not only was she not being paid for, but for which she had to pay her own expenses. Her active involvement imposed a hardship on her family because of her frequent absences. The fourth category consists of three people whose departure can best be characterized as "drifting away" from the topic.

People who are not currently active in Washington State's earthquake policy community fell into three clusters. First, one individual no longer has earthquake-related work responsibilities. The second cluster is two people who have been unable to garner rewards, such as financial compensation, for their participation. One researcher did not have funded the National Earthquake Hazards Reduction Program (NEHRP) proposals he wrote when he was in another part of the country. While not active in the state scene, he is recognized as being the authority in his work place. The third cluster of non-activists consists of two planners. They are not involved because there is no easy way to import current scientific knowledge about earthquakes into their job responsibilities.

Prospective Participants

Between policy community members committed to their cause and the disinterested public there is a pool of potential policy community members who while not active currently, are more likely to become involved in the future than the general public. What Knoke (1990, p. 70) describes about recruitment into social movements holds true for issue networks. The most likely prospective recruits are highly similar to current participants. In British Columbia and Washington State it was possible to identify six categories within the pool of potential earthquake policy community members. The distinction between categories in the pool is permeable with some individuals belonging to two or more categories simultaneously.

Former activists

Former activists not only have an understanding of an issue but they also have demonstrated their willingness to take action on it. Targeting them as potential members requires addressing two questions. First, why did they cease their involvement? Second, what would it take to entice former activists to take up the cause again?

People remain active because of rewards, be it personal satisfaction or professional recognition that comes through their involvement. When people fail to get these rewards, their activism wanes. There is a financial cost to involvement both in terms of direct outlay and in terms of foregoing other activities. It is a rare individual who is both able and willing to absorb these costs personally on a sustained basis. Former activists are unlikely to return

to the fray without the prospect of being able to make a special contribution, of garnering personal satisfaction, or of gaining outside recognition of their contribution. More often than not, such rewards need to be complemented by compensation or at a minimum a subsidy for activities undertaken.

Policy or financial opportunists

Policy or financial opportunists are those looking for an opening in which they can promote their own projects. The exact nature of that opening is less important than the fact that it exists. Kingdon (1984, p. 53) describes a category of people who have a policy solution and are looking for a problem to which they can attach it. Professionals may be attracted to a field because there is an unsatisfied demand for service in it. For example, civil engineering firms may develop expertise in strengthening buildings to withstand earthquakes. Researchers may be drawn to a theme because there is funding available if they develop research with a particular emphasis. For example, geotechnical engineers may orient their research proposals to meet USGS grant guidelines. Activists in another concern may recognize the potential of an issue to bolster their primary interest. For example, those wishing to halt the construction of a nuclear power plant in the Skagit Valley claimed that the power plant was not safe in the event of an earthquake (Adams 1983, p. 147). As Meehan (1984) argues California environmentalists have effectively raised the question of seismic safety to halt a number of nuclear power plants including ones in Humboldt County, at Bodega Head and at Malibu. In the case of Bodega Head, seismic concern was not the first issue raised by opponents of the facility but the one they could exploit most successfully.

The probability of applying new information is enhanced if its application serves an existing agenda, as illustrated by the following example provided by a university researcher. The Department of Transport earthquake report on Vancouver International Airport became ammunition to build a third runway. The initial Department of Transport concern was how the dikes around the airport built to prevent flooding would stand up to earthquakes. A university researcher argued that the dikes were not the issue. He explained that the real threat to an airport in an earthquake is if the runways become unusable it may be difficult to marshall the equipment to rebuild immediately. It is cheaper to build a new runway, he argued, than to rebuild the existing one to withstand a damaging event. A Department of Transport

administrator saw the potential of the report as contributing to the argument for building a third airport runway.

One citizen activist explained how, "environmentalists jump on the earthquake bandwagon" when they want development stopped. She gave the examples of the Skagit Valley nuclear power plant and the Issaquah industrial park. Some people opposed to the projects for other reasons argued that the projects should not be undertaken because of the potential for earthquakes to occur in the region. At the time of debate over the nuclear power plant, she pointed out, the environmentalists couldn't have known about the potential for a subduction earthquake.

Activists in related issues

Whereas the opportunists described above adopt secondary issues to complement a primary cause, some individuals adopt a new primary cause and bring their previously acquired skills to bear upon it. For example, a geophysicist shifted his research focus from the theoretical work he did for his Ph.D. to applied seismology.

Individuals who can incorporate a concern into their work

Meltsner (1976, p. 17) has demonstrated the latitude analysts in the bureaucracy have in emphasizing the analytical or political aspects of their jobs. In their orientation to their work they can be more or less technical or entrepreneurial. Analysts are not alone in the flexibility they have in juggling their responsibilities. A prime cluster of potential issue network members consist of those individuals who can legitimately incorporate a concern into their work responsibilities. For earthquakes, this includes design engineers who can incorporate seismic provisions, local emergency planners who can incorporate earthquake mitigation into their emergency preparedness planning and into their promotion of public preparedness or academics who apply their research experience to earthquake related themes. At least initially, those recruited from this cluster are not likely to take a leadership role within the policy community.

Students

Students, through university education, particularly at the graduate level, can lay the groundwork for long term career interests. For example, a number of British Columbia and Washington State engineers attributed their

current interest in earthquake design to their exposure to earthquake engineering research while in graduate school. A 1973 California State advisory group on engineering considerations and earthquake sciences recommended that the university and college system be used to teach building officials and building and structure professionals about how to achieve seismic safety (California State Legislature 1973, pp. 6-8).

Believers in action

People who come to believe that something should be done about a condition define it as a problem (Kingdon 1984, pp. 20, 115, 116, 207; Downs 1972, p. 39). This may result from a change in status or in location. For example, a parent who learns their child is attending a school which will not withstand an earthquake may come to believe in the need for action. Another example is someone who moves from California to Washington State and discovers the level of preparedness is lower where they live now than where they used to live. When people come to define a condition as a problem they become part of the pool of potential community members. If they take action on their concern they become policy community members. If they cease to define a condition as a problem they cease to be potential members and revert to becoming members of the disinterested public.

Implications for recruitment

Failure to recruit new members from this pool of prospective members limits the effectiveness of a policy community. It is more effective to cultivate individuals within this pool than to try to recruit from the general public.

Targeted Audiences

Issue network members need to look beyond their own issue network for affirmation. Benveniste (1989, p. 107) notes that to initiate a multiplier effect, coalitions require a sufficient critical mass of supporters who can create sufficient conviction to lead to action. Consequently, issue network members target the general public, the media and elected officials.

The non-differentiated public

Most cause promoting groups ranging from Earth First! to the John Birch Society trace their policy successes to when the public embraces their

concerns. The public is targeted on the assumption that only if there is a ground swell of concern will there be the political will for widespread mitigative activity.

Downs (1972, p. 41) recognized the importance of at least temporary public support for an issue in describing the post-program phase, the last phase of his issue attention cycle. In this last phase while public attention may have waned, programs implemented during heightened attention are still in place and contribute to solutions even if on a reduced basis. He argues that in the post-program stage more action on the issue occurs than before it garnered public attention. Even people who are no longer directly active in the issue may still follow the issue. Also, they may have a level of concern higher than before their activism or than it would have been if they had not been involved.

The media

Issue network members recognize the importance of passing on information convincingly to the media. While the media was not a focus of questioning in this investigation it came up as a topic in numerous interviews in the discussion of information transfer. The amount of media coverage is one gauge of success for reaching out beyond the committed since the media is an important means of reaching the general public and elected officials. The media represents not only a common denominator for the general population but also serves to inform the far flung reaches of the earthquake policy community who are not in close contact with each other. For example, a seismologist who is not active in the policy arena may track seismic relevant legislation by reading the daily paper.

Elected officials

Policy community members direct efforts beyond issue networks to reach uncommitted decision makers either directly or indirectly through public outcry. Elected officials, particularly at the provincial or state level, have been prime targets for the earthquake policy communities. In Washington State, long-time activists have recruited individual, elected officials into the earthquake policy community. In contrast, the Association of Professional Engineers of British Columbia addressed the Provincial Cabinet without having first recruited an elected champion.

IV. CONCLUSIONS

Who is concerned, their level of concern and how that concern is expressed dictates if, how and where an issue appears on the public agenda. It is through issue networks that these components are sorted out among people who share a concern about a particular aspect of the issue. This paper has examined how issue networks function and their antecedents. Key actors in the overlapping earthquake related issue networks in British Columbia and Washington State have been identified as well as the reasons they became involved and continue to be involved. In addition, a pool of prospective participants has been described. Targeted audiences are recognized for the essential role they play in affirming the actions of issue network members.

Issue networks operate where societal interest groups, the intellectual convictions of experts and policy makers and comparative knowledge meet. Comparative knowledge refers to the understanding experts or subject matter specialists have of the way particular issues have been dealt with elsewhere. It is at the confluence of these three forces, according to Polsby (1984, p. 166), where policy innovation arises. The dynamism which leads to policy innovation stems from expertise which is embedded in relations rather than in individuals. Since within issue networks expertise is more a matter of transmission of knowledge to others than what one person knows (Knoke 1990, p. 232).

Still, issue networks put a premium on the activism of the individual since value is accorded to the bundle of knowledge and personal traits an individual brings to the cause (Chisholm 1989, pp. 12, 141). How individuals are mobilized reflects the way in which they are integrated into society through personal dealings (Fischer 1982, p. 3). It is not surprising then to find that career related rationales are the overwhelming reasons people maintain their activism.

The recruitment and representation into the earthquake policy issue networks described here occurred at a time when there had not been a recent damaging earthquake in either British Columbia or Washington State. As such it provides a baseline study. Based on Jones (1979, p. 109) it can be anticipated that the occurrence of a damaging earthquake will expand the number of decision making participants and alter the shape and composition

of the issue networks. Potentially issue networks would thrive in the immediate aftermath of an earthquake since Waugh (1991, p. 10) suggests that organic, informal, less hierarchical structures prove adaptive and responsive to extraordinary and unanticipated demands. While this article describes the development of issue networks and suggests under what circumstances they may expand, left unexplored is the question, under what circumstances do issue networks devolve or decompose?

REFERENCES

- Adams, C.R. (1983). A closer look at Washington. In T E. Drabek, A H. Mushkatel, and T.S. Kilijanek (Eds.), *Earthquake Mitigation Policy: The Experience of Two States*, (pp. 138-158). Boulder, CO: Program on Environment and Behavior, Institute of Behavioral Sciences, University of Colorado.
- Benveniste, G. (1989). *Mastering the Politics of Planning*. San Francisco: Jossey-Bass Publishers.
- Berry, J.N. (1977). *Lobbying for the People: The Political Behavior of Public Interest Groups*. Princeton: Princeton University Press.
- Bosso, C.J. (1987). *Pesticides and Politics*. Pittsburgh: University of Pittsburgh Press.
- California State Legislature. (1973). *Report of Advisory Group on Engineering Considerations and Earthquake Sciences*. Sacramento, CA: California State Legislature.
- Castells, M. (1983). *The City and the Grassroots*. Berkeley: University of California Press.
- Chisholm, D. (1989). *Coordination Without Hierarchy*. Berkeley: University of California Press.
- Douglas, M. & Wildavsky, A. (1982). *Risk and Culture*. Berkeley: University of California Press.
- Downs, A. (1972, Summer). Up and down with ecology – The “issue-attention cycle.” *The Public Interest*, 28, 38-50.
- Feldman, M.S. (1989). *Order Without Design*. Stanford: Stanford University Press.
- Fischer, C.S. (1982). *To Dwell Among Friends*. Chicago: The University of Chicago Press.
- Havelock, R.G. (1986). Modeling the knowledge system. In G.M. Beal, W. Dissanayake and S Konoshima (Eds.), *Knowledge Generation, Exchange, and Utilization*, (pp. 11-34). Boulder, CO: Westview Press.
- Heclo, H. (1978). Issue networks and the executive establishment. In A. King (Ed.), *The New American Political System*, (pp. 87-124). Washington, DC: American Enterprise Institute.

- Jones, C.O. (1979). American Politics and the Organization of Energy Decision Making. In J.M. Hollander, M. K. Simmons and D. O. Wood (Eds.), *Annual Review of Energy* Volume 4, (pp. 99-121). Palo Alto, CA: Annual Reviews Inc.
- Kingdon, J.W. (1984). *Agendas, Alternatives, and Public Policies*. Boston: Little Brown and Company.
- Knoke, D. (1990). *Political Networks*. Cambridge: Cambridge University Press.
- Laumann, E.O & Knoke, D. (1987). *The Organizational State*. Madison: The University of Wisconsin Press.
- Meehan, R.L. (1984). *The atom and the fault*. Cambridge, Mass: The MIT Press.
- Meltsner, A.J. (1976). *Policy Analysts in the Bureaucracy*. Berkeley: University of California Press.
- Michaels, S. (1990). *The Processes and Structures of Earthquake Information Exchange in the Province of British Columbia and the State of Washington: A Comparative Study of Policy Communities*. Unpublished doctoral dissertation, University of Colorado, Boulder, CO.
- Miles, M.B. & Huberman, M. (1984). *Qualitative Data Analysis*. Beverly Hills: Sage Publications.
- Polsby, N.W. (1984). *Political Innovation in America*. New Haven: Yale University Press.
- Rayner, S. (1989). *Risk - Cultural Perspective*. Unpublished manuscript, Oak Ridge National Laboratory, Oak Ridge, TN.
- Waugh, Jr., W.L. (1991, July). *Coordination or control: Organizational design and the emergency management function*. Paper presented at the University of California, Los Angeles International Conference on the Impact of Natural Disasters, Los Angeles.
- Whyte, A.V.T. (1977). *Guidelines for Field Studies in Environmental Perception*. Man and the Biosphere (MAB) Technical Notes 5. Paris: UNESCO.

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