RISK COMMUNICATION: A SOCIAL REQUISITE APPROACH

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ABSTRACT

Risk communication often involves the exchange of information among individuals holding divergent perspectives. This exchange can as often lead to conflict and misunderstanding as it can to agreement and understanding. Three factors have been shown to be central to successful risk communication: Involvement (personal interest), Relevance (self-identification with victim) and Ability (meaning and usefulness of information). Using these concepts a Community Problem Management Conference was developed to meet social requisite criteria. During the conference participants attempted to create a common problem statement and solutions to the problems of community growth. The 120 participants, a diverse cross section of the community, were presented in morning lectures and exercises the concept of a community based on diversity. The afternoon was devoted to discussions among 12 to 15 participants producing a vision of the community's future based on their common values and also a list of action steps to make the community develop. Evaluations of the impact of the conference and the application of this approach in other hazard management contexts such as waste management are discussed. Practical and conceptual advantages and possible limits of the social requisite approach to risk communication are also discussed.

PROBLEM

A majority of Americans identify hazardous waste sites as the most serious of all environmental problems and public health threats (1). The development of public policy to deal with these problems has often proven to be a frustrating exercise. Citizen opposition has delayed or permanently prevented the siting of many needed waste facilities. Even efforts to clean up abandoned sites have been marked by conflict (2).

Risk communication, though no guarantee that better, more acceptable actions will be taken, does offers one potentially effective tool for waste management. Risk communication is an interactive process of exchange of information about risk and other issues (3). Risk communication can be a double-edged sword. As any veteran of public hearings can attest, this exchange can as often lead to increased conflict and misunderstanding as it can to agreement and understanding. The development of successful risk communication programs, that is, communication that "raises the level of understanding of relevant issues or actions and satisfies those involved that they are adequately informed within the limits of available knowledge" (3) depends on an understanding of underlying psychosocial factors.

Attitude surveys provide the broad outlines of the problems of waste management. Risk perception and other research further details the reason why controversies over waste are so intractable. Risk perceptions are socially constructed in the sense that individuals make inferences and reach conclusions by giving meaning to uncertain and ambiguous information on the basis of communications with others (4). The news media and informal discussions with family, friends and acquaintances play a large part in this process for most people. Risk information flows within a community following a lattice-like transmission of risk information among various "risk amplification stations" (5). These stations operate to turn up or down the strength of the risk signals by generating and transmitting messages. Besides individual citizens, risk amplification stations may include scientists and technicians, political leaders, hazard mangers, the media, special issue groups such as environmentalists and others. The social experience of risk and its ultimate consequences are shaped by information processes, institutional structures, social-group behavior and individual responses. While we can see the flux and flow of information within a community as a singular phenomenon with numerous interactions and mutual influences, by no means should the risk amplification processes be expected to lead inevitably to a single commonly-accepted view on risk. Social groups may have very different worldviews (6,7) producing discrepant ways of evaluating and processing information about issues. Three important aspects of these differences that might produce conflict and misunderstanding are (8):

Involvement. Information processing is affected by interest in different issues or different aspects of the same issue. Lay/expert differences have often been noted where non-experts are concerned about risks that technical experts believe are non-existent or effectively managed (4). The public rates active hazardous sites, abandoned hazardous waste sites and water pollution from industrial wastes as the three most serious environmental problems. None of these appear on the list of most serious problems compiled by EPA's Scientific Advisory Board (9).

Relevance. Information processing is influenced by how one is personally affected by an issue. Many citizens, not only those formally connected to environmental groups, have joined to protest that "locally undesirable land uses

(LULU's) will "not be put in my backyard" (NIMBY). Local ad-hoc NIMBY groups are one sector of society that has demonstrated a strong surge in membership in recent years. The NIMBY phenomenon is often attributed to selfish concerns. As often as not it can be attributed to a conviction that local authorities are not protecting the citizens' best interests or concerns over issues of equity in the distribution of risks.

Ability. Differences exist in the skills and capacity to use information about risks. One of most obvious examples is the use of scientific and technical information. The lay public may not have the capacity to understand technical information and as a result may ignore it (10). The ability to use risk information consists of four subjectively appraised sub-dimensions (8). These are clarity of the information, credibility of the source of the information, the guidance contained in the message and the meaning given to the message.

Differences in involvement, relevance and ability (the IRA variables) produce differences in information processing. There is always much information available about a risk issue such as waste disposal. This information is filtered through the lenses created by one's involvement with the topic, relevance of the issue and ability to use information (11). Differences in information processing lead to the taking of decision positions.

When asked about a decision, we often tell what our position is. "I think we should build a longer airport runway" or "The county should not truck its garbage to the eastern side of the mountains" or "I don't want a high-power transmission line going through my neighborhood." We are all familiar with such declarations of decision positions. They are in the daily newspaper, on the morning radio talk show, and we hear them and use them ourselves in everyday conversations. It seems to make strategic sense to take a position, especially since many waste disposal controversies operate within an adversarial context. As frequent as it occurs, representing decisions at the level of positions may greatly restrict the possibility of reaching satisfactory community decisions (12,13). Positions reflect a focus on me, here and now with limited (or no) alternatives. Presenting a decision position may have unfortunate effects on the way we view other people in that it proclaims self over community interest. An excessive focus on self interest may frequently lead to suboptimal decision outcomes. Position-focused decision makers often see their conflicts with others as zero-sum situations. They come to believe that what the other person gains, they loose. In this way they come to define a good outcome as one in which other people loose. In essence the rule "I'm satisfied if my "opponent" isn't" comes to dominate decisions. The decision maker then is less likely to search for optimal solutions in which everyone receives positive outcomes.

SOCIAL REQUISITE DECISION CONFERENCING

Over thirty years of international research on decision making shows that there are ways out of these unfortunate, "stupid" situations that we get into when we focus on positions. This work has developed analytical techniques that can be used as part of a decision conference to help people reach mutually beneficial outcomes. The growth-management conference reported on here is an example of such an effort.

An essential aspect of a decision conference is that individuals holding diverse views work together developing a common statement of the problem. A number of waste-related conflicts arise because of incomplete problem definitions -- incomplete because they do not reflect all perspectives in the community. A local government, for example, may solve its problem of waste disposal by proposing the construction of a new waste disposal facility. Outraged reactions of nearby residents illustrate that they have problems concerning air pollution, health and safety arising from this "solution." The definition of the problem must be broad enough to encompass all points of view before progress to mutually acceptable solutions can be made.

The outcome of risk communication depends on the structuring of the interaction of the communication among participants. The structure of the management conference followed social requisite criteria (14). The participants worked to jointly develop a common comprehensive statement of the current problem and to find mutually acceptable actions to deal with it that represented the values of the community. Controversies over environmental hazards often involve a confusion of values and facts (15,16). An explicit effort to separate and clarify values should help to identify legitimate differences and promote conflict resolution (i.e., common problem statement and commonly-accepted solutions).

COMMUNITY GROWTH CONFERENCE

Description

The 120 participants, a diverse cross section of the community, were presented in morning lectures and exercises the concept of a community based on diversity, problems arising from position-taking and the usefulness of value-oriented approaches to community problems. During the afternoon session, participants were divided into 8 small discussion groups, each with approximately 14 members. Each group was lead by two or three moderators who had participated in an orientation to the procedure. The afternoon group sessions were devoted to discussions producing a vision of the community's future based on their common values and also a list of action steps to make the community develop. The process followed was for each participant to

describe to the group his/her concerns and hopes about the effects of growth on the community, to find a common set of values underlying these hopes/concerns, to identify creative actions that can be taken to realize these values and to share and integrate each group's vision of the future with those of other groups.

Evaluation

Evaluation data were collected on one hundred ten of the participants and thirty-five non-participants. The non-participants were individuals who, like participants, were active in community issues. Many of them had planned to attend the conference but found that they were not free on the day of the meeting. Three measures were taken: a) IRA variable measures consisting of message evaluation variables (involvement, relevance and ability) and message effect variables (information seeking, intention to act and capacity to act). The judgments were made about a message concerning community air pollution using 7-point scales; and b) a measure of community orientation indicated by responses to dilemmas pitting community against individual gains. Measures of participants were taken at three times: within the month before the conference, immediately after the conference and several months after the conference. Measures of the non-participants were taken once.

Outcomes

Comparisons between participants and non-participants show few differences prior to the conference and no differences with participants several months after the conference. Statistically significant differences in mean responses (using analysis of variance) were found on most measures taken immediately after the conference. On judgments of the message about air pollution participants compared to non-participants were more involved with the problem (means = 6.5 vs. 5.8; $p < .018$), felt that they were better able to process information about the problem (means = 4.8 vs. 4.1; $p < .058$), were more capable to do something about the problem (means = 5.3 vs. 4.6, $p < .038$) and had a greater intention to do something about the problem (means = 5.8 vs. 5.2, $p < .094$). Immediately following the conference the participants also were more community oriented in their approach community dilemmas ($p < .003$).

Comparisons of the participants mean responses before and immediately after the conference show an increase in involvement with the problem (means = 6.5 vs. 6.2, $p < .07$) and the meaningfullness of the problem (means = 4.9 vs. 4.2, $p < .016$) as well as an increase in judged capacity to act (means = 5.3 vs 4.6, $p < .024$). There was also a significant increase in community mindedness among participants from prior to until immediately after the conference (means 5.7 vs. 5.4, $p < .035$).

There were decreases from immediately after the conference to several months later in involvement (means 6.5 vs. 6.1, $p < .074$), meaningfullness (means = 4.9 vs. 3.8, $p < .017$), capacity to act (means = 5.3 vs. 4.6, $p < .017$) as well as intention to act (means = 5.8 vs. 4.9, $p < .026$). No significant change was found for community orientation.

CONCLUSIONS AND DISCUSSION

Evaluations of experiences such as that presented here are always difficult dealing as they must with the problems of attrition, possible non-compatibility of comparison groups and the use of self-report paper and pencil measures rather than behavior. Conclusions must be tempered with due concern about limits imposed by these possibilities. The evaluation results do indicate that immediately following the conference participants found community hazard messages more meaningful and that they felt more capable of responding to them. Participants also moved from self interest to community interest options in dealing with community dilemmas. It is also noteworthy that discussion groups must frequently nominated social requisite decision conferencing as a good way of reaching community goals.

While generally supportive of the use of decision conferencing, the results indicate that all changes in participants are not sustained several months after the conference. This seems understandable. There is no reason to expect that participants would not go back to old position-oriented approaches to decisions without a change in the structure of the decision making situation.

Values are the principles that guide decision choices. They are the "primary causes" of decisions. Discussion on the level of underlying values reduces uncertainty about why a particular choice is preferred. It clarifies and simplifies one's position both to others and to one's self (17). Discussion of values also increases the chance of finding communalities with other individuals. There are numerous positions that can be taken on any issue; a much smaller number of values probably apply. Furthermore, discussing decisions on the level of values increases flexibility (one is not stuck to a single position), leads to more complete problem definitions and broadens perspectives to the issues beyond me, here and now. All of these are positive outcomes leading to better community decisions and a sense of fairness and equity among community citizens.

Decision conferencing has been used with a wide variety of conflict problems (15, 17, 18) and should be applicable in other contexts especially hazardous waste facility siting. Hazardous waste siting problems commonly include (19): lack of a community approach, inadequate concern for residual risks and uncertainties, insufficient concern for public perceptions of risk, failure to address equity and risk allocation issues, and the development of social distrust. A social requisite decision conference approach to risk com-

munication, correctly handled, can address each of these issues. Of course the approach is definitely not an easy way to convince the public or other groups about the acceptability of a pre-determined course of action. It does not fit within the "decide-announce-defend" approach to hazard waste facility siting. It does respond to calls for ethical approaches to risk communication (20) and recognizes with Kasperson, Golding and Tuler (19) that "in situations of high social mistrust, narrow conceptualization of risk communication will be inadequate and counterproductive".

REFERENCES

1. ROPER POLLING ORGANIZATION. "Public Concerns about Environmental Problems and Health Threats," (March 1990).
2. J.P.PERRECONE, "Warring factions at hazardous waste sites: EPA's Perspective," HazMat Central, Chicago, Ill (1990).
3. NATIONAL RESEARCH COUNCIL, "Improving Risk Communication," Washington, D.C., National Academy Press (1990).
4. P.SLOVIC, "Perceived Risk," Science, 236 - 285 (1987).
5. R.E.KASPERSON, O.RENN, P.SLOVIC, H.BROWN, J.EMEL, R.GOBLE, J.X.KASPERSON AND S.RATICK, "The Social Amplification of Risk: A Conceptual Framework," Risk Analysis, 8 (July) 177 - 187 (1988).
6. M.DOUGLAS and A.WILDAVSKY. "Risk and Culture: An Essay on the Selection of Technology and Environmental Dangers," Berkeley, CA, University of California Press (1982).
7. K.DAKE, "Orienting Dispositions in the Perception of Risk: An Analysis of Contemporary Worldviews and Cultural Biases," In G.Cvetkovich and T.C.Earle (Eds.) Psychology and Risk, Special Issue, Journal of Cross-Cultural Psychology, (March, 1991).
8. T.C.EARLE, G.T.CVETKOVICH AND P.SLOVIC, "The effects of involvement, relevance and ability on risk communication," In K.Borcherding et al. "Contemporary Issues in Decision Making," Amsterdam, the Netherlands, Elsevier Science (1990).
9. L.ROBERTS, "Counting on Science at EPA," Science, 249, 616 - 618, (1990).
10. T.C.EARLE, R.BAIRD and G.CVETKOVICH, "Public Judgment of an Environmental Health Hazard: Two Studies of the ASARCO Smelter," In L.Lave (Ed.) Risk Assessment and Management, New York, Plenum (1986).
11. T.C.EARLE and G.CVETKOVICH, "Risk Judgment, Risk Communication and Conflict Management," In B.Brehmer and C.R.B. Joyce (Eds.) "Human Judgment: The SJT View," Amsterdam, the Netherlands, North-Holland (1988).
12. R. FISHER and W. URY "Getting to Yes," Boston,MA, Houghton Mifflin (1981).
13. R.FISHER and S.BROWN, "Getting Together," Boston, MA, Houghton Mifflin (1988).
14. L.D.PHILLIPS, "Requisite decision modelling for technological projects," In C.Vlek and G.Cvetkovich (Eds.) "Social Decision Methodology for Technological Projects," Dordrecht, the Netherlands, Kluwer Academic Press (1989).
15. K.R.HAMMOND and L.ADELMAN, "Science, Values, and Human Judgments," Science, 194, 389 -396, (1976).
16. D. VON WINTERFELD and W.EDWARDS, "Decision Analysis and Behavioral Research," Cambridge, Cambridge University Press, (1986).
17. B.FISCHHOFF, "Value Elicitation: Is There Anything in There?" In M.Hechter, L.Cooper and L.Nadel (Eds.), "Values," Stanford, CA, Stanford University Press (Forthcoming).
18. L.ADELMAN, "Separation of Facts and Values," In B.Brehmer and C.R.B. Joyce (Eds.) "Human Judgment: The SJT View," Amsterdam, the Netherlands, North-Holland (1988).
19. R.E.KASPERSON, D.GOLDING, and S.THULER, "Siting Hazardous Facilities and Communicating Risks Under Conditions of High Social Distrust," In G.Cvetkovich and T.C.Earle (Eds.) "Public Reactions to Environmental Hazards" Journal of Social Issues, (forthcoming).
20. M.G.MORGAN and L.LAVE, "Ethical Considerations in Risk Communication Practice and Research," Risk Analysis, 10,3 (1990).