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Cultural rationalities in crisis sensemaking: a study of a public inquiry into a major industrial accident

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Abstract


This paper investigates the sensemaking which occurred during a public inquiry into a fatal gas pipeline accident. The research conceives of the public inquiry as an important stage in crises, and investigates the role of multiple perspectives and rationalities in crisis sensemaking. Stakeholders at the inquiry are shown to differ in terms of their social organization, the cultural biases they hold, and the interpretations they make of events and risks. The paper extends the multiple perspectives approach to crises by linking this approach to theoretical developments in cultural analysis, and by showing the implications multiple perspectives have for inquiry and crisis stakeholders.

Introduction

The incident and the inquiry

Doug Bone ran when the flash fire occurred. As he ran, he heard the screams of five co-workers caught by a spreading fireball the size of two football fields. The fireball occurred on February 19, 1985 after dark, at approximately 8:00 PM in a temperature of -20°C. It was caused by the unplanned ignition of natural gas liquid (NGLs: a mixture of propane, butane and condensates) leaking from the Interprovincial Pipe Line Ltd system at a location in a farmer's field near Strome, Alberta. The men who had been sent to repair the leak...
now emerged from the flames, their clothing still on fire. Soon the fireball subsided, leaving a 40-meter-high flame burning near the work site. Bone was fortunate; he escaped injury. The others suffered serious burns; two of the men died after several weeks of pain.

The National Energy Board of Canada (NEB) called a public inquiry into the accident. The inquiry commenced in Edmonton, Alberta on March 26, 1985, and spanned eight days of testimony, five in March and three in October. Witnesses were called and cross-examined; thousands of pages of exhibits were submitted to the Inquiry Board; 1,765 pages of transcripts of proceedings were produced; and in June 1986 the NEB published a final report on the incident.

This paper analyzes the NEB Strome Inquiry, and the Strome accident as it was reconstructed at the inquiry. We conceive of the "public inquiry" as a ceremonial occasion (Gephart, 1978; Trice and Beyer, 1984) where sensemaking about the crisis is a fundamental topic and issue (Garfinkel, 1967; Gephart, 1978, 1984; Weick, 1979, 1988). We thus argue that the public inquiry is an important stage in many crises which has been neglected in the recent crisis literature. The paper describes and analyzes the cultural rationalities (Douglas and Wildavsky, 1982) used in stakeholder sensemaking about the crisis, as these were formulated by stakeholders in the context of the inquiry. The paper thus investigates the characteristics and implications of a multiple perspectives approach to crises (Shrivastava, 1987a), and demonstrates the usefulness of cultural analysis (Wuthnow et al., 1984; Wuthnow and Witten, 1988) for understanding industrial crises.

Conceptual background

Industrial crises cannot be understood at the level of single organizations. Crises are trans-situational, multi-institutional events which unfold over time and which cannot be studied in isolation from their social context. Crises expand beyond the boundaries of specific organizations and institutions and implicate the broad legal, economic and political spheres of society (Shrivastava et al., 1988, pp. 287-288). Crisis research treats the event (not the organization) as the unit of analysis (Turner, 1976, 1978; Emerson, 1983; Gephart, 1984, 1988a) and investigates the roles and meanings held by multiple stakeholders in the event (Shrivastava, 1987a; Zimmerman, 1987; Shrivastava et al., 1988, p. 291).

The public inquiry

The complex nature of crises is evidenced by the "public inquiry," which is a common and important feature of the final or cultural adjustment stage of disasters (Turner, 1976, 1978). Crises and major industrial accidents produce a legitimation deficit for the state apparatus (Habermas, 1973, pp. 47,70). Meanings which substantiate the myth of state and organizational control
of hazardous technologies become a scarce resource during crises (Habermas, 1973, p. 72) and therefore "the legitimizing system" may fail to maintain "the requisite level of mass loyalty" (Habermas, 1973, p. 46). Public inquiries are societal level "last resort" ceremonies (Emerson, 1981) conducted to develop acceptable interpretations for the events, and thus to re-establish the legitimacy of social institutions. Inquiries reflect on the entire history of the crisis, and thus produce the crisis as "endogenous" (Lynch, 1985) to the inquiry, i.e. a phenomenon reconstructed and interpreted in the inquiry by multiple stakeholders who do communicative work to "reorganize the information available to them" (Turner, 1978, pp. 179–180) in an effort to understand and make sense of the inquiry and the crisis.

Public inquiries into crises are important to crisis researchers and stakeholders for several reasons. First, public inquiries are the "longer term organizational responses" to crises (Shrivastava et al., 1988, p. 292) through which much institutional and organizational learning occurs, since the nature and adequacy of crisis prevention, mitigation and control strategies are key themes in inquiries (Turner, 1976, 1978). Second, public inquiries into crises are often given extensive media coverage and so become important journalistic and public sources of information and learning about crises. Thus an understanding of journalistic risk reporting can be facilitated by examining public inquiries as situations where "norms of journalism, the behaviour of sources of information and public expectations" (Nelkin, 1988, pp. 341–342) are enacted. Third, research has recently addressed state regulation (public law) and litigation (private law) as two legal mechanisms for preventing and managing hazards and crises literature (Jasanoff, 1988). The public inquiry tribunal is a third important but neglected legal–bureaucratic setting in which crisis stakeholders seek to interpret, understand and control crises. Fourth, previous crisis research has used documents emerging from public inquiries, particularly the final reports of inquiry tribunals, as data on industrial crises (e.g. Turner, 1976, 1978; Perrow, 1984). In this paper, our concern is (1) to investigate the public inquiry as a social occasion constituting one important and often neglected stage of crises, and (2) to examine how the crisis is interpreted in the inquiry context. Rather than relying solely on final reports of inquiry tribunals, we use the testimony and symbolic behavior of inquiry participants as data with which to investigate the inquiry as a topic of analysis in its own right, that is, as a situated, ceremonial occasion (Gephart, 1978; Trice and Beyer, 1984).

Rationalities in crisis sensemaking

Rationality has received significant attention in the crisis literature. The assumption that actors possess "global" or perfect rationality has been superseded by the conception of bounded rationality (Simon, 1976; Turner, 1978). Global rationality is not possible in crises due to the costs of information and social constraints on the information available (Turner, 1978, p. 164). Constraints
on rationality include organizational roles and subcultures which provide subculturally legitimate decision premises to actors; the payoffs important to the organization; the form of rhetoric which legitimates organizational action; and assumptions about decision premises basic to the construction of official world views (Turner, 1978, p. 165).

For Turner (1976, 1978), failures of (bounded) rationality produce errors which produce disaster. Subcultural variations in "rationality" are evident across departments and time (Turner, 1978, p. 168). However, key decision makers operate "with variants of the same organizationally approved rationality" according to Turner (1978, p. 166). Turner thus assumes a single, shared rationality emerges within stakeholder groups. Bowman and Kunreuther (1988) suggest this rationality is preserved when organizations respond to crises by revising procedures in accordance with their own heuristics and biases (procedural rationality), and by reframing past action to make it appear sensible in the new context (substantive rationality).

An alternative to the single rationality perspective is the multiple perspectives approach (Douglas and Wildavsky, 1982; Gephart, 1984, 1988b; Shri- vavastava, 1987a) which encourages a strong focus on organizational sensemaking (Weick, 1988). Sensemaking is the process of interpreting phenomena and producing meaning through intersubjectively constructing accounts. Sensemaking enacts the social world as a factual object (Weick, 1979, 1988; Leiter, 1980, p. 71). "Sense" occurs when members act as if they share meanings and this "sense" occurs despite an actual lack of agreement (Garfinkel, 1967; Leiter, 1980, p. 78; Lynch, 1985). In sensemaking, many fundamental inconsistencies between viewpoints are ignored to allow members to assume they share views of the world. Industrial crises defeat members' sensemaking practices, and reveal that alternative interpretations of events are being made by other groups. Crises thus reveal that members' sense or myth of a singular, shared organizational reality is an illusion.

The sensemaking literature suggests each distinct group or subculture may have a distinct interpretive scheme (Bittner, 1974; Gephart, 1978), cosmology (Douglas, 1970) and rationality (Douglas and Wildavsky, 1982) for determining the meaning and sensibility of events. For example, in the Santa Barbara oil spill, Gephart (1984) found government and industry held similar views and their views differed substantially from the views (perspectives) of public critics regarding a range of disaster issues. Gephart (1984, pp. 218–219) developed propositions to describe the emergent sensemaking perspectives of crisis stakeholders. In particular, he found differences in the rhetoric of accounts of the groups. Further, critics had trouble preventing disasters because they lacked access to control settings where disasters were assessed, and because government and industry values gave precedence to the needs of organized capital and discounted the views of critics. Essentially, Gephart conceived of disasters as political struggles over the meaning of events (Gephart,
1988a) with each group proposing facts and interpretations which diverge from the views of the other group.

In contrast to Gephart (1984), Douglas and Wildavsky (1982) argue that “Western social thought habitually reverts to a typology of two, bureaucracy contrasted with market” (1982, p. 90) and this oversimplifies the complexity of social culture. Douglas and Wildavsky use group/grid analysis (Douglas, 1970) to expand our understanding of risk and culture. Group/grid analysis links “characteristics of social organization with features of the beliefs and values of the people who are keeping the organizational form alive” (1982, p. 138). This involves comparing cultures along two dimensions. The first dimension, group, refers to members’ experience of the group as tightly vs. loosely bounded (Douglas, 1970; p. 57). High group cultures thus have strong boundaries, endure through time, and have internal group-based forms of structuring such as a hierarchy of command. The second dimension, grid, refers to all ego-centered social categories used to control behavior (Douglas, 1970, p. 58) such as age and sex. High grid cultures make extensive differentiations based on ego-centered categories and use these for social control purposes. Group/grid analysis suggests four theoretically distinct types of cultures. Each cultural type has an associated cosmology and form of rationality. Douglas and Wildavsky (1982) discuss three of these rationalities — hierarchical, market and sectarian rationality. The fourth possible form of rationality is not discussed in detail by Douglas (1970) or Douglas and Wildavsky (1982) and hence in the discussion which follows, we address only the three quadrants emphasized by Douglas and Wildavsky (1982) — hierarchy, market and sect. A summary of features of each of the three cultural types is presented below, in Table 1.

The first cultural type is hierarchy, which reflects high group, high grid organization, that is, many group encircling and identifying regulations and also many grid-based rules and constraints on how to act (Douglas and Wildavsky, 1982, p. 138). Cultures of hierarchy emerge in large, extensively differentiated structures with clear, well-defined boundaries. Goals are vague and multiple, to please a range of stakeholders. Extensive rules and standard operating procedures emerge, and are used to control behavior. Decision making is collectivized, anonymous, remedial and serial — committees and subgroups make decisions after problems occur in an attempt to remedy them, and the same problems are attacked repeatedly. Only codified information is examined in decisions, and where possible, standard operating procedures are used to produce decisions. Thus social control occurs through implementing rules, procedures and sanctions. This social organization produces a complex-regulative cosmos where stability, continuity and inequality are values. Risks are events which threaten the hierarchy, and these tend to come from the outside, although misdeeds also produce misfortune. Here, rationality involves the use of rules and procedures, and capitulation to authority.

Market reflects low group, high grid organization. Clear individual goals regarding market opportunities emerge and goal achievement is evaluated in
Table 1
Characteristics of cultural rationalities

<table>
<thead>
<tr>
<th></th>
<th>Rationality type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hierarchy</td>
</tr>
<tr>
<td>Group rating</td>
<td>high</td>
</tr>
<tr>
<td>Grid rating</td>
<td>high</td>
</tr>
<tr>
<td>Cosmology</td>
<td>complex-regulative cosmos</td>
</tr>
<tr>
<td>Structure</td>
<td></td>
</tr>
<tr>
<td>Boundary</td>
<td>rigid, stable</td>
</tr>
<tr>
<td>Goals</td>
<td>vague, multiple goals</td>
</tr>
<tr>
<td>Rules</td>
<td>extensive, SOPs</td>
</tr>
<tr>
<td>Decision making</td>
<td>remedial, serial, collective, anonymous, short time frames</td>
</tr>
<tr>
<td>Social control</td>
<td>rules, procedures, and sanctions</td>
</tr>
<tr>
<td>Features</td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td>stability, power, secrecy</td>
</tr>
<tr>
<td>Risk</td>
<td>instability and threats to legitimacy</td>
</tr>
<tr>
<td>Basic rationality</td>
<td>follow SOPs, obey authority</td>
</tr>
</tbody>
</table>

Adapted from Douglas (1970) and Douglas and Wildavsky (1982).

terms of a currency. Although market often includes hierarchy for stability, it is assumed that social rankings (grids) which emerge are not permanent, and organizational membership fluctuates as members move to new market opportunities. Thus, group is driven by grid, and boundaries have an ephemeral nature. The major concern regarding rules is the stability of the rules of fair trade in the market since market forces exert control on action and because rational
decision making involves selecting the highest market value alternative. Market rationality embraces a success cosmology which values quantitative measures of success, private profit and individual equality. A priori human equality is superseded in the market by differentially successful outcomes. The risks are thus loss of resources and changes in market rules which could engender loss of resources. Tradeoffs are expected.

Sects are high group, low grid organizational forms: small, bounded, enduring groups which place supreme value on individuals and equality. Sects conceive of the inside as pure and the outside as evil. A key goal is individual growth and survival. Sectarians abhor rules, and hence authority is blurred, leadership is precarious and decision making is participative and unstructured. In repudiating control through rules, sectarians embrace personal goodness, initiative, envy, mutual criticism and expulsions from the group as primary control strategies. This produces a dual cosmology which believes the warring forces of good and evil dominate the universe. This conflict is enacted through ongoing doctrinal controversy, and engenders the key threats to the group: fissioning or splitting of the group; failure to recruit new members; and technological dangers. Rationality here involves accepting the power of irrational forces, including magic, luck and fortune.

Douglas and Wildavsky (1982) focus on linguistic “codes” characterizing each cultural type and on the divergence of these codes across industrial subcultures. Barley (1983, p. 26) has demonstrated that linguistic codes function in concert with other types of codes — dress codes, behavior codes, spatial codes and material objects codes — to support and replicate cultural distinctions. One would thus expect the cultural types involved in crises and inquiries to display differentiation in terms of all of these codes.

The argument in summary form is as follows. Each form of social organization gives rise to distinct rationalities or “theories about the world” (Douglas and Wildavsky, 1982, p. 89), that is, cosmologies (Douglas, 1970) or interpretive schemes (Gephart, 1978). The rationalities make sense of social behavior, symbols and signs; that is, they are used to manage meaning (Gephart, 1988a). No singular, privileged rationality is assumed to exist, and hence no universal or absolute interpretation of events is possible. Rather, each cosmology and associated rationality leads to unique interpretations of events, to particular actions and to selection of certain risks.

The next sections of the paper describe and analyze the different stakeholder groups in the Interprovincial Pipe Line (IPL) accident and inquiry, the organizational characteristics, cosmologies and rationalities of these groups, and the interpretations of events made by each group. Cultural rationalities and sensemaking are used as sensitizing concepts to describe and understand the behavior and symbols produced in a public inquiry into a major crisis.
Methodology

Data

Data used in this study were collected during ethnographic research into the Strome Inquiry. The senior author attended the inquiry as an ethnographer (Agar, 1980; Van Maanen, 1988) and produced several hundred pages of field notes based on direct observations of the inquiry and unstructured interviews with participants. We also obtained key documents relevant to the inquiry, including complete transcripts of the inquiry testimony (NEB, 1985), portions of IPL’s policy manual, annual reports and information packages concerning organizations involved in the inquiry, and the NEB’s Final Report (NEB, 1986). The results and findings are based on analysis of all of the data available to the researchers. In the results and findings we make primary reference to testimony and documentary data representing linguistic codes, but we also refer to examples of other codes which clarify the cultural characteristics of the groups. In particular, group boundaries are conceived in terms of spatial and behavioral codes enacted during the inquiry.

Analysis

Microcomputer-supported qualitative data analysis following the text approach (Gephart and Wolfe, 1989) was used in the present study. All field notes and documentary materials were entered into microcomputer word processor files to permit rapid searches and manipulation of the data. In brief, the analysis proceeded as follows. First, we determined the various groups self-evidently present at the inquiry. Next, we located the key data segments or text “strips” in field notes and inquiry transcripts (Agar, 1986) attributable to each group. These data segments or test strips were the actual cultural meanings fashioned by members of the groups in the context of the inquiry. These strips were subjected on an individual basis to a textual expansion analysis (Gephart, 1978, 1988b; Cicourel, 1980) wherein examples of theoretical concepts found in the strips were noted, and a theoretical interpretation was written for each strip. The strips were then aggregated on a group-by-group basis, and comparative analysis of the aggregated strips (Glaser and Strauss, 1967; Gephart, 1978) was then undertaken to determine similarities and differences in the groups. The characteristic features of each group are summarized below as results, and our findings are then presented in terms of several empirical generalizations which describe the general trends observed in the results.

Results

The analysis revealed at least three different stakeholder groups were present at the inquiry — the NEB, IPL management, and IPL workers and their fami-
| Table 2 |
|---------------------------------|---------------------------------|---------------------------------|
| Observed features of cultural rationalities | Organization | |
| | National Energy Board | IPL Management | Workers and families |
| | Rationality type | Hierarchical rationality | Market rationality with hierarchy | Sectarian rationality |
| | Culture | Culture of senior government | Culture of senior management | Culture of labor |
| | Structure | | |
| | Cosmology | Values | | |
Table 2 (Continued)

<table>
<thead>
<tr>
<th>Organization</th>
<th>National Energy Board</th>
<th>IPL Management</th>
<th>Workers and families</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk</strong></td>
<td>Concern for energy supply.</td>
<td>Concern for NEB’s regulatory power: to set</td>
<td>NGL’s exposure.</td>
</tr>
<tr>
<td></td>
<td>Serious, tragic leak.</td>
<td>IPL’s rate of return and tolls, and to require</td>
<td>Inattention.</td>
</tr>
<tr>
<td></td>
<td>Concern for NEB’s ability to control pipeline.</td>
<td>operational changes.</td>
<td>Equipment failure and deficiencies.</td>
</tr>
<tr>
<td>Basic rationality</td>
<td>No discussion of other lines or “new” future risk.</td>
<td>Keep costs down.</td>
<td>No one wanted to be first to leave site.</td>
</tr>
<tr>
<td></td>
<td>In the presence of individual accident.</td>
<td>Minimize losses of substance.</td>
<td>Run from danger.</td>
</tr>
<tr>
<td></td>
<td>Assume SOPs control behavior and accidents.</td>
<td>Avoid restrictive regulation.</td>
<td>Anger at injuries.</td>
</tr>
<tr>
<td></td>
<td>No concern for awarding damages.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

lies. Table 2 provides a summary of key structural and cosmological features of the different groups, which we came to conceive as embracing different cultures and reflecting different rationalities.

The National Energy Board of Canada: hierarchical rationality and the culture of senior government

The NEB is a large federal government bureaucracy. In 1986–87, it had 449 full-time staff, five Standing Panels, a number of offices and branches, and a budget of $26.5 million. The Board has legal authority to hold hearings into pipeline accidents on systems under its jurisdiction, and does so for accidents it deems particularly serious in nature.

The NEB produced rigid and stable boundaries at the inquiry in ways which reflected NEB dominance at the inquiry. For example, entry and exit processional events provided spatial and temporal boundaries to the sessions. Entries occurred after most other participants had entered the room; an NEB staff member walked to near the door, asked people to rise, and then the three NEB Inquiry Panel members marched briskly in a line into the room and seated themselves at tables on a large raised platform, facing the crowd. Once the panel had entered and were seated, an NEB staff member closed the hearing room doors, and then other participants were seated. When a session adjourned, the door was reopened as the NEB panel marched out of the room prior to the rest
of the participants. The NEB set the times and dates for the sessions, controlled the temporal boundaries of the inquiry through the entry and exit processionals, and insured physical control over boundaries by managing the doorway, which was closed during sessions and open at other times. The NEB also controlled “membership” at the inquiry by requiring certain witnesses to appear, and by determining which groups could officially intervene at the inquiry.

The goals of the NEB reflect hierarchical rationality which treats all parts of the institution as oriented to the entire institution. Individual needs are subjugated to the collective good (Douglas and Wildavsky, 1982). Thus the NEB has a broad parliamentary mandate to manage Canadian energy supplies and “to promote safety in the operation of the pipeline...for the protection of property and the environment and the safety of the public and of the company’s employees” (NEB, 1986, p. 2). Hierarchical rationality eschews single overriding goals in favor of multiple, vague goals which will satisfy different groups (Douglas and Wildavsky, 1982, p. 93). At the inquiry, the NEB stated six areas of investigation, including the circumstances surrounding the leak, the pipeline condition, and possible “breaches of the act or existing regulations” (NEB, 1985).

The NEB regulates industry in general, and IPL in particular, through extensive formal rules and codes. Further, participants at the inquiry were required to follow NEB’s inquiry procedures. The purpose of the inquiry was to investigate potential policy infractions by IPL and “to permit the Board to determine whether any changes should be made in the way that Interprovincial operates or the way in which Interprovincial is regulated by the Board, in order to prevent similar accidents in the future” (NEB, 1985, p. 3).

Hierarchical decision making involves secrecy, strong censorship of information, and decision making is remedial and serial — it occurs after trouble arises, and the same problem is repeatedly attacked (Douglas and Wildavsky, 1982, p. 93). Thus the NEB inquiry clearly occurred after the accident, and was one of many inquiries the NEB has made into similar oil and gas transportation accidents. Many documents submitted to the Board were inaccessible to the general public. The “public” transcripts could only be obtained from the court reporter at a cost of over $1.50 per photocopied page. The Final Report of the Board was prepared in Ottawa, and no clear public input occurred after the inquiry, during the time the Board drafted the report. Further, in hierarchical decision making, data inputs are limited, short time frames are used, and anything which cannot be codified is resisted. For example, “the Board has convened this public inquiry a relatively short time after the accident” (NEB, 1985, p. 4) and “has provided...a list of the witnesses that the Board expects to be called” (pp. 5–6). The NEB thus acted quickly to compel testimony and to establish the nature of relevant inputs to the inquiry.

The NEB views rules and regulations, with corresponding sanctions, as effective social control mechanisms. As a culture of hierarchy, the NEB cannot envision serious threats to the status quo and expects rules to provide ongoing
stability and to continue to be effective to protect people (Douglas and Wildavsky, 1982, p. 99) unless things are visibly bad (Douglas and Wildavsky, 1982, p. 180). Change is incremental. The NEB does not suggest IPL be closed, pipelines disbanded, or the industry be massively reorganized, and views “change” as essentially a policy issue. The pipeline will continue to operate in the future, and primary concern is directed toward “the safety procedures...applicable to company responses to leaks” which occur in the future (NEB, 1985, p. 3).

Clearly, NEB values were consistent with those of hierarchy. Inequality of persons is a basic value in hierarchical rationality. This was vividly displayed by the deference and demeanour the NEB expected of participants, as exemplified in the entry and exit processionals. Hierarchical rationality treats all parts of the institution as oriented to the entire institution. Individual needs are subjugated to the collective good (Douglas and Wildavsky, 1982). IPL, its employees and the oil and gas industry were seen as components of an institution which serves Canadian energy needs. IPL was compelled by law to respond to the dictates of the NEB as a means of serving Canadian energy needs in a stable, long-term manner.

Risks to hierarchy are events which threaten to undermine the hierarchy and its legitimacy (Douglas and Wildavsky, 1982). Here, the tacit threat was implied by the Board’s opening statement: “In light of the serious nature and tragic consequences of the leak, the Board is holding this public inquiry” (NEB, 1985, p. 2). Failure of the NEB to act when such incidents do occur would test the confidence of the public and might show the NEB is unable to control such incidents. Legitimacy is preserved through action that validates and reproduces the hierarchy. Further, effective action is embodied in the design and modification of rules and procedures: humans are assumed to be rational enough to follow rational instructions (Douglas and Wildavsky, 1982). Hence the bulk of the NEB’s recommendations were procedural changes which it assumed would be followed (NEB, 1986).

Hierarchy is willing to accept large risks which appear on the horizon beyond its institutional concern (Douglas and Wildavsky, 1982). Thus, despite future risks from a number of leaks and other petrochemical accidents during various phases of petrochemical production and transportation, the Board explicitly limited its concerns to IPL, the Strome leak and similar leaks, and to public and employee safety related to “the construction, operation and abandonment of a pipeline” (NEB, 1986, p. 2).

Interprovincial Pipe Line Ltd; market rationality and the culture of management

Interprovincial (IPL) is the largest pipeline company in Canada in terms of its pipeline network, which in 1984 was 10,037 kilometres in length. IPL is a publicly held corporation which operates as a utility regulated by the NEB. The
NEB has the authority to set IPL’s equity rate of return and its equity ratio. Nonetheless, IPL was the 30th most profitable company in Canada in 1986.

Clearly the general boundaries of IPL are widespread and linked to the 10,000 km pipeline right-of-way it manages. This changes as the pipeline is expanded. At the inquiry, spatial boundaries of the IPL management group were problematic. IPL managers sat in the middle-front of the room at desks directly behind their lawyers. The seats of the lawyers and Inquiry Board were never intruded upon. In contrast, the senior managers present had difficulty marking and protecting their territory. For example, on the second morning of the inquiry, the following conversation occurred between the researcher, another onlooker and an IPL manager:

RG (to AB, an onlooker): "I took your chair but somebody moved my coat."
DR (an IPL employee, to RG): "Oh, was that yours? I just moved it."
RG: "Yes, I got here early so I could save a chair at a desk."
DR: "Well we wanted to save this for IPL people. Keep the company together."

The managers eventually put signs on their desks saying "Reserved — IPL" but from time to time they still had to ask intruders to move.

Market rationality values sustained private profit seeking and clear individual goals (Douglas and Wildavsky, 1982, p. 95). For example, IPL’s 1984 Annual Report, which was distributed at the inquiry, notes (p. 1) that IPL made nearly $100 million in 1983 and had “achieved record earnings of $130 million in 1984.” In testimony Mr Gordon Cole, Executive Vice-President of IPL, stressed the size and the long-term nature of IPL: “We own and operate the longest and most complex crude oil pipeline system in North America. We have been in business since early April, 1949” (NEB, 1985, p. 17). Mr Cole noted that IPL transports over 50 types of petrochemicals from north central Alberta to markets in eastern Canada and the USA in pursuit of its formal goals: (1) to achieve substantial earnings; and (2) to “design, operate and maintain” a system which is safe for “the public and employees” (NEB 1985, pp. 20,22). IPL’s large profits and extensive financial goals clearly illustrate a system of currency in use as a standardized method of evaluating goal achievement. For IPL, past and anticipated future financial success were clear evidence of IPL’s general effectiveness.

Market rationality expects the state to support equality and self-help in the marketplace through rules of fair play (Douglas and Wildavsky, 1982, p. 96). For example, IPL expressed interest in learning “as much as we can from this incident” to “determine what steps should be taken to ensure against reoccurrence” (NEB, 1985, p. 19). Yet Mr Cole stressed that IPL was quite capable of investigating itself and remedying its own problems, thus indicating IPL considered it unnecessary for the NEB to impose new rules or to alter regulations in ways which would restrict IPL’s actions and thus affect its position in the marketplace.

Decision making in market rationality involves ranking objectives, choosing
the one with the highest values, and going for it (Douglas and Wildavsky, 1982, p. 97). This means tradeoffs are inevitable. For example, Mr Cole testified that the two deaths and three serious injuries which occurred in the accident under investigation were regrettable, but inevitable given the scope and complexity of the IPL operation, and necessary tradeoffs between maximum safety and profit: “In all, I believe the industry has done a good job...regrettably, though, accidents do occur” (NEB, 1985, p. 18). Profit was a highly valued objective and some theoretical “maximum” safety could be obtained only by reducing profits or raising the costs of operation. Hence the rational choice was clear — continue present operations and expect some accidents.

Social control is indirect; market forces and opportunities for personal profit constrain individual behavior. Market expects hierarchy to insure it has the freedom from unnecessary regulation (Douglas and Wildavsky, 1982). The ability of the company to adequately regulate itself was emphasized by Mr Cole’s discussion of the sleeving program. Over the years IPL had installed an estimated “1,500 sleeves” or patches to repair or protect the 30-year-old system from corrosion and damage. Mr Cole suggested that periodic inspections, preventative maintenance programs, including sleeving, internal investigations and IPL’s trained and experienced staff, were self-initiated, effective ways to handle problems. Further, IPL did not view the NEB inquiry as a necessity: “An in-depth investigation by Interprovincial did start the day after the incident...two committees were quickly formed.” The first committee had “extensive terms of reference” to investigate all aspects of the incident. The second committee investigated the “company’s sleeving program” and the failure of a sleeve weld which apparently caused the leak. The findings of these committees were to be forwarded to the Board and: “This move responds to our corporate policy of continually searching for improved methods of safety in the transportation of crude oil and other liquid hydrocarbons” (NEB, 1985, p. 20). Mr Cole concluded that: “In recognition of the size and complexity of our system and the hazardous nature of the material transported, it has been and continues to be our fundamental commitment to design, operate, and maintain the system in a safe manner” (NEB, 1985, p. 21) and “when there is work to be done in the field the company policy is that safety comes first” (NEB, 1985, p. 22). Market pressures and innovations by the company were thus asserted to be sufficient to insure safe performance at IPL.

In a market rationality equality of people is valued in principle, but people are thought to have unequal characteristics relevant to success. Thus people who move from rags to riches are honored, people who lose are blamed for their losses, and those who fail feel guilt. For example, throughout the inquiry, the fire and Mr Guthrie’s death were linked to Mr Guthrie’s own failure to take the appropriate strategy to manage the leak, and his presumed failure to avoid becoming intoxicated by exposure to NGL’s vapors.

The key threats to market cultures are those which interfere with the marketplace or the exchange system (Douglas and Wildavsky, 1982, p. 96).
driving fear is the loss of resources, and the key risk is economic failure (Douglas and Wildavsky, 1982, p. 187). As the Inquiry Chairman reminded IPL, IPL “is subject to regulation by the Board under the National Energy Board Act” (NEB, 1985, p. 3). The NEB establishes the tariff rates IPL can charge to customers, IPL’s rate of return on equity, and can require IPL to undertake expensive safety and maintenance programs. Thus the public inquiry was potentially a threat to IPL operations and profitability, since “the Board may find it necessary to use its powers under Section 39 of the National Energy Board Act to order the company to make changes to its pipeline” (NEB, 1985, p. 3). IPL had little choice but to comply with the wide-ranging powers of the NEB, although in asserting its many company initiatives, IPL established a defense against more extensive intrusion by the NEB into IPL operations.

Workers and families: sectarian rationality and the culture of labor

Merv Guthrie, the foreman of the pipeline maintenance crew involved in the accident, died from burns several days before the inquiry began and legal counsel was retained by the widow Guthrie at the inquiry. Twenty or more workers and family members, including several women, attended the inquiry and sat near the middle and back of the audience. Some of these workers had been subpoenaed, and their spouses attended to provide moral support. Several family members of the deceased personnel also attended. The boundaries of this group were maintained by a variety of markers left on chairs including; leather overcoats worn as “dress” apparel by workers; and kleenexes, purses and obviously feminine coats unique to grieving wives, relatives and friends who sobbed and cried during key portions of testimony.

Sectarian rationality characterized worker and survivor sensemaking. Sectarian rationality reflects the potentially fissive nature of voluntary group membership and hence a concern with boundary maintenance (Douglas and Wildavsky, 1982, p. 104): members remain involved so long as their needs are met and their safety is not threatened. Individual-level goals are salient, even if they are constrained by market and hierarchy. For example, surviving family members attended primarily “to see the whole picture. You talk to the people involved and you only get parts. We just want to understand the whole thing” (field notes, March 27, 1985). As the hearing “dragged on” and technical information on pipeline welds came to dominate testimony, the number of family and survivor observers dropped significantly. Indeed, Mrs Guthrie’s attendance was voluntary and at the start of proceedings her lawyer stated that: “...depending on the evidence Mrs Guthrie may withdraw as an interested party sometime during these proceedings” (NEB, 1985, p. 9). The term “survivor” itself suggests a remaining member of a group which has lost a member from its boundaries. And the boundary concerns of fission, survival and withdrawal from the group were reflected in Doug Bone’s testimony about his ambivalent if hurried departure from the work site to avoid the fireball.
The primary rules governing sect are informal norms. Indeed, throughout their testimony, workers displayed a remarkable lack of knowledge of formal company policies, and they recounted several apparent and recurrent policy violations. For example, workers reported that while they had “seen” a copy of the company policy manuals, they had not read them thoroughly nor did they have their own copies of the manuals.

In sectarian rationality, it is difficult to get decisions; meetings are unstructured, and members bargain and may threaten withdrawal. There is pressure for 100% support or participation and insistence on the equality of members. Sectarians need the concurrence of others on the threatening nature of external evils. For example, Doug Bone, the second-ranking member of the crew, was advised by other workers of their fear of imminent danger at the work site but he never voiced his concerns to Mr Guthrie: “We were looking around kind of eerie-like and kind of waiting for it to be a mutual decision or waiting for further instructions” (NEB, 1985, pp. 274–275). No one wanted to be the first to withdraw from the group. Thus the other workers “might have felt it was more comfortable if I said something, but no one directly asked me to ask him. I would have had to do that on my own” (NEB, 1985, p. 326). However, “it might not have been long and we might have said something. The tension was getting more and more every minute. I won’t say that we would have waited for him” (Mr Guthrie) to leave the site (NEB, 1985, p. 327).

Meetings and decision making at the work site reflected the blurring of authority and the abhorrence of stratification, regimentation and rules characterizing sectarian rationality. Formalized meetings were not held (NEB, 1985, p. 329). Rather, individuals conferred with Mr Guthrie and were given individual orders. Workers conferred among themselves and there were no discussions of safety held with the foreman. Indeed, during a critical time, Mr Guthrie was not available for discussions with the crew as he was preoccupied with other matters (NEB, 1985, p. 330).

For sectarians, social control is personalized and informal, as evidenced by workers voicing concerns and criticisms to one another and to Mr Guthrie. Essentially, good workers were expected to know what to do, and to do it without being given elaborate instructions. Thus, interpersonal faith and trust are important controls. For example, Bone explains the reluctance of workers to leave the work site in terms of the faith workers placed in Mr Guthrie, and their expectation Guthrie would voice his opinions: “I have always trusted him, especially in safety...and I would have assumed that he would have notified us if he thought it was unsafe” (NEB, 1985, p. 326).

The workers valued independence, self-initiative, personal safety and getting their own job done. For sectarians, there is substantial concern for personal safety, and the primary risk is technology. Further, there is an expectation of imminent danger and disaster (Douglas and Wildavsky, 1982). Bone, for example, spent much of his testimony outlining equipment problems, flaws and failures that heightened the danger on site, particularly the failure of the com-
pany to provide certain safety equipment and clothing to workers. Bone also outlined his prior attempts to get the company to address safety issues related to technology. For example, Bone had repeatedly raised the issue of the need for fire-protective clothing with superiors on the day of the fire and also previously at a Joint Industrial Council meeting.

Clearly sectarian rationality values individual initiative as a means to overcome personal risks. For example, one worker recounted work practices he considered unsafe, and noted that when he told Mr Guthrie about his concern, “he told me that I had to stay on my toes, working around that, and my response was that if I hadn’t been on my toes, I wouldn’t be there telling him about it” (NEB, 1985, 1255–1257).

Threats to sectarian rationality include internal dissension, failure to recruit and hold new members, and failure to stop defectors (Douglas and Wildavsky, 1982, p. 113), and these threats can be linked to individuals’ assessments of the risks of continued membership. Bone’s hurried departure from the work site, and Mrs Guthrie’s proposal to leave the inquiry if relevant evidence did not emerge, reflect the voluntaristic values of sect. Where the sect is unable to expand, split or avoid danger, anger results (Douglas and Wildavsky, 1982, p. 178). For example, Bone reported that after the fire Mr Guthrie was “upset” and “angry” perhaps “because of the fact that he had to be there or because someone got hurt” (NEB, 1985, p. 331).

Findings

The results from the comparative analysis of cultural groups suggest several general findings. First, different crisis stakeholder groups exhibited different structural characteristics, i.e. social organizational forms. The groups differed in terms of such structural features as boundaries, goals, rules and decision making. Second, different organizational forms which emerged were associated with different cosmologies and rationalities, as predicted by Douglas (1970) and Douglas and Wildavsky (1982), and as evidenced by the results of Table 2. Third, different stakeholder groups diverged in linguistic, dress, behavior, spatial and material object codes, and these codes reproduced and were consistent with one another within each given cosmology and rationality type. Fourth, different social organizational forms, cosmologies and rationalities produced differing interpretations of events, i.e. divergent sensemakings, consistent with the underlying rationalities used in sensemaking. For example, the different rationalities suggested different means for preventing accidents. Hierarchy presumed that changing procedures and enforcing compliance would prevent accidents and reduce the risk of losing legitimacy. For market, selective, evolutionary market forces were expected to produce safety: individuals who acted in an unsafe manner suffered the consequences. The needs of production and capital accumulation were seen as best served by self-initiated adaptations by the company, and the flow of energy and resources was threatened.

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not so much by individual or organizational disaster — which was seen as manageably rare — but by counterproductive rules and procedures enforced by external agents such as government. For sect, regulatory changes or company adjustments could never produce complete safety for the individual. Rather, eternal self-vigilance and the right to individual action offered the only means for escaping danger.

Conclusion

This paper shows how three different cultural rationalities are operative in stakeholder sensemaking concerning a major industrial accident. These different rationalities characterized sensemaking by different groups and reflected the organizational characteristics of these groups. Further, different rationalities led to different interpretations of events and divergent strategies for preventing and managing risks and crisis. Yet given complex, hazardous technologies it can be argued that none of these rationalities are adequate to prevent future accidents. The selection of high risk technologies means that technologically inherent systems risks must be accepted, independently of (or despite) the selection of specific organizational forms and rationalities (Perrow, 1984).

This paper suggests two implications for crisis research. First, cultural rationalities provide an important tool for understanding organizational sensemaking and the dynamics of major industrial accidents. For example, Turner (1976) concludes that disasters occur because of failures of foresight or true rationality. By abandoning the assumption of unified or perfect rationality, the multiple rationalities perspective suggests the converse to Turner's claims: failures of rationality arise because of disaster. That is, rationalities are always incomplete or imperfect, but this incompleteness is not evident without disaster because members actively gloss the incompleteness of rationality (Garfinkel, 1967). The multiple rationalities perspective thus indicates the significant limits of any type of rationality.

Second, public inquiries are of interest as multilevel micro–macro events (Cicourel and Knorr-Cetina, 1981). Inquiries contain micro-level conversational structures which are nested within, and are constitutive of, the performance of organizational roles. These organizational roles are performed by teams representing different groups, organizations, institutions and cultures, and the role performances constitute organizational performances in the inquiry, which is an interorganizational situation. This interorganizational situation, managed by institutional actors such as government agencies, enacts the institutional level of social structure where public agents act on behalf of society as a whole, to preserve and represent its social values. Finally, the inquiries constitute important stages in macro phenomena such as major industrial accidents (Turner, 1976, 1978; Gephart, 1984; Perrow, 1984; Shrivastava, 1987a). Thus micro-level sensemaking practices produce the macro social order as a set of
representative meanings tracked across social settings (Cicourel, 1981). Public inquiries provide a window for simultaneously observing the operation of different levels of micro and macro analysis, and may thus provide an opportunity for integrating these different levels of analysis into a coherent, multilevel theory of crises and crisis sensemaking.

**Action implications for crisis and inquiry stakeholders**

The finding that there are multiple rationalities operative in crisis sensemaking suggests several implications for stakeholder groups. In general, each rationality provides a distinct and useful explanation of what occurred in the crisis. Yet each perspective has an inherent cultural/political bias reflecting the restricted codes of its members. A richer understanding of crisis would involve a "multiple perspectives" view of events which requires integration of the perspectives of all key stakeholder groups (Shrivastava, 1987a), and movement from restricted to more universal codes (Douglas, 1970). It is possible to obtain such an understanding through expanding stakeholder frames of reference, freer sharing of information, orchestrating the inquiry to insure a variety of perspectives are demonstrated and comprehended by the various groups, and using the reflective activities involved in cultural analysis (Douglas and Wildavsky, 1982; Shrivastava, 1987a; Gephart, 1988a).

At the level of specific stakeholder groups, there are several action implications. Government stakeholders use hierarchical rationality to investigate crises in terms of technical causes, regulatory compliance, the adequacy of laws and rules, and deference to formal authority. Inquiry boards thus predefine the nature and scope of relevant data, as well as the parameters of acceptable solutions. Inquiry boards seek to solve problems, not enlarge the range of potential problems under discussion, and limit inquiry findings to a narrow interpretation of events. A richer understanding is clearly possible. This research raises the question of whether inquiries, with their emphasis on hierarchical rationality, are optimal means of investigating accidents. Important causes, consequences and implications, as well as changes that might be more adequately implemented by other stakeholder groups, are ignored, given the restricted bureaucratic-technical scope of most inquiries. Indeed, hierarchical rationality alone is inadequate for solving the problems faced by market and sect. For example, articulation and dissemination of policies, and increased enforcement of regulations is hierarchy's approach to control. These controls are often inadequate from the view of market, which responds to opportunities for profit and defends itself against the encroachment of unnecessary regulations, often by merely ignoring or disattending to these. And for sect, which abhors rules and values informal controls, formal codes may be ignored because they are "senseless" or contradict the normative codes which actually govern members. Hierarchy must move away from merely changing and enforcing rules, and must develop ways of better encouraging self-help in market, and of supporting and
buttressing effective norms in sects. Externally imposed solutions are likely to be ineffective, because articulation and dissemination of policies does not mean policies will be adopted or implemented. Hierarchy must involve other stakeholders in both problem identification and problem solving. Crisis situations often present ambiguities that standardized bureaucratic rules cannot handle.

Corporations use market rationality to defend against hierarchical rules. They accept the rhetoric of hierarchical rationality by limiting their testimony primarily to discussions of technical issues and regulatory compliance. Corporations thus present a limited view of their organization and operation. The many norms and values which support initiative and self-help may not be clearly demonstrated to hierarchy, and much of the substance of cultures of excellence important to market culture members themselves goes unappreciated by, and may not be disclosed to, hierarchy. Yet normative constraints and values such as equality, equity and concern for workers may be more important in preventing and managing crises than the development of complex regulations which are not flexible or responsive to the unpredictable demands of crises. For market, the ability to instantiate values of self-help and innovation in new contexts is a primary form of institutional resilience (Douglas and Wildavsky, 1982, p. 198).

Workers use sectarian rationality, and face a somewhat different situation than government or management. Sectarian groups often include the victims of accidents, and these groups are represented at inquiries primarily in terms of members who are called as witnesses. They experience a problem of access to control settings in that although they may be required to appear and to respond to questions, they have little power in determining the kinds of information they will provide, or in determining the solutions which will be proposed. Sectarians must be empowered to participate more fully in these settings and in the decisions which will affect their work activities. Workers are more directly aware of situational work demands and complexities than are government or managers, and hence in many ways workers can better evaluate the usefulness of proposed solutions. Further, given the informal nature of sects, and the slow and unstructured nature of decision making, sectarians may require alternative, less legalistic settings than the formal inquiry if their views are to be effectively articulated. Sectarians should be given a more formal intervenor role at inquiries, and they should receive resources such as funds for legal fees and freedom from punitive action from employers, so they can participate more effectively in the inquiry.

In conclusion, cultural analysis provides important insights into crisis sense-making by encouraging crisis theorists to investigate problems of social disintegration at the boundary of the social order as well as the centrist problems of market and hierarchy which are commonly addressed.
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