

# **Crisis Management**



SAGE LIBRARY IN BUSINESS & MANAGEMENT

# **Crisis Management**

VOLUME II

Edited by  
Arjen Boin



Los Angeles • London • New Delhi • Singapore

Introduction and editorial arrangement © Arjen Boin 2008

First published 2008

Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act, 1988, this publication may be reproduced, stored or transmitted in any form, or by any means, only with the prior permission in writing of the publishers, or in the case of reprographic reproduction, in accordance with the terms of licences issued by the Copyright Licensing Agency. Enquiries concerning reproduction outside those terms should be sent to the publishers.

Every effort has been made to trace and acknowledge all the copyright owners of the material reprinted herein. However, if any copyright owners have not been located and contacted at the time of publication, the publishers will be pleased to make the necessary arrangements at the first opportunity.

SAGE Publications Ltd  
1 Oliver's Yard  
55 City Road  
London EC1Y 1SP

SAGE Publications Inc.  
2455 Teller Road  
Thousand Oaks, California 91320

SAGE Publications India Pvt Ltd  
B 1/I 1, Mohan Cooperative Industrial Area  
Mathura Road  
New Delhi 110 044

SAGE Publications Asia-Pacific Pte Ltd  
33 Pekin Street #02-01  
Far East Square  
Singapore 048763

#### **British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library

ISBN: 978-1-84787-088-9 (set of three volumes)

**Library of Congress Control Number: 2007934293**

Typeset by Star Compugraphics Private Limited, Delhi  
Printed on paper from sustainable resources  
Printed and bound in Zrinski d.d. Croatia

# Contents

## VOLUME II

### Part II: Challenges of Crisis Management (*Continued*)

22. Reframing Crisis Management *Christine M. Pearson and Judith A. Clair* 1
23. Toward a Systemic Crisis Management Strategy: Learning from the Best Examples in the US, Canada and France *Thierry C. Pauchant, Ian I. Mitroff and Patrick Lagadec* 25
24. Disaster Crisis Management: A Summary of Research Findings *E.L. Quarantelli* 45
25. Working in Practice but Not in Theory: Theoretical Challenges of “High-Reliability Organizations” *Todd R. LaPorte and Paula M. Consolini* 57
26. State Behavior in International Crisis: A Model *Michael Brecher* 82
27. Crisis Simulations: Exploring Tomorrow’s Vulnerabilities and Threats *Arjen Boin, Celesta Kofman-Bos and Werner Overdijk* 109
28. Bridging the Two Cultures of Risk Analysis *Sheila Jasanoff* 123
29. Homeland Security Warnings: Lessons Learned and Unlearned *Benigno E. Aguirre* 133
30. Blindsided? September 11 and the Origins of Strategic Surprise *Charles F. Parker and Eric K. Stern* 142
31. Governing by Looking Back: Historical Analogies and Crisis Management *Annika Brändström, Fredrik Bynander and Paul ’t Hart* 168
32. Toxic Fear: The Management of Uncertainty in the Wake of the Amsterdam Air Crash *Arjen Boin, Menno van Duin and Liesbet Heyse* 187
33. Some Consequences of Crisis Which Limit the Viability of Organizations *Charles F. Hermann* 210
34. Crisis Decision Making: The Centralization Thesis Revisited *Paul ’t Hart, Uriel Rosenthal and Alexander Kouzmin* 225
35. Experts and Decision Makers in Crisis Situations *Uriel Rosenthal and Paul ’t Hart* 250
36. Designs for Crisis Decision Units *Carolyn Smart and Ilan Vertinsky* 267

vi **contents**

37. Indicators of Stress in Policymakers during Foreign Policy Crises <i>Margaret G. Hermann</i>	286
38. The Nature and Conditions of Panic <i>E.L. Quarantelli</i>	309
39. Organizational Adaptation to Crises: Mechanisms of Coordination and Structural Change <i>Russell R. Dynes and B.E. Aguirre</i>	320
40. The Bureau-Politics of Crisis Management <i>Uriel Rosenthal,</i> <i>Paul 't Hart and Alexander Kouzmin</i>	326
41. Contingent Coordination: Practical and Theoretical Puzzles for Homeland Security <i>Donald F. Kettl</i>	348

## Reframing Crisis Management

**Christine M. Pearson and Judith A. Clair****Source:** *Academy of Management Review*, 23(1) (1998): 59–76.

**D**uring the past dozen years, many scholars have conducted conceptual and empirical studies on the topic of large-scale organizational crises (e.g., Lagadec, 1990, 1993; Mitroff, Pauchant & Shrivastava, 1988; Pearson & Mitroff, 1993; Perrow, 1984; Roberts, 1990; Schwartz, 1987; Shrivastava, 1993; Weick, 1988). Understandably, as with many new areas of research, these studies lack adequate integration with one another (Shrivastava, 1993). The cross-disciplinary nature of organizational crises particularly has contributed to this lack of integration (Shrivastava, 1993). Specifically, organizational crises inherently are phenomena for which psychological, social-political, and technological-structural issues act as important forces in their creation and management (Pauchant & Douville, 1994). Because the study of organizational crises involves multiple disciplines, researchers believe that crises must be studied and managed using a systems approach (Bowonder & Linstone, 1987; Pauchant & Mitroff, 1992). In other words, researchers believe that psychological, social-political, and technological-structural issues should be *explicitly* considered and integrated when studying and managing organizational crises.

Some scholars, in their studies, explicitly embrace a multidisciplinary approach (e.g., Fink, Beak, & Taddeo, 1971; Mitroff et al., 1988; Shrivastava, Mitroff, Miller, & Miglani, 1988; Staw, Sandelands, & Dutton, 1981). Many others, however, analyze the causes, consequences, and management of organizational crises from a single disciplinary frame (Shrivastava, 1993). The result is a “Tower of Babel” effect, where “there are many different disciplinary voices, talking in different languages to different issues and audiences” (Shrivastava, 1993: 33) about the same topic: organizational crises. We assert that this lack of integration has kept research on organizational crises at the periphery of management theory.

To take a needed step toward a multidisciplinary approach to the study of organizational crises (Lagadec, 1993; Pauchant & Douville, 1994; Roberts, 1993; Shrivastava, 1993), we illustrate, in this article, alternative views on organizational crises when psychological, social-political, and technological-structural research perspectives are brought to bear. Our discussion of these perspectives is not meant to be a catalog of all research within each domain; rather, using perspectives from these domains, we build definitions of “organizational crisis” and “crisis management,” and we develop a comprehensive model of the crisis management process that reflects psychological, social-political, and technological-structural assumptions.

By fusing and expanding on contributions from these three perspectives, our framework offers opportunities for modeling, testing, and integrating lessons relevant to crisis management. For those involved in crisis management research, we

## 2 challenges of crisis management

offer a conceptual framework that strives for comprehensiveness, as well as a series of propositions grounded in multiple perspectives on organizational crises. For those most interested in practice, we believe that our framework captures a systemic, “big picture” approach that would be useful in championing, planning, and implementing crisis management efforts.

We have organized the article as follows. First, we review definitions of organizational crisis and crisis management implied from organizational and management theory research. We then discuss research grounded in psychological, social-political, and technological-structural perspectives as relevant to the topic of organizational crisis management. Next, we use the assumptions guiding these three perspectives to propose definitions of organizational crisis and crisis management and to develop a multiple perspective model of the crisis management process, as well as research propositions. Finally, we discuss implications for practice and opportunities for future research.

### **Definitions of Organizational Crisis and Crisis Management from a Management Theory Perspective**

As an introduction to the nature of organizational crises, we provide, in Table 1, examples of the variety of types of crises that can impact organizations. This array of types suggests the breadth of organizational vulnerabilities. Although the types of crises in Table 1 seem to differ substantially, like all organizational crises, they share a number of common elements.

**Table 1:** An array of organizational crises

---

• Extortion	• Bribery
• Hostile takeover	• Information sabotage
• Product tampering	• Workplace bombing
• Vehicular fatality	• Terrorist attack
• Copyright infringement	• Plant explosion
• Environmental spill	• Sexual harassment
• Computer tampering	• Escape of hazardous materials
• Security breach	• Personnel assault
• Executive kidnaping	• Assault of customers
• Product/service boycott	• Product recall
• Work-related homicide	• Counterfeiting
• Malicious rumor	• Natural disaster that destroys corporate headquarters
• Natural disaster that disrupts a major product or service	• Natural disaster that eliminates key stakeholders
• Natural disaster that destroys organizational information base	

---

Specifically, organizational crises are believed (1) to be highly ambiguous situations where causes and effects are unknown (Dutton, 1986; Quarantelli, 1988); (2) to have a low probability of occurring but, nevertheless, pose a major threat to the survival of an organization (Jackson & Dutton, 1987; Shrivastava et al., 1988) and to organizational stakeholders (Shrivastava, 1987); (3) to offer little time to respond (Quarantelli, 1988); (4) to sometimes surprise organizational members (Hermann, 1963); and (5) to present a dilemma in need of decision or judgment that will result in change for better or worse (Aguilera, 1990; Slaikeu, 1990). We can consolidate these elements into a definition of an “organizational crisis” as viewed from the perspective of management research to date.



*An organizational crisis is a low-probability, high-impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly.*

We turn now to the definition of crisis management found in the management literature. As asserted by Gephart (1984), some researchers advocate a perspective that crises can be recurrent and nonpreventable (e.g., Perrow, 1984), whereas others focus on identifying ways to manage or avert organizational crises (e.g., Meyers, 1986; Pauchant & Mitroff, 1992; Pearson & Mitroff, 1993; Roberts, 1989). Given the depth and breadth of losses that typically accompany organizational crises, it is unrealistic to define as effective only those efforts that pull an organization unscathed through such events. Conversely, simply surviving a crisis may not be a sufficiently stringent criterion for success. Between these two extremes, we suggest the following criteria for effective crisis management. Crisis management efforts are effective when operations are sustained or resumed (i.e., the organization is able to maintain or regain the momentum of core activities necessary for transforming input to output at levels that satisfy the needs of key customers), organizational and external stakeholder losses are minimized, and learning occurs so that lessons are transferred to future incidents.

Although researchers have suggested criteria for judging crisis management effectiveness (Mitroff & Pearson, 1993), differentiating effective from ineffective crisis management has been more difficult in practice. The now infamous Exxon Valdez incident provides a case in point. Some financial analysts could claim that Exxon's efforts were successful in that the financial costs incurred were manageable for Exxon (Nulty, 1990) and that the costs of fixing the crisis were less than what might have been spent in crisis management preparations (such as investing in double-hulled vessels throughout the fleet, conducting ongoing fitness evaluations for those in command, and endorsing and underwriting extensive preparations for containment of incidents within Prince William Sound). But, from the perspective of many who study organizational crises, Exxon failed: warning signals were ignored; plans and preparations for such an event were substandard, and public statements made by Exxon's CEO Rawl riled stakeholders. Media coverage indicated Exxon's general unwillingness to learn from the crisis, as might otherwise have been demonstrated by changes in attitudes or behaviors (Browne, 1989; Deutsch, 1989; *Fortune*, 1989; Goodpaster & Delehunt, 1989; Susskind & Field, 1996). Thus, the Exxon case contains elements of success and failure.

As a counterpoint to Exxon's handling of the Valdez incident, Johnson & Johnson's management of Tylenol tampering events were highly successful, reinforcing the company's reputation for integrity and trustworthiness (Mitroff, Pearson, & Harrigan, 1996). But, given the imperfection of human systems, some plans or procedures during the management of the incidents failed. A perpetrator, for example, was never identified.

We will discuss further the complexities of judging crisis management success and failure in practice when we describe our model. Now, using the research cited above, we offer the following definitions of "crisis management" and "crisis management effectiveness" that are currently suggested in the organizational literature.

*Organizational crisis management is a systematic attempt by organizational members with external stakeholders to avert crises or to effectively manage those that do occur.*

#### 4 challenges of crisis management

*Organizational crisis management effectiveness is evidenced when potential crises are averted or when key stakeholders believe that the success outcomes of short- and long-range impacts of crises outweigh the failure outcomes.*

These definitions can be improved by explicitly capturing perspectives on crises in the literature from other disciplines. Below, we summarize components derived from these perspectives, as well as use them to propose a more complete definition of organizational crisis and crisis management.

### **Psychological, Social-Political, and Technological-Structural Perspectives on Crisis**

Organizational crisis researchers already have incorporated some facets of the psychological, social-political, and technological-structural perspectives. However, these perspectives typically have not been considered jointly. Further, there is a lack of common, explicit agreement about the nature and meaning of crisis even within each of these three disciplinary perspectives. The following discussion, therefore, represents our contribution toward a synthesis and interpretation of the various literature regarding its applicability to the topic of organizational crisis. We have made difficult choices about which perspectives within the various disciplines to pursue, concentrating our analysis on perspectives that are most relevant to the management literature. Some of these perspectives have not been considered by crisis management researchers and, therefore, represent an additional contribution to the field.

To make our analysis more systematic and to facilitate our cross-comparisons between and among the three perspectives discussed below, we apply the “4Cs” framing proposed by Shrivastava (1993). This frame suggests that crisis studies can focus on four key aspects of crises: “causes,” “consequences,” “caution,” and “coping.” *Causes* “include the immediate failures that triggered the crisis, and the antecedent conditions that allowed failures to occur” (Shrivastava, 1993: 30). *Consequences* are the immediate and long-term impacts. *Caution* includes the measures taken to prevent or minimize the impact of a potential crisis. Finally, coping comprises measures taken to respond to a crisis that has already occurred. Through the 4Cs frame, we highlight the similarities and differences among these views, and we integrate them into the assumptions of our crisis management model.

#### Psychological Views on Crisis

[T]he crisis cannot be separated from the viewpoint of the one who is undergoing it. (Habermas, 1975: 58)

In the crisis management literature, authors typically have adopted cognitive theories and, to some extent, psychoanalytic theory to explain and predict individual forces involved in the creation of an organizational crisis (e.g., Schwartz, 1987; Weick, 1988). Little attention has been paid to the individual experiences of an organizational crisis once it unfolds. In addition to reviewing perspectives on individuals’ roles in creating a crisis, we explore an area of psychological research on “trauma,” which seeks to understand how the individual experiences a crisis. We present cognitive studies first.

Cognitive approaches to the study of an organizational crisis typically are based on three core assumptions. The first assumption is that crises present “wicked problems” (Stubbart, 1987): they are highly uncertain, complex, and emotional events that can play multiple parties’ interests against one another. The second assumption is that people are limited in their information-processing capabilities during a crisis. Finally, the third assumption is that crises arise or spiral out of control because executives, managers, or operators have responded irrationally and enacted errors of bias and other shortcomings in their information processing and decision making.

There is a relatively long history of research on crisis management having a cognitive perspective. Smart and Vertinsky (1977) identify five crisis-specific pathologies exhibited in an organization, many of which had cognitive bases. Nystrom and Starbuck (1984) note that organizational failures are actually unnecessary; to avoid a crisis, in their view, leaders must reorient their cognitive schemes. Halpern (1989) illustrates a series of cognitive biases that could create errors in decision making, eventually leading to catastrophe. Weick (1988, 1989) discusses the role of individual sense making and mental models in the creation of a crisis and illustrates that “action that is instrumental to understanding the crisis often intensifies the crisis” (1989: 305). That is, commitment, cognitive capability, and expectations adversely can affect crisis sense making and the severity of a crisis. In each of these examples, organization-based solutions to an individual’s cognitive limitations are proposed. For example, Stubbart (1987) proposes eight such methods, and Smart and Vertinsky (1977) provide over fifty preventative measures. Their underlying assumption is that cognitive limitations are inherent in individuals and that organization-based solutions constitute the primary method for overcoming or minimizing these limitations.

Management scholars have examined psychoanalytic bases for organizational crises less frequently. A recurring premise of those who subscribe to psychoanalytic bases is that mental health and the unconscious play an important role in the creation of an organizational crisis. For example, Schwartz (1987) examines the psychoanalytic roots of the Challenger explosion, asserting how unconscious elements contributed to the disaster. Pauchant and Mitroff (1992) discuss how personality disorders, mental health, and defense mechanisms of individuals contribute to the creation of organizational crises. According to their research, individuals in “crisis-prone organizations,” compared to “crisis-prepared” organizations, are seven times as likely to use defense mechanisms, such as denial, disavowal, fixation, grandiosity, and projection.

Although scholars have considered cognitive and psychoanalytic perspectives in the management literature, they have paid scant attention to individual victim’s psychological experiences of trauma. In the case of an organizational crisis, any individuals who believe that they have been traumatized by the unfortunate event may be “victims.” Victims may be employees who have personally incurred physical or psychological injury from the organizational crisis, and they may also be an employee’s boss, co-workers, subordinates, or others who are linked, firsthand, to the victim through the organization. They may be affected by the employee’s loss or the loss of the employee. We discuss the victim’s perspective next.

Scholars who study trauma not only assume that a trauma experience of a victim can be triggered by an objective event (e.g., Baum, Fleming, & Singer, 1983;

## 6 challenges of crisis management

Bulman & Wortman, 1977; Horowitz, 1983; Lehman, Wortman, & Williams, 1987), but also that subjective appraisal plays a role in an individual's response to external stressors (e.g., Lazarus & Alfert, 1964; Lazarus, Speisman, Mordkoff, & Davison, 1962; Speisman, Lazarus, Davison, & Mordkoff, 1964). In addition to bodily harm, the experience of a traumatic event can cause a psychological breakdown, which results because the victim's conceptual system (through which personal expectations about the world have been created) and the victim's self-identity have been undermined (Bowlby, 1969; Epstein, 1980; Janoff-Bulman, 1992; Morris, 1975; Parks, 1971). Janoff-Bulman and Freize (1983), for example, identify three assumptions adhered to by most people that are often undermined in a crisis. First, a crisis challenges the victim's belief that "bad things can't happen to me." Second, a crisis erodes the assumption that "doing the right thing" will yield good things. Finally, when a crisis occurs, victims lose their sense of worth and control, seeing themselves instead as weak, helpless, and needy. The result of these "shattered assumptions" is the need for psychic reorganization and the reconstruction of one's personal assumptive world (Janoff-Bulman, 1992).

The trauma perspective of crisis has a number of implications for the study of organizational crises and crisis management. It suggests that leaders or employees of an organization may adhere to basic assumptions about the world and themselves that make them unlikely to anticipate an organizational crisis (Pauchant & Mitroff, 1992). This perspective also underscores the fact that an organizational crisis may spur employee disillusionment and the need for psychic reorganization. As a result, victims may not only collectively question their personal assumptions about themselves and the world but also question cultural assumptions, structural relationships, and role definitions within the organization (i.e., triggering potentially turbulent social-political dynamics, as we discuss in the next section). Therapeutic, social, emotional, or other forms of support may be needed to assist employees in rebuilding their individual and organizational assumptions and to bolster a personal sense of safety against threat (Janoff-Bulman & Freize, 1983), whether the individuals impacted by the event were firsthand victims or those affected less directly. Organization-level impact will occur if many employees personally experience trauma or if leaders experience disillusionment, confusion, or helplessness during crisis.

In summary, the psychological view of crisis, including cognitive, psychoanalytic, and trauma perspectives, suggests that individuals play an important role in organizational crises. The causes of an organizational crisis can be behaviors, ineffectual orientations, or other cognitive limitations of an individual employee or group(s) of employees (including leaders) in interaction with organizational structures or technologies. The *consequences* of a crisis can be "victimization" of employees who are physically or psychologically harmed by an incident, the shattering of employees' basic assumptions about themselves or the organization, or the creation of a belief that one's personal system is threatened (Taylor, 1983). *Caution* may be possible by recognizing the fundamental vulnerability and repercuSSION of victimization. Finally, *copING* behaviors involve cognitive readjustment to assumptive, behavioral, and emotional responses through organizational support systems.

## Social-Political Views on Crisis

A disaster or a cultural collapse takes place because of some inaccuracy or inadequacy in the accepted norms and beliefs.... [T]here is an accumulation of a number of events that are at odds with the picture of the world and its hazards.... (Turner, 1976: 381)

Social-political theory on crisis is the realm of cultural symbols and lived ideologies (O'Connor, 1987). Specifically, crisis arises from a breakdown in shared meaning, legitimization, and institutionalization of socially constructed relationships. Empirical research demonstrates that this breakdown can take several related forms. Equating crisis with a "cultural collapse," Turner (1976) asserts that a crisis arises when shared meanings, which previously served a community well, break from the reality of a particular situation. Weick (1993) echoes these sentiments in an analysis of the Mann Gulch fire disaster, where 13 of 16 highly trained "smokejumpers" (firefighters who put out forest fires) died. Their deaths, according to Weick's analysis, were caused by a breakdown in role structure and sense making in the small organization of smokejumpers. Weick states:

I've never been here before, I have no idea where I am, and I have no idea who can help me. This is what the smokejumpers may have felt increasingly as the afternoon wore on and they lost what little organization structure they had to start with. As they lost structure they became more anxious and found it harder to make sense of what was happening, until they finally were unable to make any sense whatsoever of the one thing that would have saved their lives.... (1993: 633–634)

Habermas (1975) offers an alternative but related view on crisis from a social-political perspective. In an analysis of the development of crisis in economic systems, Habermas asserts that a "rationality crisis" occurs when economic decision makers no longer can successfully manage economic growth. A prolonged crisis of rationality triggers a "legitimacy crisis," where followers withdraw support and loyalty to key decision makers and replace it with questioning of the current social structure and institutions. The situation eventually can spiral downward into a crisis of motivation, where atomized individualism is displayed and commitment to normative values and collective beliefs is absent (O'Connor, 1987). Habermas's perspective represents a crisis as a failure of followers' belief in leadership, the social order, and traditional values and beliefs. The "masses" become ungovernable, and control and avoidance of social conflict are difficult (O'Connor, 1987).

The social-political perspective adds to the current definitions and understandings of organizational crisis in a number of ways. First, it suggests that all crises share in common a breakdown in the social construction of reality. An aircraft explosion, oil spill, or scandal – whatever the incident that is viewed as the crisis – is actually an artifact of this breakdown in collective sense making (Turner, 1976). Second, the social-political perspective suggests that an organization most likely will experience a crisis of leadership and cultural norms following a triggering event. Organizational leadership is likely to come under close scrutiny, and turnover of (or revolt against) leadership may be likely as well (Hurst, 1995).

## 8 challenges of crisis management

Third, organizational members are likely to question the organization's cultural beliefs and to feel a need for a transformation of the culture (Bartunek, 1984, 1988). Finally, the social-political perspective suggests that crisis management is unlikely to be successful without a reformation of organizational leadership and culture.

In summary, the social-political view on crisis characterizes the cause of a crisis as a collective breakdown in sense making and role structuring. The *consequence* is a meltdown of social order, followership, and commonly held values and beliefs, where extreme individualism, incivility, and violence may increase. Weick (1993) asserts that *caution* can be taken to prevent an organizational collapse, in the forms of improvisation, virtual role systems, the attitude of wisdom, and norms of respectful interaction. Conversely, Shrivastava et al. (1988) remind us that organizational crises frequently arise in societal economic strife, and they imply that collapse is to be expected, or seen as likely, under extreme conditions. By implication, *coping* would seem to involve collective behaviors, cognition, and emotions that rectify or reverse the breakdown in shared meanings, social order, and belief in leadership. Thus, the aftermath of a crisis includes the eventual collective adaptation and replacement of old practices and relationships. Having examined psychological and social-political views of crisis, we turn to technological-structural views on crisis.

### Technological-Structural Views on Crisis

Ever since the first stone tools appeared more than two million years ago in East Africa, humanity has evolved in tandem with tools and machines it has invented. But now the evolutionary tracks of humankind and technology are beginning to overlap so completely that the very meaning of "human being" may change. In this new relationship, technology is expanding humankind beyond the limits of flesh and blood, spawning a futuristic species that sees farther, runs faster, even lives longer than the standard, unalloyed biological human. (Calonius, 1996: 73)

This perspective, if somewhat exaggerated, represents the popular definition of technology as machine, as well as the fascination and belief in technology as a benefactor of a better, more productive future. However, from a crisis management perspective, technology has taken on a broader definition in two ways. First, technology is referred to not only as organizational machines and tools, but also as management procedures, policies, practices, and routines (Pauchant & Douville, 1994). Thus, we refer to this perspective as the "technological-structural perspective" on crisis to differentiate it from the more restrictive view of technology as machine or tool. Second, from a crisis management perspective, technology is seen as offering great advances in production while also creating the potential for grave destruction. Thus, rather than creating a "futuristic species that sees farther, runs faster, even lives longer than the standard, unalloyed biological human," technological-structural forces, if mismanaged, carry the potential to destroy a viable future.

In *Normal Accidents: Living with High-Risk Technologies*, Charles Perrow (1984) argues that high-risk technologies (such as nuclear power plants, chemical

refineries, and aircraft) are proliferating, creating a catastrophic potential for destruction. Although many improvements have been made in the functioning of such technologies, Perrow argues that a high potential for crisis is inherent in their characteristics. Specifically, high-risk technologies can be characterized by “interactive complexity” and “tight coupling.” Time is critically limited and other forms of resource slack generally are unavailable. As a consequence, a problem may escalate quickly if sufficient response systems have not been created. Systems characterized by interactive complexity and tight coupling, according to Perrow, are those within which disasters are “normal accidents”; in other words, “given the system characteristics, multiple and unexpected interactions of failures are inevitable” (Perrow, 1984: 6).

We start with a plant, airplane, ship, biology laboratory, or other setting with a lot of components (parts, procedures, operators). Then, we need two or more failures among components that interact in some unexpected way. No one dreamed that when X failed, Y would also be out of order and the two failures would interact so as to both start a fire and silence the alarm system. Furthermore, no one can figure out the interaction at the time and thus know what to do. The problem is just something that never occurred to the designers. (Perrow, 1984: 4)

Since Perrow’s work was published, several organizational disasters have validated his assertions. Analyses of conditions leading to these disasters enhance the literature on the technological-structural perspective. Studies of Union Carbide’s chemical leak in Bhopal, India (e.g., Bowonder & Linstone, 1987; Pauchant & Mitroff, 1992; Shrivastava, 1987), and of the explosion of the Space Shuttle Challenger (e.g., Starbuck & Milliken, 1988; Vaughan, 1990) show that, in both cases, a complex web of technical and structural factors created “vicious circles” (Pauchant & Mitroff, 1992) that were incomprehensible without a total systems perspective of the situation. In analyzing the Challenger disaster, Starbuck and Milliken (1988) suggest that excessive optimism and system pressures kept concerned parties from prohibiting liftoff. Vaughan (1990) also argues that effectiveness of management procedures, technological redesign, and surveillance by regulators were inhibited by structural failures in allowing problems to surface: “just as caution was designed into the NASA system, so was failure” (p. 252).

From a technological-structural perspective, the *cause* of a crisis is interactive, tightly coupled technologies that interact with managerial, structural, and other factors inside and outside the organization in potentially incomprehensible ways. Technologies sometimes cannot be avoided; therefore, *caution* should be taken in relying on high-risk technologies in the first place. Caution may take the form of enhanced structural system design (e.g., added physical protection, such as retention dikes or reinforcement walls) or organizational system design (e.g., corporate safety training programs or rewards for achieving site safety goals) so that an organization is “crisis-prepared” (Pauchant & Mitroff, 1992; Pearson & Mitroff, 1993), or caution may entail avoiding high-risk technologies altogether. The *consequence* of a disaster arising from the use of such a technology can be widespread destruction, including loss of life and livelihood, as well as devastation of the technological system that was a source of the disaster. *Coping* typically

would involve triage efforts associated with treatment of wounded individuals and recovery of tangible and intangible assets (such as organizational reputation, customer loyalty, and equipment and buildings).

### **A Multidimensional Definition of Organizational Crisis and Crisis Management**

We propose the following definitions in an attempt to explicitly integrate views of organizational crisis and crisis management from psychological, social-political, and technological-structural perspectives. We believe that these definitions reflect a comprehensive, multidimensional view of organizational crisis and crisis management.

*An organizational crisis is a low-probability, high-impact situation that is perceived by critical stakeholders to threaten the viability of the organization and that is subjectively experienced by these individuals as personally and socially threatening. Ambiguity of cause, effect, and means of resolution of the organizational crisis will lead to disillusionment or loss of psychic and shared meaning, as well as to the shattering of commonly held beliefs and values and individuals' basic assumptions. During the crisis, decision making is pressed by perceived time constraints and colored by cognitive limitations.*

*Effective crisis management involves minimizing potential risk before a triggering event. In response to a triggering event, effective crisis management involves improvising and interacting by key stakeholders so that individual and collective sense making, shared meaning, and roles are reconstructed. Following a triggering event, effective crisis management entails individual and organizational readjustment of basic assumptions, as well as behavioral and emotional responses aimed at recovery and readjustment.*

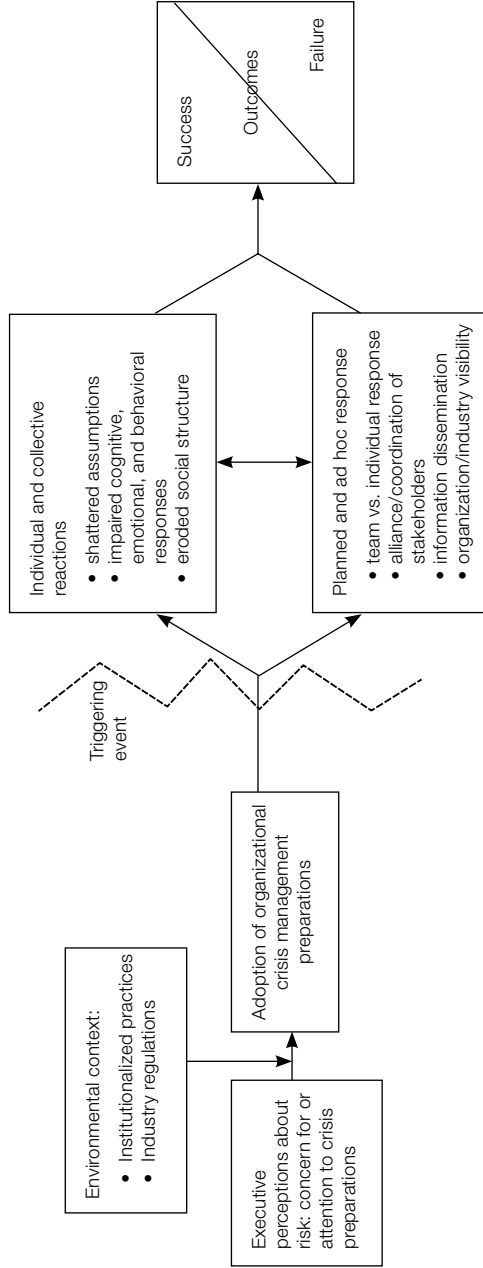
### **The Crisis Management Process: A Multidimensional Perspective**

In Figure 1 we provide our version of a comprehensive descriptive model of the crisis management process. This model moves beyond previous efforts by

- explicitly recognizing both subjective or perceptual components as well as objective components;
- acknowledging the complexity of outcomes;
- integrating previous models that dealt only with limited aspects rather than the entire crisis management process; and
- linking multidimensional views of crisis and crisis management drawn from psychological, social-political, and technological-structural perspectives.

We begin our presentation of the model by considering crisis management outcomes and then describe the contributing factors (first with “executives’ perceptions of risk”) that impact the degree of organizational success or failure from a crisis.





**Figure 1:** The crisis management process

## Crisis Management Outcomes: The Success-Failure Continuum

To begin, unlike our predecessors, we propose that any crisis process results in relative degrees of success *and* failure. The novelty, magnitude, and frequency of decisions, actions, and interactions demanded by a crisis suggest that no organization will respond in a manner that is completely effective or completely ineffective. Even when an organization is taken to task for mishandling the press, ignoring external stakeholders, or failing to notify regulators of a problem, it will have handled some elements of crisis management well. Conversely, even when the organization averts a crisis and learning leads to organizational improvement, there will be elements that could have been handled better. In contrast to our assertion, much of the literature treats organizational consequences in the event of a crisis as though alternative outcomes were dichotomous: the organization either failed (Perrow, 1984; Shrivastava, 1987; Turner, 1976; Vaughan, 1990; Weick, 1993) or (far less frequently documented) succeeded (e.g., Roberts, 1989) at managing any particular crisis incident. Evidence of organizational failure is plentiful, whether in loss of life, depletion of resources, contamination of the environment, or damage to organizational reputation. These outcomes are measurable, newsworthy, and visible to academics, the press, and the community; conversely, full success at crisis management is, by definition, invisible – to academics, the press, and the community.

Examples of success-failure outcomes from specific crises are available in the literature, but no one has, as yet, suggested a systematic, multidisciplinary perspective of the psychological, social-political, and technological-structural examples of success and failure, as well as midground outcomes. The lack of systematic inclusion and comparison of multidisciplinary views has stunted the field of crisis management. We provide in Table 2 examples of failure, success, and midground outcomes that draw from the assumptions of the psychological, social-political, and technological-structural perspectives.

As suggested in Table 2, the causes and consequences of a crisis may suggest failure, but the organization may, in fact, succeed at coping. For example, an organization faced with an explosion of a major product facility leading to a loss of human life may experience shattered assumptions, a collective breakdown in sense making and role structuring, and widespread destruction of the technological system. These losses would constitute upheaval of psychological, social-political, and technological-structural frames. But this same organization may experience cognitive readjustments or a transformation in individual and shared schemata (Bartunek, 1984). Behavioral responses to the crisis may restore individuals' sense of self-integrity and the social order, as well as create positive organizational change and enhanced organizational effectiveness.

*Proposition 1: An organizational crisis will lead to both success and failure outcomes for the organization and its stakeholders.*

Researchers of organizational crises have examined a variety of factors that contribute to crisis management success and failure. In particular, researchers have suggested that crisis preparedness starts with executive perceptions about risk and risk taking (Kets de Vries, 1984; Kets de Vries & Miller, 1986; Mitroff et al., 1996; Pauchant & Mitroff, 1992). If executives do not believe their organization

**Table 2:** Examples of crisis management success and failure outcomes

<i>Crisis concern</i>	<i>Failure outcomes</i>	<i>Midground outcomes</i>	<i>Success</i>
Signal detection	All signals of impending crisis go ignored Organization is caught completely unaware	Signals of potential crisis send organization into stage of alert	Signals are detected early so that the appropriate responses are brought to bear
Incident containment	Crisis escapes beyond boundaries of organization External stakeholders are negatively impacted	Damage to those beyond organization boundaries is slight	Major impact is totally confined within organization There is no stakeholder injury or death
Business resumption	All organization operations are shut down Down time is lost in bringing organization back into operation	Areas of operation most affected by crisis are closed temporarily Functional down time is minimal with little effect on product/service	Business is maintained as usual during and after the crisis There is no loss of product or service delivery
Effects on learning	No learning occurs Organization makes same mistakes when similar incident occurs	Learning occurs but its dissemination is spotty	Organization changes policies/procedures as a result of crisis Lessons are applied to future incidents
Effects on reputation	Organization suffers long-lasting negative repercussions Industry reputation suffers as a result of organization crisis Public perceives organization as a villain as a result of ineffective crisis management	Negative effects of crisis are short lived Public perceives errors in details of crisis management effort but continues to consume product/service as usual	Organizational image is improved by organization's effectiveness in managing crisis Organization is perceived as heroic, concerned, caring, and a victim
Resource availability	Organization scrambles but lacks essential resources to address crisis	Organization scrambles and scrapes by on own and others' ad hoc assistance	Organization or external stakeholders' resources are readily available for response
Decision making	Slow in coming because of internal conflicts Fantasy driven	Slow in coming because of extraorganizational constraints	Ample evidence of timely, accurate decisions Grounded in facts

vulnerable to crises, they will not allocate resources to prepare for that potential. Research from psychological, social-political, and technological-structural perspectives suggests the theoretical basis for executive perceptions of invulnerability when faced with low-probability risks. Because of the fundamental nature of this variable in determining potential outcomes from a crisis, we propose this to be the initiating factor in the model we present in Figure 1. We discuss the dynamics and theoretical underpinnings of this variable next.

#### Links among Executive Perceptions about Risk, Environmental Context, and Adoption of Organizational Crisis Management Preparations

Some have argued that there is often a match between executive mindset and the dominant values and cultures of the executives' organizations (e.g., Bennis & Nanus, 1985; Kanter, 1977; Kets de Vries & Miller, 1986; Martin, 1992).

For example, cultural beliefs about power exchanges and organizational reward systems can be influenced by the perceptions of executives (Deal & Kennedy, 1982; Kotter & Heskett, 1992). Similarly, executives' own abilities to deal with risk may impact their personal effectiveness as related to concerns that exceed the traditionally rational parameters of their organizations' cultures (Shapira, 1995). The match between executive mindset and culture is no less powerful for crisis management.

Perceptions of senior executives determine cultural beliefs in the organization about the value and need for crisis management (Pauchant & Mitroff, 1992). In organizations where executives believe that their company is relatively immune from crises, there will be fewer plans and procedures for crisis preparation and prevention. Many senior executives in industries in which crisis preparations are not regulated fail to perceive the importance of crisis management and early response (D'Aveni & MacMillan, 1990; Dutton & Duncan, 1987; Kiesler & Sproull, 1982; Nystrom & Starbuck, 1984). Even in industries that are regulated or where crisis management practices have been institutionalized, executive perceptions and the cultural environment must support crisis management for programs to be highly effective. The mere existence of policies and procedures may be false signals of preparedness. If executives and the organizational culture do not support crisis management activities, risk behaviors of employees may "mock" crisis management procedures and policies (Hynes & Prasad, 1997). Our discussion leads to the following proposition:

*Proposition 2: Executive perceptions about risk that can be characterized as ambivalence about or disregard for crisis preparations will hinder the adoption of organizational crisis management practices. Conversely, executive perceptions about risk that can be characterized as concern for or attention to crisis preparations will foster adoption of crisis management programs.*

The psychological, social-political, and technological-structural perspectives on crisis provide theoretical logic that predicts the likelihood executives will voluntarily prepare for a crisis. According to the cognitive psychological perspective:

Some people see potential crises arising and others do not; some understand technological and social changes and others do not. What people can see, predict, and understand depends on their cognitive structures – by which we mean logically integrated and mutually reinforcing systems of beliefs and values.... Not only do top managers' cognitive structures shape their own actions, they strongly influence their organization's actions. (Nystrom & Starbuck, 1984: 64)

Thus, if an executive's cognitive structures do not allow him or her to acknowledge the company's vulnerability to a crisis, preparations will be less likely. Repeated success experiences may also exacerbate disbelief, for each success may raise the extent to which an executive expects future successes (Starbuck & Milliken, 1988). Further, Bazerman (1990) suggests that managers judging risk may not cognitively appreciate the underlying nature of uncertainty. A desire to reduce uncertainty may, in fact, lead executives to frame decisions in ways that impair their judgment (Bazerman, 1990), leaving their organizations ill suited to invent crisis responses or to create crisis management procedures.

The psychoanalytic and trauma views also predict when executives will fail to acknowledge organizational vulnerability to harm. The trauma theory perspective suggests that the executive denies the organization's potential vulnerability to harm because the assumption that "bad things can't happen to me" has been generalized to the executive's organization. Furthermore, from the psychoanalytic perspective, acknowledging vulnerability to harm undermines potentially unconscious core aspects of the executive's personality. To protect themselves from psychic breakdown, executives use defense mechanisms (Pauchant & Mitroff, 1992). Field research provides more than 30 defensive rationalizations provided by executives – for example, "our size will protect us," "our employees are so dedicated that we can trust them without question," and "if a major crisis happens, someone will rescue us" (Pauchant & Mitroff, 1992).

The social-political and technological-structural perspectives explain how executive perceptions may translate into organization-level impact. Specifically, an executive's adherence to false perceptions may create a breakdown in collective sense making across the organization so that shared perceptions about risk and success do not align with the organization's situation (Turner, 1976). Too much reliance on the presumed safety of technologies or the presumed capabilities of damage containment mechanisms may be granted. We discuss the links between adoption of organizational crisis management preparations and reactions to a crisis event next.

#### Links between Adoption of Organizational Crisis Management Preparations and the Triggering Event

Our review of the psychological, social-political, and technological-structural perspectives on crisis supports the expectation that a variety of preparations is associated with more effective reactions. By thinking about and practicing responses to various incidents, organizations build agility. From a psychological perspective, training that emphasizes the cognitive limitations and those personality orientations that might inhibit effective crisis management and training that prescribes strategies to overcome these limitations would seem to enhance preparation. Developing methods for coping with physical and mental trauma following a crisis seems to be a key approach (Smart & Vertinsky, 1977). Similarly, the social-political perspective reinforces portfolio strategies to mitigate against erosions in sense making and structure that might lead to or exacerbate a crisis (e.g., Weick, 1993). Finally, the technological-structural perspective suggests that organizations contemplate the variety of ways in which technological advances could exacerbate losses so that fail-safe and safe-fail systems can be created. These multiple perspectives, in total, suggest the potential for synergistic planning and adaptation.

Despite the logic of these arguments, many organizations implement no or few crisis preparations (Mitroff et al., 1996). The theoretical perspectives we discussed earlier predict the underpinnings of this tendency. Executives and managers can develop too much faith (and a false sense of security) in their abilities to successfully prevent dangers when some level of crisis management preparation is adopted. Limited preparation actually may reinforce assumptions of invulnerability if leaders assume preparedness and, therefore, reduce organizational vigilance. A pattern of repeated successes at managing problems with limited crisis management

preparations also may create a comfort zone, leading executives and managers to lose any fears of problems and to become (over)confident of their own actions and decisions (Starbuck & Milliken, 1988). Ultimately, such managers may find themselves held captive by the “failure of success,” believing that solutions will always emerge because they always have in the past (Kets de Vries, 1991). We offer the following proposition regarding the relationship between vulnerability and preparation:

*Proposition 3: A modest amount of crisis preparation likely will lead executives to believe that their organization is no longer vulnerable to a crisis.*

No matter how many preparations an organization makes, victims’ and other organizational stakeholders’ responses to crisis will involve individual and collective cognitive, emotional, and behavioral reactions. Furthermore, an organization must put its crisis plans into action, as well as develop ad hoc responses in the face of unexpected occurrences. These reactions, both expected and unexpected and planned and ad hoc, will most directly influence the degree of success and failure outcomes. Next, we discuss the final linkages in Figure 1: victims’ and others’ responses to a crisis, implementation of planned and ad hoc responses, and the success-failure continuum.

#### Cognitive, Emotional, and Behavioral Responses

As we argued above, when a traumatic event occurs, individuals’ assumptions often are shattered (Janoff-Bulman, 1992). Regarding organizational crises, a triggering event similarly impacts the organization and its members. Victims experience a heightened sense of vulnerability, and their sense making and rationality are impaired (Weick, 1993). Whereas a group or organization, prior to a triggering event, may have had a shared sense of meaning, it now may experience disillusion or a void of meaning (Parry, 1990). Victims may seek revision to or full revamping of the social order, and dissatisfaction with existing roles or leadership may occur (Habermas, 1975). We addressed these issues in more detail earlier in the article, but since they have not been validated in the organizational crisis management literature, we offer the following proposition:

*Proposition 4: The erosion of individual and shared assumptions during a crisis by victims and other organizational stakeholders is likely to lead to greater failure outcomes and less success outcomes.*

A triggering event also motivates organizational action. Both planned and ad hoc reactions are likely to occur, given the unique characteristics (and, therefore, the unpredictability) of each new crisis. In particular, we assert that four aspects of these planned and ad hoc responses will influence the degree of organizational crisis management success: (1) team versus individual responses, (2) alliance and coordination of stakeholders, (3) information dissemination, and (4) organization or industry visibility. Although these responses do not represent all those possible, research implies that they are among the most important.

**Team versus individual response.** Although empirical research is lacking, some scholars have suggested that an important step toward successful outcomes from a crisis event is to develop a crisis management team composed of senior-level

experts (Lagadec, 1993; Mitroff & Pearson, 1993; Mitroff et al., 1996). Research on teams and groups may provide some support for this idea. Regarding the crisis management team, it may facilitate decision making and actions by accelerating the flow of information and resources during a crisis (Mitroff & Pearson, 1993). In support of this assertion, researchers demonstrate that the outcomes of an effective team generally exceed the sum of the isolated individual contributions of its members (e.g., Hill, 1981; Zander, 1982).

Specifically, group efforts tend to succeed when the burdens of making decisions and taking actions are distributed collectively among all members (Zander, 1982). Effective group effort increases the variety of perspectives and skills available, fosters synergistic contributions, and facilitates access to essential resources. The technological-structural perspective suggests that sense making across multiple dimensions will be facilitated by a diversity of relevant perspectives that capture the interactive, coupled interfaces of key stakeholders. The true character of crisis may emerge only through those with varied perspectives. Despite potential process losses (e.g., in coordinating group input and decision making), group contributions and interactions increase the prospect that success outcomes will exceed failure outcomes, as reflected in Proposition 5:

*Proposition 5: Those organizations in which the responsibility for crisis preparation and response rests with crisis management teams will experience greater success outcomes when managing crises than will those organizations in which crisis management responsibility rests with an individual.*

**Alliance and coordination of stakeholders.** An organization may disperse the information needed for decision making and action in response to a crisis among a variety of internal and external individuals, groups, and organizations (Turner, 1976). An organization's adroitness in predicting the nature of its interactions with key stakeholders in a crisis situation is thought to enhance its ability to contain the crisis, to resume business, and to learn from the crisis (Mitroff & Kilmann, 1984; Mitroff, Mason, & Pearson, 1994). Frequently, in the heat of a crisis, an organization's access to stakeholders diminishes because of a heightened sense of time limitations and intensified publicity. The immediacy of response needs may inhibit the organization's ability to access stakeholders, and the threat of "bad press" and guilt by association may stifle stakeholder support (Susskind & Field, 1996).

In such situations where access is limited, accurate assumptions about critical stakeholders can mean the difference between continued organizational successes and organizational failures (Mitroff & Kilmann, 1984). In particular, some researchers have asserted that organizations benefit by understanding how key stakeholders might react to a crisis, what resources and information stakeholders might have available to assist in the management of a crisis, how stakeholders might be impacted by the crisis, and how stakeholders might exert a negative impact on the organization's ability to manage the crisis (Mitroff et al., 1996). If individuals in the affected organization have established links to key stakeholders before the crisis, they may be more successful at averting or managing potential miscommunications and attaining critical, elusive information (Mitroff & Pearson, 1993; Susskind & Field, 1996).

However, negative events are likely in the heat of a crisis. Otherwise cordial stakeholder links may become adversarial, for the simultaneous, stressful interaction within and outside an organization during a crisis can promote conflict (Mitroff & Kilmann, 1984). As suggested by the social-political framework, the result of an absence or breakdown in shared meanings may be a lack of consensual leadership (Lagadec, 1993), or existing leadership may weaken and become less effective (Habermas, 1975). During a crisis, decisions ideally delegated to senior executives may fall to lower level employees in the absence of their superiors. And even when present during the crisis, senior decision makers may cede to physical or emotional exhaustion (Quarantelli, 1988) or may lack sufficient technical knowledge. For all these reasons, linkages should be tested before the advent of a crisis – prior to developing adamant commitment to a specific course of action. If activities and roles are practiced under simulated exigency, participating stakeholders may more easily expand their perspectives, thereby increasing the probability that they will seize opportunities for action and intervention in preparation for or during containment of an actual crisis (Weick, 1988). Building on a tenet of instrumental stakeholder theory, corporations would do well not only to choose their partners carefully (Donaldson & Preston, 1995; Jones, 1995) but also to enhance partner relationships (Mitroff et al., 1994).

The corporation engaged in crisis management risks its reputation beyond the boundaries of those directly affected by the incident. Unmanaged or inappropriately managed stakeholder interdependence may obstruct crisis management efforts. The effect is captured in Figure 1, where alliances and coordination with external stakeholders affect the relationship among implementation of responses, the influence of stakeholders, and the success/failure outcome. Interdependence among stakeholders may reduce the benefit of preparations that have not been practiced with external stakeholders, thus reducing the probability of success. Procedures carefully orchestrated internally may be spoiled when an organization implements them in collaboration with uninitiated external stakeholders. As suggested by the social-political perspective, crisis management will require improvisation and the implementation of relevant virtual role systems. These actions emerge from collective sense making, which may require a new, collective sense of leadership and followership. We summarize the effect of stakeholder interdependence on crisis management in the following proposition:

*Proposition 6: Those organizations building alliances and achieving coordination by sharing information and plans with external stakeholders prior to a crisis will experience greater success outcomes and less failure outcomes in crisis management than will those organizations lacking such alliances.*

**Information dissemination.** When an organization is faced with a crisis, it must share critical information with key stakeholders. For example, D’Aveni and MacMillan (1990) note that firms that failed as a result of market downturns were less likely to have effectively and appropriately managed information flow than were surviving firms. In crisis, if an organization neither confirms nor denies information about critical incidents, rumors may fill the void and amplify the threat (Susskind & Field, 1996; Turner, 1976; Weick, 1988). The crisis of TransWorld Airways (TWA) flight 800 provides us with a recent example. Following the



incident, the media criticized TWA for not providing timely information to the victims' families. Although the cause of the accident had not been discovered, TWA's failure to provide consistent information or concrete data about the crisis kept the company in an unfavorable media spotlight for months. Lack of accurate, timely information spurred rumors about the cause of the incident (ranging from terrorist bombing to mechanical failure to missile attack) when there was, in this particular case, no information that TWA could have provided to satisfy the media.

From the psychological perspective, by sharing information about the causes, consequences, and coping strategies regarding a crisis, an organization may facilitate reconstruction of individuals' shattered assumptions by reducing self-blame and reversing fears of helplessness. From the social-political perspective, sharing information may lead to new values and beliefs that could reverse the breakdown of social order caused by the crisis and from the technological-structural perspective, disseminating information can help stakeholders to better understand, prepare for, and cope with the potential dangers of technology. These assertions lead to the next proposition:

*Proposition 7: Crisis management efforts will be more successful if information is disseminated quickly, accurately, directly, and candidly to critical stakeholders.*

**Organization and industry visibility.** The media have become highly influential interpreters of crises by filtering or framing their perspectives, often with a tendency to reinforce existing public biases (Nelkin, 1988). Organizations generally held in public favor before a crisis will be allowed more latitude regarding their crisis management efforts; those generally disfavored before the crisis will be judged with closer scrutiny (Barton, 1993). Existing public attitudes toward an organization or its industry will tend to bias the media's perceptions (Douglas & Wildevsky, 1982; Nelkin, 1988). Public attention to an issue (or the threat thereof) tends to drive organizational response to the issue (Dutton & Duncan, 1987).

Organizations may attempt to affect media coverage by developing positive relationships with media representatives prior to any incident and by endeavoring to appear honest, cooperative, and forthcoming with information during incidents (Susskind & Field, 1996). In light of the social-political perspective, the upheaval of the social order caused by crisis may be calmed by asserting new values and beliefs or by reaffirming the viability of existing values and beliefs. These outcomes ultimately may influence public perceptions of the extent of organizational success or failure at crisis management. Our final proposition summarizes this relationship:

*Proposition 8: The visibility of the affected organization or the affected industry will influence success outcomes so that positive exposure will increase crisis management success outcomes and negative exposure will increase crisis management failure outcomes.*

In writing this article, we have attempted to integrate conceptual and empirical contributions to the study and practice of crisis management. We have presented a comprehensive framework that incorporates additional disciplinary perspectives regarding crisis management success and failure and have attempted to integrate

and frame current knowledge regarding organizational crisis management by offering propositions and linking crisis management constructs. We now offer suggestions for future research and practical implications.

### **Implications for Research and Practice**

The impact of organizational crises has never been stronger: measurable damage from incidents seems to be greater than in the past, whether quantified as the extent of ecological destruction or the breadth of product contamination impact (Lagadec, 1993). As interest among academics and practitioners grows, extensive additional research is needed to better inform those who study organizational crises and to better assist those who manage them.

The crisis management literature, although replete with speculation and prescription, has undergone scant empirical testing. Many of the specific variables of the model we present here previously have not been operationalized. Primary linkages among key crisis management variables remain virtually untested. Yet individual lives and organizational viability rest on the accuracy of assumptions. The need for additional empirical research is obvious.

One distinct advantage of our model is that it offers the possibility of both success and failure components as outcomes of the crisis management process. This shift in perspective allows practitioners and academics to acknowledge particular foibles of crisis management experiences without condemning the entire process. Allowing for elements of success *and* failure reduces the need for organizations to protectively mask the details of imperfect decisions or actions. If the details of failure within success are made more conspicuous, lessons for research and practice will be enhanced: the whole picture can emerge.

For those interested in innovative research approaches, rigorous content and contextual analysis of media coverage of organizational crisis events could provide important data about the effects of visibility. These data might be drawn, for example, from a Lexus/Nexus study. This approach offers an option to researchers who are unable to access data while the organization is in the throes of a crisis. Some success and failure outcomes could be measured absent direct organizational access.

For those intrigued by the relationship among the executive mindset, the adoption of organizational practices, and the influence of the environmental context, a longitudinal approach seems promising. Observation and inquiry in crisis management teams regarding decision-making processes would provide insight into this relationship. The enduring interest in the role of leadership makes crisis management teams a fine population for study. Specific questions might explore whether leadership skills, strategies, and approaches that are required during crises mirror those that are effective during normal operations.

We hope that our exploration into the literature in related fields outside management might expand the interest of management and organization scholars regarding organizational crisis management. Those interested in the psychological view might consider how individuals' perceptions before, during, and after crises are mediated by organizational intervention, or how the experience of trauma affects individuals' work styles and commitment. Scholars interested in the social-political perspective might consider how the void created by disillusionment and

disbelief is filled by organizational leaders. From the technological-structural viewpoint, researchers might explore how organizations factor the potential direct and indirect costs of technological disaster into their adoption decisions.

Finally, we cannot overstate the challenges of doing crisis management research. Organizational crises are, by definition, infrequent events. When they do occur, organizations are reluctant to open current or past “wounds” to external examination and speculation. Furthermore, in the worst cases evidence blurs or dissipates as the afflicted organization is reconfigured or dies. In the best cases success at crisis management goes unrecognized by publicly accessible sources and, sometimes, by internal members of the organization. In other cases organizations that survive crises tend to be reluctant to share perspectives, perceptions, and lessons learned with the uninitiated: gaining insider information about crisis management activities seems to require a history of interaction between the afflicted organization and the researcher and a track record of trustworthiness. These qualifications require captivated academics to nurture long-term, ongoing, unobtrusive relationships with targeted organizations.

Given the outcomes at stake, the most important implication for academic and practical endeavors is that crisis management research must fit the reality of practice. We urge researchers drawn to the study of crises and crisis management to make the efforts required to collaborate with those who actually put crisis management into effect. What is yet to be learned and disseminated by researchers and managers regarding crisis management is of vital importance to organizations. Effective crisis management can mean the difference between life and death to organizations, to product or service divisions, and to individual employees. Yet, as we have argued, relatively few lessons or assumptions regarding organizational crises and their management have been carefully examined empirically. In the meantime, the prevalence of untested prescriptions seems to match the contention that crisis management is a growth industry. Ensuring the accuracy and impact of this field – for both research and practice – demands concerted bridging between academics and managers. The stakes at risk warrant no less.

### Acknowledgements

The authors contributed equally to the considerable revisions inspired by the comments of the live anonymous reviewers. We also acknowledge our deep appreciation to Lynne Andersson, Jean Bartunek, Tom Bateman, and Courtney Hunt, whose thoughtful feedback on earlier versions of this article enhanced it greatly.

### References

- Aguilera, D. C. 1990. *Crisis intervention: Theory and methodology* (6th ed.). St. Louis: Mosby.
- Barton, L. 1993. *Crisis in organizations: Managing and communicating in the beat of chaos*. Cincinnati: South-Western.
- Bartunek, J. 1984. Changing interpretive schemes and organizational restructuring: The example of a religious order. *Administrative Science Quarterly*, 29: 355–372.
- Bartunek, J. 1988. The dynamics of personal and organizational reframing. In R. E. Quinn & K. S. Cameron (Eds.), *Paradox and transformation: Towards a theory of change in organization and management*: 137–162. Cambridge, MA: Ballinger.

- Baum, A., Fleming, R., & Singer, J. E. 1983. Coping with victimization by technological disaster. *Journal of Social Issues*, 39: 119–140.
- Bazerman, M. H. 1990. *Judgment in managerial decision making* (2nd ed.). New York: Wiley.
- Bennis, W., & Nanus, B. 1985. *Leaders: The strategies for taking charge*. New York: Harper-Perennial.
- Bowlby, J. 1969. *Attachment and loss. Volume 1: Attachment*. London: Hogarth.
- Bowonder, B., & Linstone, H. 1987. Notes on the Bhopal accident: Risk analysis and multiple perspectives. *Technological Forecasting and Social Change*, 32: 183–202.
- Browne, M. 1989. Oil on surface covers deeper threat. *New York Times*, March 31: 12.
- Bulman, R. J., & Wortman, C. B. 1977. Attributions of blame and coping in the “real world”: Severe accident victims react to their lot. *Journal of Personality and Social Psychology*, 35: 351–363.
- Calonius, E. 1996. Technosapiens: The convergence of humans and technology. *Fortune*, July 8: 73.
- D’Aveni, R., & MacMillan, I. 1990. Crisis and the content of managerial communications: A study of the focus of attention of top managers in surviving and failing firms. *Administrative Science Quarterly*, 35: 634–657.
- Deal, T. E., & Kennedy, A. A. 1982. *Corporate cultures*. Reading, MA: Addison-Wesley.
- Deutsch, C. 1989. The giant with a black eye. *New York Times*, April 2: 1.
- Donaldson, T., & Preston, L. E. 1995. The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20: 65–91.
- Douglas, M., & Wildesky, A. 1982. *Risk and culture*. Berkeley, CA: University of California Press.
- Dutton, J. E. 1986. The processing of crisis and non-crisis strategic issues. *Journal of Management Studies*, 23: 501–517.
- Dutton, J. E., & Duncan, R. B. 1987. The creation of momentum for change through the process of strategic issue diagnosis. *Strategic Management Journal*, 8: 279–295.
- Epstein, S. 1980. The self concept: A review and the proposal of an integrated theory of personality. In E. Staub (Ed.), *Personality: Basic issues and current research*. Englewood Cliffs, NJ: Prentice-Hall.
- Fink, S., Beak, J., & Taddeo, K. 1971. Organizational crisis and change. *Journal of Applied Behavioral Science*, 7: 15–37.
- Fortune*, 1989. In ten years you’ll see ‘nothing.’ May 8: 8.
- Gephart, R. P. 1984. Making sense of organizationally based environmental disasters. *Journal of Management*, 10: 205–225.
- Goodpaster, K. E., & Delehunt, A. K. 1989. *Exxon Corp.: Trouble at Valdez*. Boston: Harvard Business School Press.
- Habermas, J. 1975. *Legitimation crisis*. Boston: Beacon Press.
- Halpern, J. 1989. Cognitive factors influencing decision making in a highly reliable organization. *Industrial Crisis Quarterly*, 3: 143–158.
- Hermann, C. F. 1963. Some consequences of crisis which limit the viability of organizations. *Administrative Science Quarterly*, 8: 61–82.
- Hill, G. W. 1981. Group versus individual performance. *Psychological Bulletin*, 91: 517–539.
- Horowitz, M. J. 1983. Psychological response to serious life events. In S. Breznitz (Ed.), *The denial of stress*. New York: International Universities Press.
- Hurst, D. K. 1995. *Crisis and renewal*. Boston: Harvard Business School Press.
- Hynes, T., & Prasad, P. 1997. Patterns of ‘mock bureaucracy’ in mining disasters: An analysis of the Westray coal mining explosion. *Journal of Management Studies*, in press.
- Jackson, S. E., & Dutton, J. E. 1987. Categorizing strategic issues: Links to organizational action. *Academy of Management Review*, 12: 76–90.
- Janott-Bulman, R. 1992. *Shattered assumptions*. New York: Free Press.
- Janott-Bulman, R., & Frieze, I. H. 1983. A theoretical perspective for understanding reactions to victimization. *Journal of Social Issues*, 39: 1–17.
- Jones, T. 1995. Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review*, 20: 404–437.
- Kanter, R. M. 1977. *Men and women of the corporation*. New York: Basic Books.
- Kets de Vries, M. 1984. *The neurotic organization*. San Francisco: Jossey-Bass.

- Kets de Vries, M. 1991. *Organizations on the couch*. San Francisco: Jossey-Bass.
- Kets de Vries, M., & Miller, D. 1986. Personality, culture and organization. *Academy of Management Review*, 11: 266–279.
- Kiesler, S., & Sproull, L. 1982. Managerial response to changing environments: Perspectives on problem sensing from social cognition. *Administrative Science Quarterly*, 27: 548–570.
- Kotter, J. P., & Heskett, J. L. 1992. *Corporate culture and performance*. New York: Free Press.
- Lagadec, P. 1990. Communication strategies in crisis situations. *Industrial Crisis Quarterly*, 1: 19–26.
- Lagadec, P. 1993. *Preventing chaos in a crisis*. London: McGraw-Hill.
- Lazarus, R. S., & Alfert, E. 1964. The short-circuiting of threat. *Journal of Abnormal and Social Psychology*, 69: 195–205.
- Lazarus, R. A., Speisman, J. C., Mordkoff, A. M., & Davison, L. A. 1962. A laboratory study of psychological stress produced by a motion picture. *Psychological Monographs*, 76: 553.
- Lehman, D. R., Wortman, C. B., & Williams, A. F. 1987. Long-term effects of losing a spouse or child in a motor vehicle crash. *Journal of Personality and Social Psychology*, 52: 218–231.
- Martin, J. 1992. *Cultures in organizations: Three perspectives*. New York: Oxford University Press.
- Meyers, G. C. 1986. *When it hits the fan: Managing the nine crises of business*. New York: Mentor.
- Mitroff, I. I., & Kilmann, R. H. 1984. *Corporate tragedies: Product tampering, sabotage, and other catastrophes*. New York: Praeger.
- Mitroff, I. I., Mason, R. O., & Pearson, C. M. 1994. *Framebreak*. San Francisco: Jossey-Bass.
- Mitroff, I., Pauchant, T., & Shrivastava, P. 1988. Conceptual and empirical issues in the development of a general theory of crisis management. *Technological Forecasting and Social Change*, 33: 83–107.
- Mitroff, I. I., & Pearson, C. M. 1993. *Crisis management*. San Francisco: Jossey-Bass.
- Mitroff, I. I., Pearson, C. M., & Harrigan, L. K. 1996. *The essential guide to managing corporate crises*. New York: Oxford University Press.
- Morris, P. 1975. *Loss and change*. Garden City, NY: Anchor/Doubleday.
- Nelkin, D. 1988. Risk reporting and the management of industrial crises. *Journal of Management Studies*, 25: 341–351.
- Nulty, P. 1990. Exxon's problem: Not what you think. *Fortune*, April 23: 204.
- Nystrom, P. C., & Starbuck, W. 1984. To avoid organizational crises, unlearn. *Organizational Dynamics*, 12: 53–65.
- O'Connor, J. 1987. *The meaning of crisis*. New York: Basil Blackwell.
- Parks, C. M. 1971. Psycho-social transitions: A field study. *Social Science and Medicine*, 5: 101–115.
- Parry, G. 1990. *Coping with crises*. New York: Routledge.
- Pauchant, T. C., & Douville, R. 1994. Recent research in crisis management: A study of 24 authors' publications from 1986 to 1991. *Industrial and Environmental Crisis Quarterly*, 7: 43–61.
- Pauchant, T., & Mitroff, I. 1992. *Transforming the crisis-prone organization*. San Francisco: Jossey-Bass.
- Pearson, C., & Mitroff, I. 1993. From crisis-prone to crisis-prepared. *Academy of Management Executive*, 7: 48–59.
- Perrow, C. 1984. *Normal accidents: Living with high-risk technologies*. New York: Basic Books.
- Quarantelli, E. I. 1988. Disaster crisis management: A summary of research findings. *Journal of Management Studies*, 25: 373–385.
- Roberts, K. 1989. New challenges in organizational research: High reliability organizations. *Industrial Crisis Quarterly*, 3: 111–125.
- Roberts, K. 1990. Some characteristics of high reliability organizations. *Organization Science*, 2: 160–176.
- Roberts, K. 1993. *New challenges to understanding organizations*. New York: Macmillan.
- Schwartz, H. S. 1987. On the psychodynamics of organizational disaster: The case of the space shuttle Challenger. *Columbia Journal of World Business*, 22: 59–68.
- Shapira, Z. 1995. *Risk taking: A managerial perspective*. New York: Russell Sage Foundation.
- Shrivastava, P. 1987. *Bhopal: Anatomy of a crisis*. New York: Ballinger.
- Shrivastava, P. 1993. Crisis theory/practice: Towards a sustainable future. *Industrial and Environmental Crisis Quarterly*, 7: 23–42.

## 24 challenges of crisis management

- Shrivastava, P., Mitroff, I., Miller, D., & Miglani, A. 1988. Understanding industrial crises. *Journal of Management Studies*, 25: 285–303.
- Slaikue, K. A. 1990. *Crisis intervention*. Boston: Allyn and Bacon.
- Smart, C., & Vertinsky, I. 1977. Designs for crisis decision units. *Administrative Science Quarterly*, 22: 640–657.
- Speisman, J. C., Lazarus, R. S., Davison, L. A., & Mordkoff, A. M. 1964. Experimental analysis of a film used as a threatening stimulus. *Journal of Consulting Psychology*, 28: 23–33.
- Starbuck, W. H., & Milliken, F. J. 1988. Challenger: Finetuning the odds until something breaks. *Journal of Management Studies*, 25: 319–340.
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. 1981. Threat-rigidity effects in organizational behavior: A multi-level analysis. *Administrative Science Quarterly*, 26: 501–524.
- Stubbart, C. 1987. Improving the quality of crisis thinking. *Columbia Journal of World Business*, 22(Spring): 89–99.
- Susskind, L., & Field, P. 1996. *Dealing with an angry public*. New York: Free Press.
- Taylor, S. 1983. Adjustment to threatening events. *American Psychologist*, 38: 1161–1173.
- Turner, B. 1976. The organizational and interorganizational development of disasters. *Administrative Science Quarterly*, 21: 378–397.
- Vaughan, D. 1990. Autonomy, interdependence and social control: NASA and the space shuttle Challenger. *Administrative Science Quarterly*, 35: 225–257.
- Weick, K. E. 1988. Enacted sensemaking in crisis situations. *Journal of Management Studies*, 25: 305–317.
- Weick, K. E. 1989. Mental models of high reliability systems. *Industrial Crisis Quarterly*, 3: 127–142.
- Weick, K. E. 1993. The collapse of sensemaking in organizations: The Mann Gulch disaster. *Administrative Science Quarterly*, 38: 628–652.
- Zander, A. 1982. *Making groups effective*. San Francisco: Jossey-Bass.

## Toward a Systemic Crisis Management Strategy: Learning from the Best Examples in the US, Canada and France

**Thierry C. Pauchant, Ian I. Mitroff and Patrick Lagadec**

**Source:** *Industrial Crisis Quarterly*, 5(3) (1991): 209–232.

### Introduction

Efforts in crisis management (CM) are currently underdeveloped. For example, in a survey of *Fortune 500* firms in the US, Fink (1986) found that 50% of these firms did not have any CM plans; Reilly (1987), from a sample of 70 organizations, found that these firms were generally only slightly prepared for a crisis and that their managers complained about their lack of information in the domain; and Mitroff et al., (1988a,b), in a survey of 114 *Fortune 1000* firms, found that only 38% of them had institutionalized a crisis management unit, one of the most obvious first actions to be developed in the area. A similar situation seems to exist in Europe and Canada (Lagadec, 1990, 1991; Pauchant and Cotard, forthcoming).

Further, a number of researchers have observed that, currently, many managers still focus on the reactive and/or the technical sides of crisis management (Nystrom and Starbuck, 1984; Reilly, 1987; Shrivastava et al., 1988; Linstone, 1989; Pauchant and Mitroff, in press). While these aspects are evidently important, they constitute only a part of a total and systemic CM effort. As we will argue in this article, managers focusing only on these two issues confuse crisis management with what could be called “crash management”, i.e. what to do *after* a crisis has happened, or with “security management”, i.e. the use of technical or technological mechanisms. Challenging these fragmented perspectives, many researchers from different fields have emphasized that the development of human-induced crises as well as efforts in CM were systemic in nature (Maruyama, 1963; Hall, 1976; Morin, 1976; Turner, 1976; Forester, 1979; Nystrom and Starbuck, 1984; Perrow, 1984; Masuch, 1985; Bowonder and Linstone, 1987; Shrivastava, 1987; Hambrick and D’Aveni, 1988; Lagadec, 1988a; Linstone, 1989; Pauchant and Mitroff, 1990; Schwartz, 1990). While these authors often emphasize different aspects of what is meant by “systemic”, they share a number of common themes. For example, they argue that the development of human-induced crises has to be seen in a historical context of systemic relationships of tight-coupling and complexity: they stress that crises not only affect an organization globally but also affect its stakeholders and its total environment; they argue that CM should not focus on technical matters only but rather should address the complex interrelationships existing between human and technical systems, both before and after a crisis: they stress that the experience of a crisis challenges a number of strategic basis assumptions and can lead managers to positively modify their behaviors: and so on.

In this article, we summarize a list of CM efforts presently implemented by managers who have taken such a systemic perspective. This list can thus assist managers in evaluating their current CM efforts, judging if they are more “fragmented” or “systemic” in nature. Of course, we are not proposing that this list is definitive, optimal or exhaustive, its use guaranteeing that managers will never experience any crisis whatsoever. Currently, the field of CM is still in its infancy and we lack a rigorous theory in “crisiology”, i.e. a grounded understanding of both the origin of crises and of the actions to be implemented in CM (Morin, 1976; O’Connor, 1987; Mitroff et al., 1988a; Shrivastava et al., 1988). Thus, the list should rather be seen as the set of current actions implemented by managers who have adopted a systemic perspective and who attempt with all their might to both reduce the frequency and the impact of industrial crises.

### **The Five “Families” of Crisis Management**

In 1988, through a questionnaire sent under the auspices of the US National Manufacturing Association (NAM), we found that CM efforts can be regrouped in five specific but highly interrelated “clusters” or “families”, as indicated in Table 1: (1) Strategic efforts; (2) Technical and structural efforts; (3) Efforts in evaluation and diagnosis; (4) Communicational efforts; and (5) Psychological and cultural efforts. This typology was established through the use of very sophisticated statistical analyses and has been discussed in two other publications (Mitroff et al., 1988a,b). Since conducting this research, and in an attempt to better understand the content of each family and its degree of effectiveness, we have conducted a total of 350 confidential interviews with executives, managers, professionals and employees responsible for CM in 120 large, *Fortune 1000*-type organizations. These organizations span the quasi-totality of industries in manufacturing, services and information. Also our research cut across national boundaries as we have combined our findings from the US (200 interviews), Canada (100) and France (50). Each interview was conducted face-to-face, lasted an average of one hour, and was guided by a questionnaire agenda. While we cannot reveal the names of these organizations for reasons of confidentiality, except when they have been explicitly mentioned in the media, we will identify the specific industry for each example given. The reader will find in-depth discussions of these interviews in four recent books: Lagadec (1990, 1991); Mitroff and Pauchant (1990); and Pauchant and Mitroff (in press).

### **Strategic Efforts**

Of the 120 companies in which we conducted our interviews, only 10% could be considered as having developed a “systemic” strategy in CM, i.e. had seriously implemented at least one effort in each of the five families described in Table 1. We have labeled these organizations “crisis-prepared” as opposed to “crisis-prone”, where managers have focused their efforts on a limited number of families, if they had implemented any CM efforts at all. What has become increasingly clear from these interviews is that one of the clearest factors that distinguishes the managers



**Table 1:** Toward a systemic crisis management strategy**Strategic efforts**

1. Drastic changes in corporate philosophy
2. Integration of Crisis Management (CM) into corporate excellence
3. Integration of CM into the strategic planning process
4. Inclusion of outsiders on board, crisis management unit (CMU), etc.
5. Training and workshops in CM
6. Crises simulations
7. Diversification and portfolio strategies

**Technical and structural efforts**

8. Creation of a CMU
9. Creation of dedicated budget for CM
10. Developing and changing emergency policies and manuals
11. Computerized inventories of plants' employees, products and capabilities
12. Creation of an emergency room or facility
13. Reduction of hazardous products, services and productions
14. Improved overall design and safety of products and production
15. Technological redundancy, such as computer backup
16. Use of outside expert and services in CM

**Evaluation and diagnosis efforts**

17. Legal and financial audit of threats and liabilities
18. Modifications in insurance coverage
19. Environmental impact audit and respect of security norms
20. Ranking of most critical activities necessary for daily operation
21. Early warning signals detection, scanning, Issues Management
22. Dedicated research on potential hidden dangers
23. Critical follow-up of past crises

**Communicational efforts**

24. Media training for CM
25. Major efforts in public relations
26. Increased information to local communities
27. Increased relationships with intervening groups (police, media, etc.)
28. Increased collaboration or lobbying among stakeholders
29. Use of new communication technologies

**Psychological and cultural efforts**

30. Strong top management commitment to CM
31. Increased relationships with activist groups
32. Improved acceptance of whistleblowers
33. Increased knowledge of criminal behavior
34. Increased visibility of crises' human impact to employees
35. Psychological support to employees
36. Stress management and management of anxiety
37. Symbolic reminding of past crises and dangers

of crisis-prepared organizations from those managing crisis-prone organizations is their overall view of CM. Crisis-prepared managers do not consider CM a cost. Rather, they view it as a moral and strategic necessity. This drastic shift in corporate philosophy (see point 1 in Table 1) is perhaps one of the most difficult tasks to be accomplished in developing a systemic strategy in CM. Specifically, it means that executives in crisis-prepared organizations not only consider their firms as productive systems but as potentially, destructive systems as well (Shrivastava et al., 1988; Pauchant and Mitroff, in press). As a consequence of this shift, these executives not only debate issues surrounding success, leadership, growth and excellence, they also debate issues surrounding potential failure, breakdowns, decay and death. Note that we are not saying that these executives have developed a morbid culture in their organizations, mulling endlessly over failures, disasters

and catastrophes. But, as we will see reflected in the content of Table 1, these executives have developed a number of specific capabilities for imagining the worst, the unthinkable, the anxiogenic, the unspeakable, in an attempt to manage crises should they occur, or, still better, to prevent, when possible, their happening in the first place.

This shift in corporate philosophy has a major impact on the definition of corporate excellence (see point 2). As stressed by an executive in a chemical company: "We not only have the responsibility of bringing to our customers the best products possible at a competitive price. We also need to protect them from their dangerous sides." Crisis-prepared managers have made substantive changes in the nature of their products and of their productions in order to adhere to this new view of corporate excellence. For example, Johnson and Johnson (J&J), has abandoned the production of Tylenol as a capsule: others in the food and pharmaceutical industries have developed anti-tampering packaging; a chemical firm has divested itself of its production of aerosol products, in view of their negative global impact on the ecology; or chemical companies such as Du Pont are developing a new generation of safer chemicals.

The importance of integrating CM into the definition of "corporate excellence" or "corporate culture" cannot be stressed enough (Nystrom and Starbuck, 1984; Weick, 1987; Lagadec, 1990; Pauchant and Mitroff, in press). Through our interviews we found that when this integration was not done, faulty beliefs in corporate excellence and success could become formidable stumbling blocks for developing efforts in CM. For example, a top executive in a large food company considered that: "A formal program is not necessary for an excellent company ... Our track record is so good that crises are not considered a major risk for us .... Only bad companies need crisis management to cover up their deficiencies." To say that this executive was using the concept of excellence as an excuse for not developing actions in CM is to put the case mildly. In fact, the status of "excellence" does not render organizations immune to crises. The unfortunate examples of J&J (Tylenol), Perrier, or Procter and Gamble (Rely tampons) demonstrate this fact. Crisis-prepared managers have understood that the concept of excellence itself, when pushed to an extreme, can lead to dangerous situations, by not allowing them to prepare for the worst. As a number of authors have noted, success can breed a feeling of over-confidence and omnipotence (Schwartz, 1987, 1990; Starbuck and Milliken, 1988; Miller, 1990).

These managers have also integrated CM into their strategic planning process (see point 3). Echoing several authors in the field of strategic management and business policy, these managers consider CM activities to be strategic in nature (Starbuck et al., 1978; Mitroff and Kilmann, 1984; Smart and Vertinsky, 1984; Dutton, 1986; Reilly, 1987; Shrivastava et al., 1988). As we have discussed at length in a recent publication (Pauchant et al., 1991), CM and strategic management must involve top management: they concern the survival and the development of the entire organization: they are related to how these managers interact with their environment: and they are both emergent and ill-structured, the process of planning and learning being sometimes more important than the plans themselves (Mintzberg et al., 1976). In addition, crisis-prepared executives are using CM as a competitive edge, deriving a number of strategic advantages from their CM efforts. For example, an executive in an insurance company stated that his organization had recently won a large government contract over his competitors,

in part due to its extensive contingency capabilities in the area of information technology. Another executive in the banking industry pointed out that during a large telephone outage his company demonstrated that it was “close to the customer”. During that crisis, employees in this particular bank operated a mobile unit in the business areas that were affected by the outage, allowing their customers to process their transactions. As this executive put it: “The crisis gave us the opportunity to really extend our services to our smaller clients ... we started with the question ‘what can hurt us?’ and more recently changed it to ‘what can hurt our customers?’” Other managers in different companies, such as AT&T, ARCO, Du Pont or Electricité de France, are also either directly selling their expertise and products in CM to their customers or have established themselves as their industry leader in this domain. For example, according to a recent *Forbes* article, Du Pont predicted that its new environmentally safe products and specialized services in the area such as CM training, could result in an additional \$8 billion in annual revenues by 1995.

In order to modify somewhat their corporate philosophy, their definition of excellence or their strategic vision, managers should be able to first challenge some of their own basic assumptions or ideologies, as well as those imbedded in their organizational culture (Mason and Mitroff, 1981; Nystrom and Starbuck, 1984; Van de Ven and Hudson, 1985; Shrivastava, 1986; Mitroff, 1987; Weick, 1987; Pauchant and Fortier, 1990). Some managers have implemented a number of specific mechanisms to facilitate these challenges. For example, some of them have included outsiders in their rank and have implemented a number of workshops in CM (see points 4 and 5): the top management of a firm in the chemical industry has recently included two environmental activists on its board; the top management at Sandoz France has included an expert in ecology in its CM team; others in the oil industry have hired as key executives individuals with no previous backgrounds in this particular industry nor in technology in general: others still have hired outside consultants as “insultants”, as coined by Peter Drucker, in the attempt to challenge some of their basic assumptions. Also, a number of managers have started formal trainings and workshops in CM, going beyond the traditional issues of security management, while others have initiated extensive workshops in crisis simulation (point 6). These managers have understood that, above all, efforts in CM require a personal, organizational and environmental knowledge as well as a number of specific and tested capabilities. Some managers have taken these simulations quite seriously. For example, a top executive in the chemical industry has hired a former FBI agent to head these efforts: others have used professional actors for simulating the actions of the media, government officials or terrorists in crisis situations: still others are simulating the potential responses in the media to the actions implemented by executives; and currently, some managers, such as those at ESSO-SAF, do not even consider that such simulations could be done without the active participation of diverse members of their community, such as local governmental officials, media representatives, emergency personnel, etc.

The last member of the “strategic family” in CM is a strategy of diversification (point 7). This strategy is perhaps the most traditional one to be applied to CM, as it is widely used in fields such as finance or corporate strategy. However, crisis-prepared managers do not only use this portfolio strategy of diversifying their products, services or production processes. They also use this approach to determine their CM efforts as well. Specifically, and as we have already stressed,

these managers make a point of implementing at least one effort from each of the five families described in Table 1, determining a “crisis management portfolio strategy” (Mitroff et al., 1988b). Considering that no firm can ever prepare for *all* crises or can even develop *all* capabilities, these managers are thus attempting to develop a systemic strategy in CM by implementing at least some efforts from each family, capturing some of perspectives and assumptions imbedded in each.

### Technical and Structural Efforts

This family of efforts is the one that is, currently, the most developed in organizations. Most managers have started their CM efforts either by reacting to a particular crisis or by focusing on a specific and technical area. For example, an executive in an insurance company explained: “So far, we have focused on obvious stuff ... On events that are in front of our eyes. It doesn’t take great insight to realize that a bomb can be placed in your computer system.” As emphasized by many authors in the field (see, for example, Smart and Vertinsky, 1977, or Fink, 1986), we have found that one of the first tasks implemented in organizations has been to form a crisis management unit (CMU) (point 8). At first, the primary function of the CMU was to provide a centralized power structure between different departments, allowing a rapid implementation of decisions in the midst of a crisis (Hermann, 1963; Smart and Vertinsky, 1977). However, CMUs are also increasingly being used outside of crises situations (Lagadec, 1991; Pauchant and Mitroff, in press). In these cases, their functions are to organize CM efforts that are more proactive in nature, i.e. to attempt to diminish the likelihood of crises in the first place, as well as to develop an organizational learning process about crises and CM. This ad hoc structure often regroups executives from different departments, such as legal counsel, governmental and environmental affairs, public relations, security, engineering, human resources and finance, as well as the CEO or COO and the VPs in R&D or marketing in some cases (Mitroff et al., 1988b). Also, in a few firms, this ad hoc structure is complemented with a more formal structure in CM. For example, diverse new departments have been recently created in a few organizations, headed by executives with the titles of “VP of crisis management” or “VP for safety, health and the environment”.

Besides its structural existence and its legitimized power base, the CMU’s effectiveness is also enhanced by different mechanisms such as the creation of a dedicated budget for CM (point 9); the development of emergency manuals and policies (point 10); the creation of a computerized CM inventory system (point 11); or the creation of specific emergency facilities (point 12). In addition to creating specific CM budgets for training and simulations, R&D or product and production changes, some managers have also decentralized their decisional process to take quick action in times of crises. For example, in an insurance company, information system managers were given the full authority to “declare disaster” and to switch the operation of their information systems to an external firm specializing in computer emergencies, although each use of these firms involves a set-up fee of \$25,000. Some managers have also created *useful* emergency manuals and policies. These manuals do not resemble the traditional 1,000-page emergency manuals that generally sit on every shelf of staff personnel. Rather, these manuals are user friendly and are continually updated under the supervision of the CMU.

We have also found managers and professionals who had created a number of CM database inventories and computerized decision aids for CM. For example, employees in a large food company are presently constituting a database for each of the company's plants, including information such as key names and contacts, private communication channels, general plant history, number of employees, types of production, potential hazards, detailed product inventory, emergency capabilities developed on the site and in the community, types of health treatments to be administered by types of emergencies, historical track record of the plant's incidents and improvements, contacts and history of relationships with local emergency services, government officials and media, etc. As another example, a group of professionals in an oil company has created a computerized tracking system for accounting all technical incidents in their facilities, evaluating their total costs, such as losses in productivity and environmental costs. As a third example, in an utility company, a group of professionals is presently developing a large computerized decision aid for crisis situations, integrating data for each of its operation sites, such as transportation and communication infrastructure, topography and hydrography, service infrastructures, demography, environmental data, emergency plans, capabilities and contacts, etc. Lastly, CMU decisions are assisted in some organizations by the creation of dedicated emergency facilities similar to the "war-rooms" developed in the military. For example, the top management in an airline company has created a specific facility, equipped with the most advanced information system capabilities and communication technologies. As another example, the top management at Electricité de France has decided to build exact replicas of several plants' command centers, thus being able to address a crisis from two locations at the same time.

The other technical efforts in CM can be regrouped in four general categories (see points 13 to 16): the reduction of hazardous productions, products and services; the overall improvement of safety; technological redundancy; and the use of outside experts and services in CM. The reduction of hazardous productions can be viewed as an effort to diminish the potential tight-coupling and complexity of a system (Perrow, 1984). These tasks, as well as those involved in the development of design and safety, are often carried out by security management and human resource personnel, including screening of employees, restricted access areas, improved inspection and quality control, the use of security forces, restricted computer access, etc. Technological redundancies are also often implemented in organizations, as it is technical in nature. For example, after a large telecommunication outage, a number of managers, having realized their dangerous vulnerability on the availability of telephone network for their day-to-day operations, have implemented a number of redundancies, such as: the creation of private line networks; the availability of microwave communications; the use of several telephone network companies; the creation of various mobile units; or the decentralization of their facilities (Pauchant et al., 1990). Lastly, to complement their own emergency capabilities, a number of firms are also using outside experts and services in CM. As an indication of this trend, firms specialized in computer back-up and recovery, companies specializing in environmental emergencies or consulting firms and research centers specializing in some aspects of CM have recently become a growth industry.

### Evaluation and Diagnosis Efforts

The third family of CM efforts includes a number of diagnostic tools and processes for guiding CM efforts. The first four of these diagnostic activities (points 17 to 20) are already in place in many organizations, but to various degrees. They include legal and financial audits of threats and liabilities: modifications in insurance coverage; environmental impact audit; and the ranking of activities by their degree of criticality.

Legal and financial assessments of threats and liabilities are standard procedures in many organizations. Often, the managers of crisis-prone organizations focus primarily on these two areas. We have found that in these organizations, lawyers are sometimes the first persons to be contacted in the case of a crisis, even prior to healthy emergency services! The modification of insurance coverage is also a common strategy used in CM. A number of issues in this area are currently highly debated, such as the precise evaluation of the insurance cost and coverage for environmental disasters or the specific responsibilities of insurance companies in the case of crises spread over time, such as in the asbestos case (Mitroff and Kilmann, 1984; Sharplin, 1988). However, what seems to distinguish managers in crisis-prone organizations from managers in crisis-prepared organizations in this area is that the former often confuse the nature of an insurance with the nature of CM itself. For example, as stressed by an executive in a transportation company which we have evaluated as dangerously crisis-prone: "CM is like an insurance policy. You only need to buy so much." In essence, this executive made the simplistic assumptions that CM is solely a reactive strategy, to be used only *after* the occurrence of a disaster, as in the case of an insurance policy: and he assumed that CM was only a *cost*, not considering it a moral and strategic necessity as well as a competitive advantage as stressed previously.

Environmental impact audits are also conducted in many corporations since they are required by law in several industries. However, here again, crisis-prepared managers differ from crisis-prone ones in how they view these audits. Crisis-prepared managers do not consider them only because they are required by the law. Rather, and in addition, they view them as an opportunity to increase their new conception of corporate excellence (see point 2). As stated by an executive in the chemical industry: "In several areas we go way beyond industry standards in safety and those required by the law. These innovations give us a considerable competitive advantage over our competitors and *give us pride in what we are doing*" (emphasis added).

Lastly, echoing the advice of different authors, such as Fink (1986), some managers have ranked their activities in terms of the importance and criticality to their daily operations. This criticality is assessed differently, depending on the specific activities conducted in the firm, and is continuously reevaluated by the CMU. Some have assessed the maximum number of days during which they can sustain their daily activities without the use of diverse resources, such as personnel, cash flow, technologies, inventories or data; others have identified the most important customers or markets for whom they must prioritize their efforts; still others have ranked the critical importance of their various products and services.

The other efforts in this CM evaluation family are currently developed only in a minority of organizations. Early-warning signal detection (point 21) seems

to be an advanced feature in CM, while the importance of this effort has been emphasized by many researchers (Smart and Vertinsky, 1977; Dutton, 1986; Fink, 1986; El Sawy and Pauchant, 1988; Starbuck and Milliken, 1988; Quarantelli, 1988; Pauchant and Mitroff, 1990). The managers who have developed capabilities in this area understand that most crises and disasters have a history that can be studied with the appropriate process. For example, a total of 29 crises larger than the *Exxon Valdez* disaster took place prior to *Valdez*, outside US waters; crises similar to the 1988 Chicago telecommunication outage happened previously in Brooklyn, New York City and Tokyo; and the *Challenger* disaster was preceded by a trail of memos that precisely warned of the danger (Starbuck and Milliken, 1988; Schwartz, 1989; Mitroff and Pauchant, 1990). Currently, some organizations have a professional staff scanning for examples of crises in their industry or in related areas: others have included this activity in their existing "Issues Management" program (El Sawy and Pauchant, 1988); still others have hired specialized staff to track specific issues, such as a Director of Communication Network assisting the Chief Information Officer (Adler and Ferdows, 1990). In all these cases, findings from this scanning effort are directly communicated to the CMU and are used to orient further CM activities throughout the firm.

Even more rarely, a small minority of managers has started a dedicated research program on potential hidden dangers (point 22). These managers are going much beyond classical strategic analyses of vulnerability, focusing on competitive moves, market fluctuations, regulatory changes or technological innovations (Pauchant et al., 1991). In addition, they also systematically prompt for the dangers hidden in their own products, resources and processes for themselves and their environment. For example, the managers of a large pharmaceutical company have created an "assassin team" which attempts to tamper the company's products and production processes, and a "counter-assassin team" which attempts to protect them. Others, in the insurance industry, are budgeting "dependency costs" of their technologies. These dependency costs are different from traditional evaluations of the purchasing costs, operation, maintenance, training, repair or even emergencies of technological systems, included in traditional cost-benefit analyses. Rather, this cost includes, in addition, the total amount of business losses potentially incurred by the organization and its stakeholders if these technologies were to fail. Recently, this insurance company's top management refused to purchase a multi-million dollar information system on that basis, considering that a too great dependency on that particular system was a competitive disadvantage. It should be stressed that to challenge the "invisibility of technologies", i.e. to systematically expose and manage their dangerous hidden sides, is one of most difficult tasks in CM (Mumford, 1966; Lagadec, 1990). Often, these dangerous sides are only revealed through a crisis itself. For example, after a large telecommunication outage we have studied (Pauchant et al., 1990), most of the executives and managers we interviewed reported gleaning a basic insight, however trivial it first appears: they had rediscovered the importance of the telephone! In fact, given the basic assumption that managers held about the availability of the telephone and the current dependency of most corporations on it for both data and voice communications, it is anything but trivial. One manager summarized it best when he said rather humorously: "We all know where the dial tone comes from ... it comes from God!" It is important to note that firms that had *not* previously

challenged the dangerous hidden sides of this technology had focused their CM efforts on a limited and traditional set of security features that did not protect them from that particular outage: they had backed-up their records, protected access to their computers and computer facilities, and they had enhanced their own network. However, and this is the crucial point, they did not consider the total context in which their telecommunication system operates: the telephonic network. As three respondents put it: "We had redundancy before the outage ... but our thinking at that time was that the problem would be in our system, not in the carrier network itself"; "The plans we made before [the crisis] were directed with regard to our system, not the telephone network"; "We took the telephone for granted; we backed-up our own system and our network but not the telephone system itself."

Lastly, the critical follow-up and learning from past crises (point 23) is an effort rarely developed in organizations, while the importance of learning from the experience of crises has been emphasized by many authors in different fields (May, 1950; Lippit and Schmidt, 1967; Meier, 1984; Nystrom and Starbuck, 1984; Slaikou, 1984; Van de Ven and Hudson, 1985; Reilly, 1987). Often, this learning opportunity is only provided when an investigation is mandated by court order, such as in the case of the *Challenger* disaster. The present refusal by many executives and managers to reflect upon past disasters is understandable. The emotional burden induced by major crises can be extremely painful. In the field of disaster research, it has been found that nearly one-third of the people involved exhibit symptoms of anxiety for a period of three to five years or longer after the occurrence of a crisis, including stress, headaches, nervousness, withdrawal, anger, depression, guilt, physical illness, sexual impotence or increased consumption of drugs or alcohol (Raphael, 1986; Lystad, 1988). Also, factors such as legal battles, political maneuvering and pressures, blames, denial, media manipulations or "defensive mechanisms" after a crisis, can potentially make this follow-up difficult (Kets de Vries, 1977; Caldwell and O'Reilly, 1982; Lagadec, 1982; Gephart et al., 1989; Mitroff and Pauchant, 1990). At present, about half of the managers we have interviewed fully understand that crises are not only negative but that they also provide tremendous opportunities for learning and for changing their strategic behaviors. However, only a minority of managers have so far had the courage to systematically study the effectiveness of their capabilities and actions during their previous crises and have used this knowledge for enhancing their future efforts in the domain. We will come back to this difficult problem when discussing the psychological family of CM efforts.

### **Communication Efforts**

This fourth family of CM efforts concerns how executives manage the communications in their organization and what kind of information is processed between them and their stakeholders. It seems that the two first strategies, media training and public relations (points 24 and 25), are presently most popular, as an increasing number of researchers and consulting firms offer a variety of expertise in these areas (Lagadec, 1987; Browning, 1988). Currently, the media strategies used by J&J during the Tylenol crises, i.e. high visibility, congruence, honesty and caring,



are seen in North America and Canada as one of the most successful strategies to be followed in crisis situations (Mindszenty et al., 1988; Lagadec, 1991). However, while crisis-prone managers have the tendency to believe that the sole use of “a good message can resolve a bad crisis”, as implied by numerous authors (see for example, Garden, 1979), crisis-prepared managers view these efforts as only complementary to the other actions described in Table 1. Similarly, crisis-prone managers are often over-concerned with their public image or confuse the content of their message with the reality of crises (Starbuck et al., 1978; Pauchant and Mitroff, 1988; Mitroff et al., 1989). For example, an executive in a chemical company stated that a crisis was solely for its top management “to be in the headlines”; in another example, a public relations director in a gas company defined his job as “making the product invisible”, which, while understandable from a public relations perspective, had also the negative effect of increasing the overall ignorance of potential dangers by the general public as well as by the executives managing that company.

Divulging information to local communities (point 26), such as information on the nature of dangerous products or productions, potential hazards, emergency plans, etc., is another effort implemented by some organizations and is required by law in several industries. For example, in the us, the “Community Right to Know” act was further developed for the chemical industry after it was established that members of the Bhopal community believed that this Union Carbide plant was producing some “plant medicine”, and thus were neither prepared nor even aware of its potential dangers (Bowonder and Linstone, 1987; Shrivastava, 1987; Bowman and Kunreuther, 1988; Pauchant and Mitroff, 1990). This effort is often coupled in many crisis-prepared organizations with increased relationships with diverse intervening groups (point 27), such as police, health specialists, laboratories, community representatives and officials, emergency services, governmental agencies, media representatives, etc. In these cases, these groups are informed of potential hazards and emergency plans are developed conjointly, *prior* to the experience of a crisis.

Overall, it seems that managers in crisis-prepared organizations collaborate much more often with other stakeholders than managers of crisis-prone organizations (point 28), i.e. firms in the same industry, governmental agencies, suppliers, customers, community members, etc. These managers have understood that secretive attitudes or isolationist tendencies are detrimental to an effective CM strategy (Collins, 1987; Mindszenty et al., 1988). Also, these managers have become keenly aware of their relative lack of power in managing major crises simply through their own internal knowledge and resources (Trist, 1980; Lagadec, 1990).

Lastly, crisis-prepared managers use different communication technologies for crisis situations (point 29). In the us, for example, some firms have created a network of 800 emergency lines. They are able through these lines to instantaneously track the physical location of the calls received and establish an ongoing “geographical map” of the crisis. Also, while crisis-prone managers have the tendency to focus their efforts on internal communications, i.e. communications between members of the organization itself, and on technical data, i.e. accounting, inventory, or financial and marketing data, crisis-prepared organizations focus on the dual set of *internal and external* communications, as well as on *technical and*

*human* communications, realizing that crisis situations require a “warm” medium (Weick, 1988; Pauchant et al., 1990). For example, as four executives stated after their experience of a communicational outage: “Our plans prior to the crisis focused exclusively on data, not voice communication”; “We had no plans on the voice side: it was a matter of policy to have contingency plans on the data side”; the contingency plans we made before [the crisis] were mostly focused internally”; “How could our customers call us when the telephone was down?”

### Psychological and Cultural Efforts

This fifth and last family of CM efforts is currently the least developed in organizations. This is the most subjective family in CM and often the most difficult to implement as it often deals with less tangible or concrete factors, or with highly emotionally charged issues such as fear, uncertainty, stress and anxiety.

Strong commitment to CM by top management (see point 30), if not by the CEO himself, is obligatory for developing a systemic strategy in this area (Hermann, 1963; Starbuck et al., 1978; Smart and Vertinsky, 1977; Mitroff and Kilmann, 1984; Fink, 1986; Shrivastava et al., 1988; Roberts, 1989). Unfortunately, only a minority of top executives have currently championed these issues in their organizations. In our research, we have found that the single most important factor for convincing senior executives of the strategic necessity of CM was not the recommendations by professional associations, nor the extensive coverage by the media of a major crisis in the industry, nor even the strong insistence of board members; it was the direct experience of repeated crises by top managers themselves (Pauchant and Mitroff, in press). Virtually all the managers and executives in crisis-prone organizations we interviewed, who deplored their current lack of CM efforts, emphasized that a fundamental change in the mind-set of their top management would be necessary before extensive efforts in CM would be developed and that this change would, unfortunately, require the experience of major crises. As they stated: “In this organization, we will need a lot of ‘black eyes’ before we start anything in the area” (leisure company); “Our top management believes they are ‘bigger than life’. They believe nothing bad can happen to them” (health industry); “Our top management does not believe that bad things can happen to us ... Contingency education is not done in industrial and technical companies. It is viewed as a cost, not a profit. However, they do it in the medical profession” (consumer good company); “The mind-set for senior management is cost reduction and productivity. They believe if others are not doing anything about it, why should we?” (information system company); “We cannot keep up with technological innovations. We do not have the people, nor the training, or the time to keep up. Senior management does not understand these issues. We do live on the edge in some areas” (major airline company); “I’m the only executive defending these issues. We will need a major disaster before anything could change” (chemical company).

As we have emphasized at the beginning of this article, the development of systemic efforts in CM requires a fundamental shift in corporate philosophy, an understanding that a corporation can potentially become a *destructive* system in addition to being a productive system. This is to say that CM requires the ethical,

moral and political courage, as well as the cognitive and emotional strength, to face and discuss a number of disturbing, uncertain, anxiety-provoking issues (Shrivastava, 1987; Lagadec, 1991; Pauchant and Mitroff, in press). Crisis-prepared managers have understood the necessity to confront their anxiety; some of them have increased the number of their relations with activist groups, despite the conflicts sometimes resulting from these relationships (point 31). For example, managers in a telecommunication company have developed a network of such groups, including minority groups, ecologists, consumer groups, social activists, etc. This firm regularly pools these groups for understanding their views on crucial issues and reports these findings to its CMU. As seen in point 21, others have also integrated some representatives of activist groups in their formal structure. Again, it seems that one of the most important factors that seem to typify managers of crisis-prepared organizations is that they attempt to avoid an “us–them” mentality (Pauchant and Mitroff, 1988). Rather, they try with all their might to understand different perspectives and integrate, when possible, some of them in their corporate strategies, establishing a shared purpose (Trist, 1980). An additional way to detect early-warning signals is provided by some crisis-prepared managers by systematically rewarding whistleblowers (see point 32) who warn of potential threats and dangers that were previously invisible or not acknowledged (Fink, 1986; Boisjoly, 1988). While talking to these managers, it became evident that they had developed an internal culture where the discussion of bad news was not only tolerated but also encouraged. This activity was even sometimes formally recorded in the employees’ evaluation files for future promotions. Further, a small minority of executives have currently increased their knowledge and understanding of criminal and pathological behaviors (point 33). For example, the top management of a chemical company has sponsored seminars for its managers on subjects such as the social and psychological roots of sabotage, the diagnosis of psychopathology in organizations, or the dynamics of terrorism, hiring experts in psychiatry, psychopathology and criminal behaviors. Unfortunately, these subjects are not currently integrated into the basic curriculum of business or engineering schools and most managers lack basic training in tracking and handling these complex and perplexing behaviors (Mitroff and Kilmann, 1984; Pauchant and Mitroff, in press). Some crisis-prepared managers have also systematically amplified the visibility for their employees of the human impact of crises (point 34). For example, in an aerospace firm, the plant’s employees were briefed by a pilot who experienced a technical breakdown which triggered a near-miss accident while testing a new airplane. During two hours, this pilot explained in detail to these employees and managers what he had experienced and felt when the problem occurred. By this process, these managers attempted to render quality control less abstract, i.e. solely stressing the necessity of total quality for competitive advantage. In addition, through this special briefing, these employees become more aware of the direct human implication of technical failures as well of their personal responsibilities for the life of an individual they all knew and respected.

The next two strategies, psychological support of employees and the management of anxiety (points 35 and 36), involve the management of highly emotionally charged issues. The first focuses more on managing the psychological effect of a crisis after it has occurred. As we have mentioned for the critical follow-up of past crises (see point 23), the experience of a disaster has serious psychological

consequences for a large number of individuals. To manage these post-crisis traumas, a number of firms have hired external or internal psychotherapists while maintaining a strict confidentiality on who is using these services. For example, NASA opened a crisis hot-line for its employees after the *Challenger* disaster. Also, some managers are increasingly using the services of “post-crisis intervention teams”, including psychotherapists, social workers and physicians, which have been created in various communities for managing the medical and socio-psychological effects of large disasters such as earthquakes, floods or fires.

Stress and anxiety management is more concerned with the management of threatening issues *prior* to a crisis (point 36). This strategy is thus more proactive than the previous one. It consists of preparing managers and employees to function relatively well even during a crisis, as well as helping them to surface threatening issues in their organizations on a day-to-day basis. Some managers have presently focused their efforts in this domain on their CMU's members. Literally, all the research conducted on decision making under severe stress indicates various strong cognitive and affective biases which hinder the effectiveness of decisions. These biases include an overall tendency to overact during a crisis, as well as the tendency to wish complete control and certainty: a bias for scape-goating and blaming; a shortening of time perspective; a chronic tendency to reduce the number of issues under consideration; an overevaluation of positive news and an underestimation of potential problems; the development of a group feeling of invulnerability; pervasive attempts to hold on to past frames of reference; a tendency to enact reality; or a dangerous tendency to wish to be perceived as the hero or the savior of the situation, or else wishing to be saved by an idealized person or organization (Hertzler, 1940; Bettelheim, 1963; Kets de Vries, 1977; Smart and Vertinsky, 1977; Holsti, 1978; Billings et al., 1980; Staw et al., 1981; Anderson, 1983; Dutton, 1986; Raphael, 1986; Lystad, 1988; Miller, 1988; Weick, 1988; Janis, 1989). Considering these powerful biases, some crisis-prepared managers are formally working on these issues during their CM workshops and crisis simulations (see points 5 and 6).

Others are also attempting to manage the anxiety surrounding CM in general, not only focusing their efforts on their CMU. Through our research, we have found that this effort was perhaps the single most difficult aspect of CM. As we have emphasized throughout this article, developing a systematic plan in CM requires the challenging of a number of basic assumptions, ideologies or frames of reference, including the overall corporate philosophy, the concept of corporate excellence, and the ability to view an organization as both a productive and destructive system. However, considering the emphasis placed today in corporations on notions such as growth, production and progress, to challenge these basic assumptions often triggers a number of powerful defense mechanisms in an attempt to diminish one's experience of deep anxiety (May, 1950; Jaques, 1957; Menzies, 1960; Becker, 1973; Pauchant, 1987). In our research, we have found that crisis-prone managers use a total of 31 defense mechanisms or “dangerous games” for rationalizing their lack of efforts in CM (Mitroff and Pauchant, 1990; Pauchant and Mitroff, in press). We have already mentioned some of them in this article, such as using the concept of corporate excellence as an excuse for a lack of action in CM; other defense mechanisms include the overall denial of the potential of crises typified by the affirmation “this will not happen to us”.

A variant of this mechanism is the limited acknowledgement of potential crises. For example, an executive in a food company seriously affirmed that the worst crisis that could happen to his customers was “not to find our product in their stores”, not envisioning the possibility of a fatal food poisoning. Other managers use the mechanism of projection, attributing to a particular person or a group of persons the causes of their problems. This mechanism seems currently particularly directed toward the media or the government, some crisis-prone managers considering them as “evil”, the “bringer of bad news” or their “lifelong enemies”, thus stressing again an us–them mentality (Pauchant and Mitroff, 1988). As a last example, other managers are using the mechanism of idealization, attributing to others magical capabilities for rescuing their organization in the case of a crisis (Kets de Vries, 1977; Miller, 1988). For example, an executive in the oil industry declared seriously that “our CEO can handle *any* crisis”.

It should be emphasized that defense mechanisms, such as denial, projection or idealization, are normal and healthy responses developed by human beings when confronted by a major threat. In essence, they allow individuals to act even when confronted with a terrifying threat. These mechanisms are at the root of innovation and heroism. However, and this is the crucial point, these defense mechanisms also have the tendency, when too extreme or too frequent, to increase the vulnerability of individuals and organizations alike by not allowing them to evaluate or anticipate a potential danger (May, 1950; Jaques, 1957; Menzies, 1960; Becker, 1973; Starbuck et al., 1978; Lagadec, 1991; Pauchant and Mitroff, in press). Crisis-prepared managers have understood this fundamental difference. In a nutshell, their executives and managers allow themselves to be somewhat anxious, acknowledging the proposition made by existential philosophers and psychologists that one of the most fundamental lesson for human beings is to accept to be “rightly anxious”, without succumbing to dread (Kierkegaard, 1844; May, 1950; Tillich, 1952; Becker, 1973). While we are not suggesting that organizations need to develop seminars for in-depths studies of the works by Ernest Becker, Albert Camus, Rollo May, Soren Kierkegaard or Jean-Paul Sartre, the theme of existential anxiety is central in relation to crises (Mitroff and Pauchant, 1990; Pauchant and Mitroff, in press). For example, several managers and executives in crisis-prone organizations who deplored their lack of CM efforts commented on this lack of acknowledgment of anxiety in their organizations: “In this company, we’re supposed to be ‘macho’ enough to take it. It’s impossible to get approval on a seminar if it has the word ‘stress’ in it” (airline company); “This company does not understand how stress is related to bodies and actions. There has never been a formal workshop on stress management in this company” (consumer good company); “We’re supposed to be ‘winners’. Anybody who would suggest any fear or anxiety is seen as a ‘loser’ (telecommunication company); “The worst sin you can commit over here is to question our taboo about excellence” (chemical company).

The last member of the psychological and cultural family in CM also concerns this existential dimension. It consists in symbolically remembering past crises experienced by an organization (see point 37). Some crisis-prepared managers have understood that to formally acknowledge these events is healthier than denying them and that, even in the absence of these formal acknowledgements, managers and employees alike painfully somehow remember crises anyway, as seen previously. As examples of these efforts, managers in a large food organization wear

black arm bands to symbolize their mourning on the anniversary of their most important crises; other managers have institutionalized mourning ceremonies as well as developing symbols of these events, celebrating both their failures and successes.

### Conclusion

To repeat what has been stated previously we did not find any firm which has developed all the CM strategies described in Table 1. Rather, crisis-prepared managers, i.e. managers who have developed a systemic approach in CM, have made sure to implement seriously at least one strategy in each of the five families we have described, depending on their particular situation. The composite list we have proposed in this article should therefore be seen as a non-exhaustive list of potential actions to be implemented if one takes a systemic view of crisis and crisis management. Currently, most CM plans are dangerously fragmented, focusing primarily on one or two CM families. This fragmentation is apparent in both corporate actions and the scientific literature in CM. For example, we have found that the technical family in CM was 200 times more developed in corporations than the psychological and cultural one (Mitroff et al., 1988a), and that only 16% of the scientific articles published in the field of CM even mentioned this psychological domain (Pauchant, 1989). However, as we have stressed in this article, crisis-prepared managers have understood that CM requires a focus on both technical and human actions, as well as on their inter-relationship, and have recognized that one of the most difficult issues to be overcome is the experience of deep anxiety, i.e. the existential dimension of CM. On this subject, it is sad to realize that existential issues in organizations have been virtually ignored by management scholars. However, this particular perspective would be especially helpful for understanding better the realities and the actions of executives and managers in relation to crises (Sievers, 1986; Schwartz, 1990; Pauchant, 1991; Pauchant and Mitroff, in press).

Without any doubt, much more research is needed in the field of CM. As we have argued previously, we are still far away from a rigorous theory of “crisiology”. However, the field has advanced enough in terms of concepts and models to dismiss the faulty rationalization that managers should not implement any actions in the area for lack of conceptual and “scientific” guidance (Pauchant and Mitroff, in press). Indeed, crisis-prepared managers have already started to implement a number of very innovative and effective actions in the area, based on their systemic and ethical view of crises.

While the content of some of the strategies described in this article can be seen as somewhat strange or unusual in a business setting, we believe that these strategies will become standard procedures in the near future. Fundamentally, CM is *not* to get back as soon as possible to “business as usual”, i.e. to come back as rapidly as possible to the situation experienced prior to a crisis (Mitroff, 1987). At the core, CM is the realization that the managers of an organization have a moral and social responsibility toward themselves, their organization, their stakeholders, society in general, and the fragile ecology of the planet. The managers of crisis-prepared organizations have already integrated some of these responsibilities in

their corporate philosophy and strategies, and have developed from these efforts a number of competitive advantages over their competitors. We thus strongly believe that the strategies currently developed in these organizations will be some of the most strident criteria that will characterize an “excellent” company in the 21st century.

### Acknowledgements

This research has been financially supported over the years by several sponsors and foundations. We wish to thank, in Canada, the CRSH and FCAR research foundations as well as *l'Ecole des Hautes Etudes Commerciales*, University of Montreal; in the us. the Center for Crisis Management's corporate sponsors, the Hoover Foundation, and the University of Southern California; and in France, the *Secrétariat d'Etat auprès du Premier Ministre Chargé de l'Environnement et de la Prévention des Risques Technologiques et Naturels Majeurs* and *l'Ecole Polytechnique*. Also, we wish to thank the professors, research scientists and research assistants who have collected diverse material at different stages of this research. They include: Judy Claire, Nathalie Cotard, Roseline Douville, Jean Dupuis, Sarah Kovoov, Mike Finney, Isabelle Fortier, Maria Nathan, Chris Pearson, Lucie Poliquin-Zaor and Christophe Roux-Dufort. Finally, we wish to thank Paul Shrivastava and two anonymous reviewers for their helpful comments on a previous draft of this article.

### References

- Adler, P.S. and Ferdows, K., 1990. The Chief Technology Officer. *California Management Review*, 32: 55–62.
- Anderson, P.A., 1983. Decision making by objection and the Cuban missile crisis. *Administrative Science Quarterly*, 28: 201–222.
- Becker, E., 1973. *The Denial of Death*. Free Press, New York.
- Bettelheim, B., 1963. Individual and mass behavior in extreme situations. *Journal of Abnormal and Social Psychology*, 38: 417–452.
- Billings, R.S., Milburn, T.W. and Schaalman, M.L., 1980. A model of crisis perception: a theoretical and empirical analysis. *Administrative Science Quarterly*, 25: 300–316.
- Boisjoly, R., 1988. Whistleblower: an interview with Roger Boisjoly. *Life Magazine*, March: 17–22.
- Bowman, E. and Kunreuther, H., 1988. Post-Bhopal behavior at a chemical company. *Journal of Management Studies*, 25: 387–402.
- Bowonder, B. and Linstone, H.A., 1987. Notes on the Bhopal accident: risk analysis and multiple perspectives. *Technological Forecasting and Social Change*, 32: 183–202.
- Browning, L.D., 1988. Interpreting the Challenger disaster: communication under conditions of risk and liability. *Industrial Crisis Quarterly*, 2: 211–228.
- Caldwell, D.F. and O'Reilly, C.A., 1982. Responses to failure: the effect of choice and responsibility on impression management. *Academy of Management Journal*, 25: 121–136.
- Collins, D.E., 1987. Critical lessons learned from the experience in handling product tampering accidents: the case of Johnson and Johnson. Presented at the Crisis Management Seminar, University of Southern California, Center for Crisis Management, Los Angeles, CA, September 14–15.
- Dutton, J.E., 1986. The processing of crisis and non-crisis strategic issues. *Journal of Management Studies*, 23: 501–517.
- El Sawy, O.E. and Pauchant, T.C., 1988. Triggers, templates and twitches in the tracking of emerging strategic issues. *Strategic Management Journal*, 9: 455–473.
- Fink, S., 1986. *Crisis Management: Planning for the Inevitable*. AMACOM, New York.
- Forester, J.W., 1979. Counterintuitive behavior of social systems. In: H.F. Didsbury, ed. *Student Handbook for the Study of the Future*. World Future Society, Washington, DC: 129–144.
- Garden, A.N., 1979. Getting the best PR from bad situations. *Inc.*, 1: 105–106.

- Gephart, R.P. Steier, L. and Lawrence, T., 1989. Cultural rationalities in crisis sensemaking: a study of a public inquiry into a major industrial accident. *Industrial Crisis Quarterly*, 4: 27–48.
- Hall, R.L., 1976. A system pathology of an organization: the rise and fall of the old Saturday Evening Post. *Administrative Science Quarterly*, 21: 185–211.
- Hambrick, D.C. and D'Aveni, R.A., 1988. Large corporate failures as downward spirals. *Administrative Science Quarterly*, 33: 1–23.
- Hermann, C.F., 1963. Some consequences of crisis which limit the viability of organizations. *Administrative Science Quarterly*, 8: 61–82.
- Hertzler, J.O., 1940. Crises and dictatorships. *American Sociological Review*, 5: 157–169.
- Holsti, O.R., 1978. Limitations of cognitive abilities in the face of crisis. In: C.F. Smart and W.T. Stanbury, eds. *Studies in Crisis Management*. Butterworth, Toronto, Ont.: 39–55.
- Janis, I.L., 1989. *Crucial Decisions: Leadership in Policymaking and Crisis Management*. Free Press, New York.
- Jaques, E., 1957. Social systems as defense against persecutory and depressive anxiety. In: M. Klein, P. Heimann and R.E. Money-Kyrle, eds. *New Directions in Psycho-Analysis*. Basic Books, New York: 478–498.
- Kets de Vries, M.F.R., 1977. Crisis leadership and the paranoid potential: an organizational perspective. *Bulletin of the Meninger Clinic*, 41: 349–365.
- Kierkegaard, S., 1844. *The Concept of Dread* (Translated by W. Lowrie). Princeton University Press, Princeton, NJ. 1944.
- Lagadec, P., 1981. *La Civilization de Risque: Catastrophes Technologiques et Responsabilité Sociale*. Seuil, Paris.
- Lagadec, P., 1982. *Major Technological Risk: an Assessment of Industrial Disasters*. Pergamon, Oxford.
- Lagadec, P., 1987. Communication strategies in crisis situations. *Industrial Crisis Quarterly*, 1: 19–26.
- Lagadec, P., 1988a. Situation de crises: principes et check-liste pour le pilotage des crises post-accidentelles. *Préventique*, 22: 26–37.
- Lagadec, P., 1988b. *Etats d'Urgence: Défaillances Technologiques et Déstabilisation Sociale*. Seuil, Paris.
- Lagadec, P., 1990. *States of Emergency: Technological Failures and Social Destabilization*. Butterworth-Heinemann, London.
- Lagadec, P., 1991. *La Gestion des Crises: Outils de Réflexion à l'Usage des Décideurs*. McGraw-Hill, Paris.
- Linstone, H.A., 1989. Multiple perspectives on the Alaska oil spill. Portland State University, Systems Science PhD Program, Portland, OR.
- Lippitt, G.L. and Schmidt, W.H., 1967. Crisis in a developing organization. *Harvard Business Review*, 45: 103–112.
- Lystad, M., ed., 1988. *Mental Health Response to Mass Emergencies: Theory and Practice*. Brunnel/Mazel, New York.
- Maruyama, M., 1963. The second cybernetics: deviation amplifying mutual causal processes. *American Scientist*, 51: 164–179.
- Mason, R. and Mitroff, I.I., 1981. *Challenging Strategic Planning Assumptions*. Wiley, New York.
- Masuch, M., 1985. Vicious circles in organizations. *Administrative Science Quarterly*, 30: 14–33.
- May, R., 1950. *The Meaning of Anxiety*. Washington Square Press, New York.
- Meier, F., 1984. Crise sans conscience n'est que ruine de l'homme (Crisis without consciousness is wasteful for man). In: J. Jacob et al., eds. *Crise et Chuchotements (Crisis and Whispers)*. PUF, Paris: 155–164.
- Menzies, I.E.P., 1960. A case-study in the functioning of social systems as a defense against anxiety: a report on a study of the nursing service of a general hospital. *Human Relations*, 13: 95–121.
- Miller, D., 1988. Organizational pathology and industrial crisis. *Industrial Crisis Quarterly*, 2: 65–74.
- Miller, D., 1990. *The Icarus paradox: how exceptional companies bring about their own downfall*. Harper Business, New York.



- Mindszenty, B.J., Watson, T.A.G. and Koch, W.J., 1988. No Surprises: the Crisis Communication Management System. Bedford House, Toronto, Ont.
- Mintzberg, H., Raisinghani, D. and Theoret, A., 1976. The structure of "unstructured" decision processes. *Administrative Science Quarterly*, 21: 246–275.
- Mitroff, I.I., 1987. Business NOT as Usual: Rethinking Our Individual, Corporate, and Industrial Strategies for Global Competition. Jossey-Bass, San Francisco, CA.
- Mitroff, I.I., 1988. Break-Away Thinking: How to Challenge Your Business Assumptions (And Why You Should). Wiley, New York.
- Mitroff, I.I. and Kilmann, R.H., 1984. Corporate Tragedies: Product Tampering, Sabotage and Other Catastrophes. Praeger, New York.
- Mitroff, I.I. and Pauchant, T.C., 1990. We're So Big and Powerful That Nothing Bad Can Happen To Us: an Investigation of America's Crisis-Prone Culture. Carol Publishing, New York.
- Mitroff, I.I., Pauchant, T.C. and Shrivastava, P., 1988a. Conceptual and empirical issues in the development of a general theory of crisis management. *Technological Forecasting and Social Change*, 33: 83–107.
- Mitroff, I.I., Pauchant, T.C. and Shrivastava, P., 1988b. Forming a crisis portfolio. *Security Management*, 33: 101–108.
- Mitroff, I.I., Pauchant, T.C., Finney, M. and Pearson, C., 1989. Do some organizations cause their own crises? The cultural profiles of crisis-prone vs. crisis-prepared organizations. *Industrial Crisis Quarterly*, 3: 269–283.
- Morin, E., 1976. Pour une crisologie (Toward a crisiology). *Connections*, 25: 149–163.
- Mumford, L., 1966. The Myth of the Machine: Technics and Human Development. Harcourt Brace Jovanovich, New York.
- Nystrom, P.C. and Starbuck, W.H., 1984. To avoid organizational crises, unlearn. *Organizational Dynamics*, 12: 53–65.
- O'Connor, J., 1987. The Meaning of Crisis: a Theoretical Introduction. Blackwell, Oxford.
- Pauchant, T.C., 1987. Crisis management and narcissism: a Kohutian perspective. Unpublished dissertation. Graduate School of Business Administration, University of Southern California, Los Angeles, CA.
- Pauchant, T.C., 1989. Crisis management: a selected and annotated bibliography. Ecole des Hautes Etudes Commerciales, University of Montreal.
- Pauchant, T.C., 1991. In search of existence: on the use of the existential tradition in management. In: F. Massarik, ed., *Advances in Organizational Development*, 2. Ablex, New York (in press).
- Pauchant, T.C. and Cotard, N., forthcoming. Crisis management in Canadian firms: an assessment. Working paper, Ecole des Hautes Etudes Commerciales, University of Montreal.
- Pauchant, T.C. and Fortier, L., 1990. Anthropocentric ethics in organizations. Strategic management and the environment: a typology. In: P. Shrivastava and R. Lamb, eds. *Advances in Strategic Management*, Vol. 6, JAI Press, Greenwich, CT: 99–114.
- Pauchant, T.C. and Mitroff, I.I., 1988. Crisis prone versus crisis avoiding organizations. *Industrial Crisis Quarterly*, 2: 53–63.
- Pauchant, T.C. and Mitroff, I.I., 1990. Crisis management. Managing paradox in a chaotic world: the case of Bhopal. *Technological Forecasting and Social Change*, 38: 117–134.
- Pauchant, T.C. and Mitroff, I.I., in press. The Crisis-Prone Organization: Diagnostic and Intervention. Jossey-Bass, San Francisco, CA.
- Pauchant, T.C., Mitroff, I.I. and Pearson, C., 1991. Crisis management and strategic management: similarities, differences and challenges. In: P. Shrivastava, A. Huff and J. Dutton, eds. *Advances in Strategic Management*, Vol. 7, JAI Press, Greenwich, CT (in press).
- Pauchant, T.C., Mitroff, I.I., Weldon, D.N. and Ventolo, G.F., 1990. The ever-expanding scope of industrial crises: a systemic study of the Hinsdale telecommunications outage. *Industrial Crisis Quarterly*, 4: 243–261.
- Perrow, C., 1984. Normal Accidents: Living with High Risk Technologies. *Basic Books*, New York.
- Quarantelli, E., 1988. Disaster crisis management: a summary of research findings. *Journal of Management Studies*, 25: 373–385.
- Raphael, B., 1986. When Disaster Strikes: How Individuals and Communities Cope With Catastrophe. *Basic Books*, New York.

- Reilly, A.H., 1987. Are organizations ready for crisis? A managerial scoreboard. *Columbia Journal of World Business*, 22: 79–88.
- Roberts, K.H., 1989. New challenges in organizational research: high reliability organizations. *Industrial Crisis Quarterly*, 3: 111–125.
- Schwartz, H.S., 1987. On the psychodynamics of organizational disasters: the case of the space shuttle Challenger. *The Columbia Journal of World Business*, 22: 59–68.
- Schwartz, H.S., 1989. Organizational disaster and organizational decay: the case of the National Aeronautics and Space Administration. *Industrial Crisis Quarterly*, 3: 319–334.
- Schwartz, H.S., 1990. Narcissistic Process and Corporate Decay: the Theory of Organization Ideal. New York University Press, New York.
- Sharplin, A., 1988. Manville lives on as victims continue to die. *Business and Society Review*, 65: 25–29.
- Shrivastava, P., 1986. Is strategic management ideological? *Journal of Management*, 12: 363–377.
- Shrivastava, P., 1987. Bhopal: Anatomy of a Crisis. Ballinger, Cambridge, MA.
- Shrivastava, P., Mitroff, I.I., Miller, D. and Miglani, A., 1988. Understanding industrial crises. *Journal of Management Studies*, 25: 285–303.
- Sievers, B., 1986. Beyond the surrogate of motivation. *Organization Studies*, 7: 335–351.
- Slaikeu, K.A., 1984. Crisis Intervention: a Handbook for Practice and Research. Allyn and Bacon, Boston, MA.
- Smart, C. and Vertinsky, I., 1977. Designs for crisis decision units. *Administrative Science Quarterly*, 22: 640–657.
- Smart, C. and Vertinsky, I., 1984. Strategy and the environment: a study of corporate responses to crises. *Strategic Management Journal*, 5: 199–213.
- Starbuck, H.H. and Milliken, F.J., 1988. Challenger, fine-tuning the odds until something breaks. *Journal of Management Studies*, 25: 319–340.
- Starbuck, W.H., Greve, A. and Hedberg, B.L.T., 1978. Responding to crises. In: C.F. Smart and W.T. Stanbury, eds. *Studies in Crisis Management*. Butterworth, Toronto, Ont.: 111–137.
- Staw, B.M., Sandelands, L.E. and Dutton J.E., 1981. Threat-rigidity effects in organizational behavior: a multilevel analysis. *Administrative Science Quarterly*, 26: 501–524.
- Tillich, P., 1952. *The Courage To Be*. Yale University Press, New Haven, NJ.
- Trist, E., 1980. The environment and system-response capability. *Futures*, 12: 113–127.
- Turner, B.A., 1976. The organizational and interorganizational development of disasters. *Administrative Science Quarterly*, 21: 378–390.
- Van de Ven, A. and Hudson, R., 1985. Increasing organizational attention to strategic choices. In: Pennings and Associates, eds. *Organizational Strategy and Change*. Jossey-Bass, San Francisco, CA.
- Weick, K., 1987. Organizational culture as a source of high reliability. *California Management Review*, 29: 112–127.
- Weick, K., 1988. Enacted sensemaking in crisis situations. *Journal of Management Studies*, 25: 305–317.
- Weick, K., 1989. Mental methods of high reliability systems. *Industrial Crisis Quarterly*, 3: 127–142.

## Disaster Crisis Management: A Summary of Research Findings

**E.L. Quarantelli****Source:** *Journal of Management Studies*, 25(4) (1988): 373–385.**Introduction**

There can be different types of social entities attempting to cope with crises. Out of such spheres as individuals, households, groups and societies (*e.g.* Drabek, 1986) our sole focus will be on formal organizations, both private and public. There can also be different types of collective stress situations (See Barton, 1970), but our discussion will deal exclusively with consensus type community crises generated by natural or technological agents of what most workers in the area have come to conceptualize as ‘disasters’ (Quarantelli, 1982). As such, we will neither deal with *conflict* type situations such as wars, civil disturbances, riots, terrorist attacks, *etc.* nor with *non-community* kinds of disaster crises, such as most transportation accidents which do not impact the functioning of a community (see, for example, Quarantelli, 1985). These distinctions between the kinds of entities which can be stressed (*i.e.* individuals, organizations, societies, *etc.*), between consensus and conflict types of collective stress situations (*i.e.* disasters or hostile outbreaks), and between community impacting and non-community impacting kinds of disasters are important distinctions developed in the disaster literature which has accumulated over the last 35 years (see Britton, 1987; Kreps, 1984; Quarantelli and Dynes, 1977).

This article generally summarizes and highlights the major research findings that have been established about organizational behaviour at the emergency stage of community disasters. It does not report the findings of any particular study, but draws mostly, although not exclusively, from the collective work of the Disaster Research Center (DRC). DRC has undertaken nearly 500 different field studies of disasters and mass emergencies since it was founded in 1963 at The Ohio State University and now at the University of Delaware. (For DRC history and activities, see Quarantelli, Dynes and Wenger, 1986.) Drawing from the variety of DRC sociological and social science research on group and organizational preparations for, responses to, and recoveries from community-wide emergencies, particularly natural and technological disasters, this article primarily focuses on aspects of organizational preparedness planning and managing of disasters. (For summaries of DRC studies see Quarantelli, 1980; for others, see Drabek, 1986.)

**The Focus**

It is very easy to assume that if there has been disaster planning there will be successful crisis or emergency time management. After all, that would seem to be the ultimate purpose of planning ahead of time. Unfortunately, however, research

has shown that is far from being the case; there often is a big gap between what was planned and what actually happens in a major disaster crisis. There is, in fact, only a partial correlation between the undertaking of preparedness planning and the successful or good management of community disasters.

The reason for this is twofold. One is that the preparedness planning can be poor in the first place. Thus, if disaster planning is agent specific rather than generic, if planning is too segmented or segregated rather than involving all relevant social factors, or if the planning demands artificial or far-from-everyday activities, there will be implementation of that kind of poor planning in actual disaster situations (Quarantelli, 1985). Poor planning can only encourage poor management activities. This is the more obvious of the two major reasons why successful crisis management does not automatically follow from disaster preparedness planning.

Given that, the other reason will be discussed, namely a failure to recognize that the principles of crisis management are different from the principles of disaster preparedness planning. Studies of disasters have demonstrated that organizational officials do not always distinguish between the two processes or activities, with consequent negative results. Sometimes it seems to be assumed that because preparedness planning is in place, management of the disaster will only require implementation of the prior planning. But preparedness planning and emergency managing are not simply two sides of the same coin.

Perhaps if a parallel is drawn, the last point can be made even more clearly. The military draws a distinction between strategy and tactics. In fact, they teach, and try to implement in practice, the differences between the two. Strategy, in general, has reference to the overall approach to a problem or objective. But there are always situational factors or other contingencies which require particular adjustments to attain a specific goal if the overall objective is to be attained. This is the area of tactics. In somewhat parallel terms, good disaster preparedness planning involves the general strategies to be followed in readying for sudden community emergencies. In good crisis management, particular tactics are used to handle the specific situational contingencies which are present or which arise during the course of an emergency.

Clearly, it is usually impossible ahead of time to spell out in detail the particular tactics which have to be used because, almost by definition, they will be relatively specific to the actual situation encountered. Good crisis management, to a considerable extent, is the application of tactics which are specifically relevant to the situational contingencies of a given community disaster. However, just as the military finds it possible to advance tactical principles in addition to strategical principles, disaster researchers can point to some of the tactical considerations which are involved in effective and efficient crisis management. This will be done by indicating what research has ascertained as the management problems in community disasters.

Before turning to that, it should be indicated that, contrary to most popular images, the major source of problems in disasters are not victims themselves. Apart from the disaster agent itself, in most, but not all cases the major source of problems in disasters is to be found in the organizations responding to the emergency (Dynes, 1974). If there is to be major improvement in disaster planning and disaster crisis management, it will have to come in changing the behaviour of the relevant emergency organizations (Dynes, Quarantelli and Kreps, 1981).

Research has shown that successful disaster management results from emergency organizations coping well with certain problematical matters.

In particular there tend to be, in the typical community disaster, management problems with respect to: the communication process and information flow; the exercise of authority and decision-making; and, the development of co-ordination and loosening the command structure.

### **The Communication Process and Information Flow**

The term 'communication process' is used deliberately to emphasize that this problem generally involves *what* is communicated rather than *how* communication occurs. In most disasters, there is seldom much destruction or damage communication equipment or facilities, be they radios, phones or computers. To be certain, in some cases, part of the telephone system may become temporarily inoperative (actually in certain instances the phone company itself may take several exchanges out of service to reduce overloading the total system), but ham radio networks or relays of runners are frequently used as substitute means of communication. On occasion there may be some scarcity of equipment for the given emergency demands, but this usually reflects the pre-impact situation rather than being a consequence of disaster agent impact.

Given the usual physical presence of communication means, the real problems in this area are in poor, incomplete, or inefficient information flow. The means for processing communication will be present, but the information sent will not meet the requirements of the situation. Too often disaster preparedness planning focuses on the means of communication, leaving those managing crises struggling to cope with exigencies of information flow.

Organization problems associated with information flow are evident in at least five different categories of organizational behaviour: (1) intra-organizational; (2) interorganizational; (3) from organizations to the public; (4) from the public to the organizations; and (5) within systems of organizations.

The discussion which follows examines both mythological beliefs and the real information flow problem of organizations in community disasters. It indicates how false assumptions about organizational behaviour can undermine, and thus invalidate, disaster preparedness planning and requires tactical management of specific difficulties.

#### (1) Intraorganizational Information Flow

All organizations have to communicate internally and constantly exchange information among group members under normal conditions. The communication system is designed to process and exchange relatively predetermined types and quantities of information. However, during a disaster, the number of staff using the communication system will often increase greatly. This is created in part by internal staffing changes undertaken by the organization to meet the demands of the crisis situation. For example, double shifts may be used or volunteers may be incorporated into the workforce. Often, the existing communication system cannot accommodate the volume of information required by these additional system users. When the extra demands upon the internal communication system

exceed its capability, this results in 'overload', the net result of which causes either communication system failure or results in the loss or delay of information to, from, and among staff members.

Communications are normally supposed to go through certain channels. In non-crisis situations, the flow of information follows the usual organizational chain-of-command. Thus, system user information needs, conditions under which information is to be exchanged, and the flow of information from the top to the bottom and *vice versa*, are relatively clearly defined. However, during a disaster the channelling of information throughout the organization becomes more complex. For example it is not unusual for: several individuals to occupy a position previously held by one person; officials to assume non-routine tasks; and/or, officials to be reassigned to work in temporary emergency positions within the organization. These and other factors can lead to the creation of situations where the normal channels of communication are insufficient to ensure that all relevant information will reach those group members who should be informed of organizational activities.

Preparedness planning can be very helpful in alerting and sensitizing relevant officials to the indicated sources and kinds of problems likely in intraorganizational informational flow. However, the great number of possible combinations and contingencies necessitates that managers at times of emergencies be creative in devising the tactics to address them. As such, exercises and training on how to be creative and imaginative under such circumstances would be more useful than detailed disaster plans.

### (2) Information Flow between Organizations

Under normal circumstances, officials from different organizations will often communicate informally, since frequently the interacting parties are familiar with one another as friends and/or acquaintances. However, when a disaster occurs, formal contacts must often be established with previously unknown officials within organizations with whom there had been no pre-disaster relationships. In fact, it is not unknown for groups to be interacting with groups whose very existence was unknown before the emergency. Given this, formal informational flow between officials unfamiliar with others in strange organizations, will be difficult to initiate and maintain.

Prior planning can sometimes identify the more likely key organizations which will be involved in responding to a disaster (*e.g.* typically all the emergency organizations in the community, including the local emergency agency). However, it is particularly difficult to predetermine likely extra-community responders (except for very specifically oriented groups dealing with hazardous chemicals or radioactive materials). Training and exercises therefore have to emphasize that disaster managers must anticipate having to work with unfamiliar officials and groups, and use ways of identifying themselves (*e.g.* by name tag or distinctive head gear).

### (3) Information Flow from Organizations to the General Public

During normal times it is the rare organization which has to communicate with the population at large (most mass media system outlets would be examples of the exception). However, in disasters, organizations may have to pass on information

to citizens in general, but this is often done rather poorly. Frequently this results from the organization's failure to understand that what is meaningful information to organizational personnel is not necessarily useful to endangered persons. For example, officials may gather detailed information about a flood or chemical threat. Using this information the organization will subsequently issue an official statement of instruction to the general public which omits the details of its findings and other relevant information. For example, an announcement advising people to leave a dangerous area may be stated as follows: 'Evacuate X street or Y neighbourhood'. Though officials may well know the limits/boundaries of the endangered zones, the relative degree of safety in other areas, and other details, the aforementioned instruction may well be the sum total of information in the public warning statement. Thus, the public is often forced to ascertain the extent of the danger, what is required of them during the evacuation, and where it might be safe to relocate. Hence, all too often, organizations which are well informed about events (*e.g.* new locations where paychecks may be issued or food supplies picked up) and potential threats mistakenly assume that their public statements will be as clear to the general population as they are to the organization officials issuing them.

Preplanning can address some of the general topics that an organization may want to communicate to the public in a disaster situation. Specific content details, however, have to be matters of tactical consideration. On the other hand, specificity of messages and clarity as to intended audiences can be thought of as principles of disaster management.

#### (4) Information Flow from the Public to Different Organizations

Conversely, the public often has difficulty obtaining emergency-relevant information from organizations. For example, frequently people will bombard certain groups with requests for aid, will ask the more visible public groups what should be done, where to obtain certain things, and so forth. A frequent result is the inability of high visibility organizations to process efficiently large volumes of information. Typical is the effect of the flood of telephone calls to police departments when any untoward event occurs in a community. The police switchboard often becomes so overloaded with calls that all communication, both within and outside the organization, is interminably delayed.

In addition to normal (*i.e.* organizationally relevant) requests for aid and assistance, organizations must often respond to requests for information that is not part of the usual flow. Few organizations can respond effectively to non-routine questions. Consequently, persons assigned to switchboards or complaint desks often find themselves unable to cope with the increased demands for new kinds of information during crisis situations.

In preplanning, the more likely sources of citizen convergence for information can probably be identified for disasters generally and some specific disaster agents. But how to handle the problem is more of a management issue. Nevertheless, recognizing that there may be an information flow convergence on an organization can allow consideration of the tactical options that might be used (*e.g.* what organizational office will be designated as the sole contact point to handle enquiries, where that office itself will obtain information, and what kind of questions will not be answered). This will avoid the informational disaster which occurred, for instance, at Three Mile Island (see Dynes *et al.*, 1980).

## (5) Information Flow within Different Systems of Organizations

Often overlooked are information flow problems which arise as a result of the mobilization of different systems of organizations during community disasters. There is a tendency to think of organization not as systems, but rather as components operating independently of each other. But often there are sets or systems of inter-related specialized, organizations which are designed to perform particular disaster-related tasks.

Thus, there are medical systems delivering emergency medical services, while police and/or military systems provide security. The accomplishment of these and other disaster-relevant tasks involves far more than one-way information flow among participating organizations. Rather, there are multiple two-way and chain communications between different kinds of multi-layered groups. In a medical system, there may be several first aid stations or triage points, ambulances or transporting units, primary and secondary hospitals (both public and private), and segments of different authorities operating within diverse jurisdictions. Although the information flow within an organizational system is difficult during non-stressful periods, it can, and often does, become quite problematic during a community disaster, especially since there is an emergent quality in the behaviour of many systems at such times (*e.g.* key decision-making points may shift, as when the head nurse, and not the hospital administration, of a hospital may informally cut off victim intake).

Which organizational systems are likely to be operative at times of disasters can usually be identified in preplanning. But how to handle ensuing problems in system information flow as a result of emergent tasks and entities (see, for example, Quarantelli, 1984) will often be a matter of management tactics. Some studies of organizational emergence do provide some cues; for instance, we would hypothesize that it is easier to cope with information flow problems in systems that are primarily made up of vertically linked rather than horizontally linked subunits.

### **The Exercise of Authority and Decision-Making**

Disasters require that some agencies and officials assume responsibilities, and make decisions. If the exercise of authority is weak during non-stressful periods, it will prove even weaker when disasters strikes. If authority is very weak in the first place as is true, for example, in many county governments in the United States, it can completely disappear when disaster strikes. However, even if we assume that the exercise of authority among agencies and officials during periods of normalcy are operating properly within a community, there will be problems during the emergency phases of disasters. The difficulties which surface, however, are often not those commonly anticipated, and have more to do with decision-making than the authority structure.

Thus, the chain-of-command and lines-of-authority do not break down in established organizations. Even if there is inadequate information flow during a disaster, officials usually continue to exercise their formal authority and fulfill their normal duties and responsibilities. If higher-echelon officials cannot be



reached, personnel at the middle and/or lower echelons often make decisions they do not normally make. Even rigid bureaucracies will bend on this matter when faced with clear-cut crises that require an immediate organizational decision or response; in fact, decentralized organizational decision-making is a common feature of disaster.

A common belief is that organizations may be unable to function effectively due to conflict between the work role and the family role of officials. Occasionally expressed is the concern that important officials or key personnel will either not report to work or will leave their jobs when disaster strikes because of a concern or a need to take care of their victimized families. Research has shown that this so-called role conflict does not result in the abandonment of, or failure to carry out, occupational responsibilities (See Dynes and Quarantelli, 1986). At least it is not a major problem, especially in the higher echelons of organizations, for example, those positions carrying the most authority. It is clear that officials can be expected to do their jobs, although there is psychological strain for those caught in such a role conflict.

Neither are there many problems arising from questions concerning which organizations have been delegated the authority and responsibility to perform traditional tasks during periods of disaster. Thus, there are seldom disputes concerning who fights fires, repairs telephones, performs major surgical operations, or other specialized tasks. Such matters are the traditional responsibility of certain local groups. A disaster is unlikely to alter the normal pattern.

On the other hand, there are at least four problem areas involving organizational decision-making in community disasters: (1) loss of higher echelon personnel because of overwork; (2) conflict over authority regarding new disaster tasks; (3) dashes over organizational domains between established and emergent groups; and, (4) surfacing of organizational jurisdictional differences.

#### (1) Personnel Burnout

This problem stems from the strong tendency on the part of key officials in positions of authority to continue working too long. Such personnel who remain on the job around-the-clock during the disaster will eventually collapse from exhaustion or become inefficient in their decision-making and other areas of responsibility. More importantly, when such officials are eventually succeeded by others, their successors will lack certain information to exercise the necessary authority, because crucial data will not have been formally recorded. Decision-making requires relevant knowledge. Officials with the appropriate information will not always be physically capable of working beyond a certain point. If such officials occupy key decision-making positions, the disaster response capability of the organization can be seriously impaired.

At one level the problem would appear easy to solve; key decision-makers should be rested and/or replaced. For organizations with work shifts (*e.g.* many of the community emergency organizations) this often can be preplanned. For others, it becomes a question of tactical management and ensuring that personnel burnout does not occur (*e.g.* mandating 12-hour tours of duty) and that replacements be available (*e.g.* recalling personnel on vacation).

**(2) Organizational Authority Conflicts**

Determining who has the organizational authority to perform new disaster-related tasks is another major problem. When there are new disaster-related tasks to be performed, questions almost inevitably arise about which organizations have the authority to assume them. For example, the responsibility for performing large scale search and rescue activities or mass burials of the dead are normally not everyday tasks of established emergency agencies. But some group will have to take them on in a large scale community disaster.

To some extent, the problem can be avoided by disaster preplanning. However, for a variety of reasons, communities often have difficulty in planning which organizations should have responsibility for new tasks. The consequence is that the matter has to be attended to in an *ad hoc* fashion by the key decision-makers among those managing the emergency.

**(3) Organizational Domain Conflicts**

Authority and decision-making problems surrounding the performance of traditional tasks sometimes arise between established organizations and outside or emergent groups. For example, for the most part, 'area security' is considered a traditional local police function. Conflicts can arise if state police or military personnel move into the disaster area and also attempt to provide security. Such actions are often viewed by the local police as an attempt to usurp their authority. This issue is sometimes manifested in disputes over who has the right to issue passes allowing entry into a restricted impacted zone.

The situation is even more complex when the competing organization is an extra-community group or an emergent group, as for example, when nonlocal relief or welfare agencies provide services during a community disaster. Though they may be exercising their mandated or usual function of providing standard services, such agencies are frequently viewed as intruders into the domain of local agencies while performing such functions. If the outside or local relief group is a new organization, established local agencies undertaking the same disaster tasks(s) are almost certain to ask questions about its legitimacy and authority.

The problem often cannot be well handled in preplanning because the convergence from outside the impacted community is almost always of such a massive nature that it cannot be controlled in any way (Fritz and Mathewson, 1957). However, sensitivity to an almost inevitable clash between 'locals' and 'outsiders' will soften attributing the matter to 'personality clashes' and correctly seeing it as a social structural issue. At least that suggests managing tactics that focus on organizations rather than people.

**(4) Organizational Jurisdictional Differences**

Community disasters frequently cut across jurisdictional boundaries of local organizations. This creates a great potential for conflicts. During non-crisis periods, vague, unclear or overlapping authority and responsibility can often be ignored. During disasters this is frequently not the case. Since disasters sometimes require immediate actions and decisions, unresolved jurisdictional issues often surface at the height of an emergency period.

This is one of the more difficult organizational problems in disasters since it comes out of the pre-impact situation and can have consequences for the post-disaster period, often fuelling or adding to the everyday community conflict picture (Quarantelli and Dynes, 1976). Tactically, a good solution is to obtain temporary consensus on areas of responsibility with the understanding that there will be no formal carryover into the recovery period. This might avoid perceptions and charges of seizure of organizational domains or turfs.

### **The Development of Co-ordination and Loosening the Command Structure**

Too often disaster planners and managers assume that centralized control has to be imposed, from the top down, on emergency activities. This image is often summarized in the question: Who is in charge? This involves what has been called 'the command and control model' ostensibly taken from the military area. However, research has consistently shown that this is not a good model for disasters and makes the wrong assumptions about what is likely to be happening and what is needed (*e.g.* Dynes, 1983). But co-ordination, not control, is what is required and partly achievable. In fact, even in the military, the command and control model can seldom be applied well in actual combat situations; it is non-applicable and likely to be dysfunctional in a civilian context. Loosening rather than tightening up the command structure is better for the emergency periods of disasters, although not necessarily so for other phases. Co-ordination is what is needed to be emphasized both in disaster emergency planning and managing, at least in developed societies.

However, while desirable, organizations typically experience a large number of co-ordination problems during a community disaster. Three major problems have been noted in social science research: (1) lack of consensus among organizations concerning the meaning of co-ordination; (2) strained co-ordination between organizations working on common but new disaster related tasks; and, (3) difficulties in achieving overall co-ordination in a community disaster of any magnitude.

#### (1) The Lack of Organizational Consensus

It is unusual to find any organization which does not agree, in principle, that co-ordination is needed during disasters. The problem, however, is that 'co-ordination' is neither self explanatory nor a matter of much consensus. At one extreme, some organizations view co-ordination, at best, as informing other groups of what they will be doing in the disaster. At the other extreme, some organizational officials see co-ordination as the centralization of decision-making in a particular agency or among a few key officials, thus confusing control and co-ordination. Given such diverse views surrounding the meaning of co-ordination, it is not surprising that even when a formal pre-disaster agreement to co-ordinate the disaster response exists, there can occur mutual accusations that one or both parties have failed to honour the agreement.

But prior agreement or not, an understanding of what co-ordination means in operational terms has to be developed if crisis management is to proceed well.

Thus, organizational officials should be asking more than telling, requesting rather than ordering, delegating and decentralizing rather than narrowing and centralizing at the height of the emergency (Dynes, 1974). An attempt can be made to impose command control and this is sometimes done with the experience being cited as confirming the relevancy of the action, but this overlooks how things might have proceeded much better with a co-ordination model. As we have discussed elsewhere, experience of a single disaster is not necessarily good; it is possible to learn nothing at all, or worse, to learn the wrong lessons (Quarantelli, 1987). 'War stories' contribute little to military strategy and tactics, 'disaster stories' can be as similarly uninformative and useless, even though they may be dramatic or interesting.

#### (2) Strained Organizational Relationships Created by New Disaster Tasks

It is difficult to have co-ordination (*i. e.* mutually agreed linking of activities of two or more groups) between organizations working on common but new tasks. Even local agencies accustomed to working together, such as police and fire departments, may encounter difficulties when they suddenly try to integrate their activities to accomplish a novel disaster task, such as the handling of mass casualties. While police and fire personnel may be accustomed to recovering a few bodies resulting from traffic accidents or fires, the large number of deaths resulting from a major disaster will pose a co-ordination problem. It is partly the newness of many disaster tasks which create strained relationships among organizations which have previously worked together in harmony. Also, in daily operations there can be a gradual development, frequently on a trial and error basis, of a working relationship between two groups concerned with the accomplishment of a common goal. Such gradual developments of co-operative relationships are generally an impossibility given the immediate demands during the emergency phase of a community disaster.

Preplanning can sometimes identify both the interacting groups and the new disaster tasks which they might undertake. But a lack of experience in such a joint enterprise often creates management difficulties at the height of the crisis. Here, as in most other cases, emphasis should be on the principle of remaining as close as possible in the disaster situation to the most familiar of people, activities, interactions, *etc.* While new social actions and behaviours are sometime necessary in an emergency context, generally the new should be as close as possible to the old.

#### (3) Impact of Disaster Magnitude

The larger the scope of a disaster and the greater the number of responders, the less is the likelihood of success of any overall organizational co-ordination. In fact, efforts to attain such co-ordination underlie the imposition of martial law or the designation of national military forces as the decision-makers during the disaster. Historically, neither event has ever occurred in the United States, although both are relatively common measures undertaken during catastrophes in developing countries (for similarities and differences between disasters in developed and developing countries, see Quarantelli, 1986). But these steps do not always produce overall co-ordination. This is understandable.

In almost any society, major community disaster will precipitate a mass convergence of non-local organizations upon the disaster site (Barton, 1970). The numbers involved, the different levels of the social structure which they represent, the heterogeneous mix of public and private organizations involved, and so forth, virtually assure the impossibility of achieving total overall co-ordination during the emergency period. Good prior disaster planning may reduce effectively the convergence of such organizations and thus allow a relative degree of overall co-ordination. But such co-ordination remains relative at best and is frequently never fully achieved – either by prior planning or by the use of *ad hoc* efforts – during the emergency period. The magnitude and increased frequency of new tasks to be performed, coupled with the need to integrate too many established, emergent groups and organizations, minimizes the effectiveness of overall organizational co-ordination during disaster situations.

It is to be noted that the evaluation criteria used to judge the consequences of not achieving total organizational co-ordination determine to a large extent the significance of co-ordination in promulgating an effective community response to disaster. If efficiency of response is rated highly, lack of co-ordination can be deemed a serious problem. If, instead, effectiveness of response is judged more important, it is possible to tolerate a much lower degree of overall co-ordination. Co-ordination is sometimes discussed as if it were an absolute good. This is not true. There can be relatively effective organizational responses in disasters without a high degree of co-ordination.

To indicate the above does not mean that preplanning and managing activities should not be directed at maximizing overall organizational or community co-ordination. Because everything cannot be achieved does not mean beneficial measures are impossible. But a recognition of probable limits can make for greater realism.

In fact, one general theme of this article is the need for disaster planners and managers to operate in the real world. As this article has tried to show, this includes understanding the actual and not mythological organizational problems in disasters and that many of them have to be handled as crisis management tactical matters rather than preparedness planning strategies. Further study may refine these general points but it is very unlikely to contradict the research findings and implications that have been discussed in the preceding pages.

## References

- Barton, A. (1970). *Communities in Disasters*. New York: Anchor.
- Britton, N. (1987). 'Toward a reconceptualization of disaster for the enhancement of social preparation'. In Dynes, R., De Marchi B. and Pelanda C. (Eds.), *Sociology of Disaster*, 31–56: Milan: Angeli.
- Drabek, T. (1986). *Human System Responses to Disaster. An Inventory of Sociological Findings*. New York: Springer Verlag.
- Dynes, R. (1974) *Organized Behavior in Disasters*. Disaster Research Center, University of Delaware, Newark, Delaware.
- Dynes, R. (1983). 'Problems in emergency planning'. *Energy*, 8, 653–60.
- Dynes, R. and Quarantelli, E. L. (1986). 'Role simplification in disaster'. *Role Stressors and Support for Emergency Workers*, 23–37. Washington, DC: US Government Printing Office.
- Dynes, R., Quarantelli, E. L. and Kreps, G. (1981). *A Perspective on Disaster Planning*. Disaster Research Center, University of Delaware, Newark, Delaware.

- Dynes, R. *et al.* (1980). *The Accident at Three Mile Island*. Washington, DC: US Government Printing Office.
- Fritz, C. and Mathewson, J. H. (1957). *Convergence Behavior in Disasters*. National Academy of Sciences, Washington, DC.
- Kreps, G. (1984). 'Sociological inquiry and disaster research'. *Annual Review of Sociology*, **10**, 309–30.
- Quarantelli, E. L. (1980). *A 100-Item Annotated Bibliography on Disaster and Disaster Planning*. Miscellaneous Report 25. Disaster Research Center, University of Delaware, Newark, Delaware.
- Quarantelli, E. L. (1982). 'What is a disaster?'. In Jones, B. and Tomazevic, M. (Eds.), *Social and Economic Aspects of Earthquake*. Program in Urban and Regional Studies, Cornell University, Ithaca, New York.
- Quarantelli, E. L. (1984). *Emergent Behavior at the Emergency Time Periods of Disasters*. Disaster Research Center, University of Delaware, Newark, Delaware.
- Quarantelli, E. L. (1985). *Organizational Behavior in Disasters and Its Implications for Disaster Planning*. Disaster Research Center, University of Delaware, Newark, Delaware.
- Quarantelli, E. L. (1986). *Research Findings on Organizational Behavior in Disasters and their Applicability in Developing Countries*. Preliminary Paper 107. Disaster Research Center, University of Delaware, Newark, Delaware.
- Quarantelli, E. L. (1987). *Converting Disaster Scholarship into Effective Disaster Management*. Preliminary Paper 117. Disaster Research Center, University of Delaware, Newark, Delaware.
- Quarantelli, E. L. and Dynes, R. (1976). 'Community conflict: its absence and its presence in natural disasters'. *Mass Emergencies*, **1**, 139–52.
- Quarantelli, E. L. and Dynes, R. (1977) 'Response to social crisis and disaster'. *Annual Review of Sociology*, **2**, 23–49.
- Quarantelli, E. L., Dynes R. and Wenger, D. (1986). *The Disaster Research Center: Its History and Activities*. Disaster Research Center, University of Delaware, Newark, Delaware.

## Working in Practice but Not in Theory: Theoretical Challenges of “High-Reliability Organizations”

**Todd R. LaPorte and Paula M. Consolini**

**Source:** *Journal of Public Administration Research and Theory*, 1(1) (1991): 19–47.

Public administration practitioners and scholars harbor no illusions about organizational perfection (cf. Jaffee 1973).<sup>1</sup> They do not expect bureaucracies to be error-free. People make mistakes, machines break. No one is perfect and no organization is likely to achieve this ideal. Indeed, administrative folklore teaches that errormaking is the normal bureaucratic condition: “Murphy (and his law) Lives!” Yet some organizations must not make serious errors because their work is too important and the effects of their failures too disastrous. This is especially true with organizations that operate technologies that are very beneficial, yet costly, and hazardous.

Since midcentury, a number of technologies have emerged that have great productive as well as destructive powers. Increasingly, any failure of these technologies is perceived by both their operators and the public to have such potentially grave consequences as to warrant the absolute avoidance of failure. Examples abound: operating nuclear power plants; industrializing genetic engineering; air-traffic control; identifying dangerous drugs; assuring the safety of bridges and dams; using pesticides in agriculture; and, less dramatically, distributing electric power. Perhaps for the first time in history, the consequences and “costs associated with major failures in some technical operations are greater than the value of the lessons learned from them.”<sup>2</sup> This is an altogether remarkable and unexpected situation. It suggests for such organizations that learning from trial and error in operating their central production systems, while certainly likely, does not recommend itself as a confident or preferred method of system improvement.

The result is an organizational process colored by efforts to engage in *trials without errors*, lest the next error be the last trial. The more important the benefit, the more likely the operating organizations will be pressed to sustain *failure-free organizational performance* – the avoidance altogether of certain classes of incidents or accidents judged by overseers to result in absolutely unacceptable consequences. In effect, organizational and political leaders and the public hold contradictory views. It is said that, “Of course, we can’t depend on bureaucracy. Mistakes are made routinely, they’re run of the mill. We’ll learn from them to do better.” Yet, “We demand this or that operation be run perfectly, or we’ll withhold funds and take away authority. These organizations must not fail; we do not wish to have to learn from such failures.”

Operators and watchful publics assume, indeed insist, that some organizations can avoid system failures. Indeed, a number of regulatory agencies have been established in search of this happy condition. Organizational representatives may play to this hope, assuring the public that they will not fail because they claim

sufficient technical knowledge to prevent it. As long as these organizations succeed, one assumes they will continue to do so. The public grows to take their benefits nearly, if perhaps nervously, for granted. Reliability and safety are technically assured so that one need not worry overly about the social and political dynamics in these organizations.

Such insistence on sustained failure-free performance is, from a theoretical view, quite extraordinary. From the literature, one cannot expect that it is possible, even to a moderate degree. Yet there are large-scale, highly complex organizations that have taken up this goal and almost always achieve it.<sup>3</sup> This is also remarkable and unexpected.

Particularly visible examples include nuclear power plant operation, radioactive and toxic-waste management, widely dispersed electrical generation-and-distribution systems, large-scale telecommunication and computer networks, express air freight, and maintenance of the purity of blood supplies used for transfusions. It is notable that this class of organizations is deeply embedded in the public sector, many are operated by public servants, and few of them do not draw the searching scrutiny of regulatory bodies and an increasingly nervous public.

Yet little is known systematically about the social or management aspects of such activities or the consequences for the operating organizations of attempting to attain nearly failure-free performance. The High Reliability Organization Project at the University of California, Berkeley, has taken on this task by conducting field research in three very complex, technology-intensive organizations that are held to a failure-free standard.<sup>4</sup> These high-reliability organizations (HROs) operate hazardous systems that present the challenge in an intense form. This article draws on two of the three – air-traffic control and naval air operations at sea. While each example here describes relationships in a specific setting, it also typifies such relationships in both organizations.

These organizations share the goal of avoiding altogether serious operational failures. This goal rivals short-term efficiency as a primary operational objective. Indeed, *failure-free performance is a condition of providing benefits*.<sup>5</sup> The operating challenges are twofold: (1) to manage complex, demanding technologies, making sure to avoid major failures that could cripple, perhaps destroy, the organization; at the same time, (2) to maintain the capacity for meeting periods of very high, peak demand and production whenever these occur.

Each organization in the study is large, internally very dynamic, and intermittently intensely interactive. Each performs very complex and demanding tasks under considerable time pressure, doing so with a very low error rate and an almost total absence of catastrophic failure. For example, air-traffic control over the past five years has nationally recorded over 75 million instances per year in which a controller handled an aircraft across an air space. In that time, there were no instances of a midair collision when *both* aircraft were under positive radar control. (See LaPorte 1988).

A U.S. Navy nuclear carrier group involves up to ten ships. The group is centered on an aircraft carrier manned by a crew of up to 3,000 that supports an air wing of some 90 aircraft and another 2,800 men. Phases of high readiness include daily operations from midmorning to midnight. During these phases, the air department may handle up to 200 sorties, which involve some 300 cycles of aircraft preparation, positioning, launching, and arrested landings (at 50- to 60-second intervals). For a deployment period of six months there will typically



be over 10,000 arrested landings with no deck accidents. Over 600 daily aircraft movements across portions of the deck are likely with a “crunch rate” – i.e., the number of times two aircraft touch each other – of about 1 in 7,000 moves.

Like a growing number of other complex organizations, each of the two operates tightly coupled, complex, and highly interdependent technologies. Each also faces very dynamic physical, economic, and political environments. How do such high-reliability organizations manage to attain very high levels of reliable performance, while meeting the goals of providing the capacity for sustained peak performance as well?

This article outlines the conceptual challenges involved in addressing the phenomena observed in these HROs and argues that these phenomena present major theoretical surprises and puzzles in at least three areas: (1) decisionmaking in the face of catastrophic error, (2) structural responses to hazards and peakloads, and (3) challenges of modeling tightly coupled interdependence. The argument is presented here in the spirit of discovering anomalous data rather than theory disconfirmation. Nor is there an attempt at this time to resolve the theoretical puzzles the authors believe are present in the HRO phenomena.

### **High-Reliability Patterns and Conceptual Puzzles**

Observations from field research suggest patterns of structure and behavior that are surprising. Those patterns cannot be straightforwardly derived from contemporary theory when the latter is used as a basis for predicting what one should see in organizations that attempt steadfastly to realize very high levels of operational reliability in the face of high hazard.

Insights from the literature are scant. There is little systematic theoretical or empirical work on the dynamics of those modern organization whose members (and the public) perceive that operational failures could result in increasingly dangerous and harmful consequences. This situation need not be problematic if HROs differed little from those trial-and-error organizations that are “failure tolerant,” that is, they operate systems for which production failures are not likely to result in costly consequences and where the value of the lessons so learned is greater than the cost of making them.<sup>6</sup> The HROs in this study, however, differ from trial-and-error, failure-tolerant organizations in at least the following respects:

1. Increasingly, the physical technologies and their organizational operating units are tightly coupled so that if important elements in routine production processes fail, the organization’s capacity to perform at all is severely threatened. Failure of a component causes such damage that the capacity of the organization to perform is threatened altogether.
2. The results of operational failures are visible and increasingly feared by the public, which perceives, therefore, that it has a very high stake in assuring failure-free operations. Strong public, external pressures exist for very reliable internal operations, not only for overall performance or economic profit.
3. These HROs have, until recently, had relatively abundant resources, allowing them to invest heavily in reliability-enhancing activities. This has

nurtured an organizational perspective in which short-term efficiency has taken second seat to very high-reliability operations.

The remaining discussion, concentrating on three conceptual areas, distinguishes between *risk*, *error*, and *hazard*, rarely using the term *risk*. *Hazard* refers to the characteristics of a production technology such that if it fails significantly the damage to life and property can be very considerable. *Risk* is taken in the engineering sense as the product of the magnitude of harmful consequences and the probability of an event causing them.<sup>7</sup> *Error* refers to mistakes or omissions in procedure or operational decisions that result in occurrences judged as undesirable and sometimes costly to remedy. Organizations continually experience errors, some of which result in consequences that threaten the viability of the organization in part or whole; this is a system failure. A high-hazard/low-risk system would be one in which a dangerous technology is operated in such a way as almost never to experience an operating failure of grievous consequence; it would be nearly failure-free – a high-reliability organization.

#### Decisionmaking in the Face of Catastrophic Failure

The literatures in organizational studies and public management treat decision-making largely in terms of planning versus trial-and-error learning, certainty versus uncertainty, and hierarchical versus decentralized processes. These notions suggest reasonably distinct properties that might bound the descriptions of decision dynamics in all organizations. While one sees much that is sensibly ordered by such frameworks, they do not prepare one well to anticipate the dynamics of the decision challenges faced by high-reliability organizations, where empirical evidence overwhelms analytical categories. The complexity and determinacy of the technologies and the certain harmfulness of their hazards do lead toward intensive planning and hierarchical patterns. Yet the remaining uncertainties urge an equal emphasis on operational decentralization and flexible processes.

The HROs in this study are characterized by very clear, well-agreed-upon operational goals. Those in the organizations carry on intensive efforts to know the physical and dynamic properties of their production technologies, and they go to considerable pains to buffer the effects of environmental surprises. In most regards, the organizations come close to meeting the conditions of closed rational systems, i.e., a well-buffered, well-understood technical core requiring consistency and stability for effective, failure-free operations. Decision strategies for most situations are straightforward, well-programmed, standard operating procedures (SOPs). In a sense, the only decision is which SOP to apply. In other words there is only routine decisionmaking. (Simon 1957)

At first look, one sees what is expected. There is, indeed, a great deal of dependence on operator adherence to the formal procedures of operations. Both air-traffic control and carrier operating units have thick manuals of SOPs close at hand and invest much training in learning them “cold.” Navy Air’s NATOPS (Naval Air Technical Operations Standards) manuals and air-traffic controllers’ “brown books” of procedures are good examples. They are the tested, authenticated formal procedures for the operation of most technical aspects of an extraordinary range of jobs and activities (*cf.* Schulman 1990).

The core technologies are hazardous and time critical. Effectiveness in decisions about operations is crucial. Such organizations invest a great deal in recruiting, socialization, and incentives to assure that there is agreement about organizational mission. At the operating levels, there is rarely any question at all. Consensus is unequivocal. Technical operations are treated as if they can be almost fully known, as if surprises and contingencies can be either eliminated or anticipated. In effect, calculative, comprehensive decisionmaking can be achieved. The organizational logic in this situation is to strive for the fully rationalized operational plan. The problem is one of trying hard enough.

These illustrations are nearly pure expressions of Thompson and Tuden’s “decision by calculation.”<sup>8</sup> Recall the early and well-proved work that focused upon the degree of consensus about preferences (goals) and beliefs about causation (means) and the consequences for the effectiveness of decisionmaking structures. Decision strategies vary as agreements about ends or means wax or wane.

In cases of the more demanding operational situations,

the appropriate techniques for equating cause-effect knowledge with known preferences are quite complicated. The data [are likely to] be so voluminous for example, that only [a computer] can make sense of them. Likewise, the particular sequences of action involved in the techniques may be hard to master and difficult to carry out, so that only the highly trained specialist – one for each kind of computation problem we can anticipate – can arrive at an appropriate choice. . . . [T]he strategy for decision is straight forward analysis – decision by *computation*. (Thompson and Tuden 1959, 198)

Such specialists would be constrained by four rules. They would be (1) prohibited from making decisions in issues lying outside their spheres of expert competence, and (2) bound to the organization’s preference scale. (3) All pertinent information would be routed to each specialist, and (4) every issue appropriate to his/her specialty would be routed to him/her (Thompson and Tuden 1959, 198–99).<sup>9</sup> The result is a formal, hierarchical, Weberian organization employing a classical bureaucratic decision process. It is the image of structure one also expects to see in military and critical organizations. The underlying assumption is that operators and specialists can know enough and, with enough training, production processes can be operated so that grievous errors do not occur.

Yet students of organization no longer take for granted that “causation [about means can] be ‘known’ as soon as a decision issue appears, [and] . . . that the organization is certain of its preferences regarding the several alternatives apparent” (Thompson and Tuden 1959, 197). Indeed, the very idea of complete knowledge of any significant organizational decision situation is arguably impossible.<sup>10</sup> Strategies, such as comprehensive analysis, are viewed with suspicion as the source of major program failures.<sup>11</sup>

The latter view rejects a centralized, rational decision process model in favor of one in which disagreement about means is likely. When differences of opinion or outright uncertainty about the appropriate means to accomplish an agreed-upon goal exist, then professional, skilled *judgment* is seen as the suitable method of decisionmaking to use: majority voting among those with experience would be the most appropriate basis for deciding.

Since the organization (or unit) faced with this situation is not in a position to program or compute its decision analyses, the situation calls for trial and error, a learn-by-doing approach to implementation. Try the means judged most likely to succeed, but be prepared to recognize any failure of method. As soon as it becomes clear that one method has failed, try another. In this process, keep lines of communications open, assure incentives that encourage the collection and reporting of information – learn from the past and do better next time.

The above are clearly the guides for *incremental* decisionmaking in the context of broadly rational planning. A combination of incrementalism and the hybrid concept “mixed scanning” (Etzioni 1967) should account for the decision dynamics in the kinds of organization at issue here.

The incremental perspective expects that errors can never completely be avoided and, as a result, focuses on the use of error as a tool to enhance decision-making.<sup>12</sup> Incrementalism views decisionmaking alternatives as a choice between making large and small errors. It takes into account “only the marginal or increment differences between a proposed policy or state of social affairs and an existing one” (Harmon and Mayer 1986, 266). It relies in part, on “a sequence of trials, errors, and revised trials” to direct (and improve) decisionmaking (Lindblom 1979, 518). This process of moving an organization in a kind of bump-and-go fashion, backing into the future, is expected to be more effective in the long run than unrealistic attempts to survey carefully and completely and weigh all alternative means.

Incrementalists rightly know that the limited cognitive capacity of decisionmakers – their bounded rationality – limits the potential effectiveness of any method of analysis based decisionmaking. “Decisionmakers have neither the assets nor the time to collect the information required for rational choice” (Etzioni 1986, 386; see also Agnew and Brown 1986).

[A]ll analysis is incomplete, and all incomplete analysis may fail to grasp what turns out to be critical to good policy [and perhaps operations]. . . . [F]or complex problems all attempts at synopsis are incomplete. The choice between synopsis and disjointed incrementalism – or between synopsis and any form of strategic analysis – is simply between ill-considered, often accidental, incompleteness, on one hand, and deliberate, designed incompleteness, on the other. (Lindblom 1979, 519)

The mixed-scanning extension of incrementalism places trial-and-error decisionmaking in the context of the more general plan that drives the organization. Mixed-scanning analysts emphasize the division of decisionmaking efforts into “wide-angle scanning” and a “zoom” focus. When the wide-angle scan of organizational activities reveals a problem or surprise, decisionmakers should zoom in on the activity in question and determine the exact nature of the surprise and how to deal with it. The investigations made and questions asked are guided by the organization’s goals. Trial-and-error decisionmaking is, thus, placed in an organizational context.

The incremental/mixed-scanning perspective is quite reasonable if an implicit, but fundamental, assumption is warranted: *Errors resulting from operational or policy decisions are limited and consequences are bearable or reversible, with the costs less than the value of the improvements learned from feedback analysis.*

For many of the operations on aircraft carriers and in air-traffic control centers, this is certainly the case. Day-to-day operational decisions are bounded by well-formulated and tested SOPs; calculative decisions operate much of the time. And within these bounds, application and adjustments are necessarily incremental. There are trial-and-error processes at work throughout various organizational activities, (e.g., mission planning, team organization, operations scheduling, introduction of new technology and procedures, maintenance.) A great deal of trial-and-error learning goes on in the small, so to speak.

Actions are closely monitored so that when errors occur *immediate* investigations are conducted. “Hot washups,” i.e., reporting problems immediately after the end of an operation, and “lessons learned” debriefings are an expected part of the aftermath of any even modestly complex naval training exercise. These are valuable contributions to the “calculative” aspects of air-traffic control and carrier operations. But the trial-and-error aspect of incremental, professional, judgmental decision processes have a sharper, more lethal edge in these organizations than in other more failure-tolerant ones.

Often on the basis of operational trials in the past, operators and managers in these organizations have learned that there is a type of often minor errors that can cascade into major, systemwide problems and failures. Some types of system failures are so punishing that they must be avoided at almost any cost. These classes of events are seen as so harmful that they disable the organization, radically limiting its capacity to pursue its goals, and could lead to its destruction. Trial-and-error iterations in these known areas are not welcome, or, as it is sometimes put, “are not habit forming.” And there is a palpable sense that there are likely to be similar events that cannot be foreseen clearly, that may be beyond imagining. (See Perrow 1984 and cf. Morone and Woodhouse 1986.) This is an ever-present cloud over operations, a constant concern.

HROs, then, have a triple decision-strategy challenge:

1. To extend formal calculative, programmed decision analysis as widely as is warranted by the extent of knowledge, the urgency of operational needs, and the ability to train or compel adherence to correctly calculated SOPs.
2. To be sensitive to those areas in which judgmental, incremental strategies must be used, with sufficient attention to requisites of performance, evaluation, and analysis to improve the process.
3. To be alert to the surprises or lapses that could result in errors small or large that could cascade into major system failures from which there may be no recovery.

Decision theorists have dealt with the first two, supposing that an organization will generally have one or the other type of problems to overcome. Rarely is there guidance on the dynamics involved when both calculative and judgmental strategies are necessary in mixed situations. While incrementalists recognize that this strategy does not apply to fundamental decisions, such as declaring war,<sup>13</sup> they are largely silent in the face of the important decisionmaking challenges associated with the need to avoid operational failure absolutely.

The more agreement there is that an activity is hazardous and calls for high operational reliability, the greater the inherent tension between (a) the behavioral expressions and norms of incremental, successive approximation-rooted strategies and (b) those strategies animating from comprehensive, systemic, anticipatory rationality. As the speed and potential scope in the propagation of error increases, what, then, are the expected dynamics of calculative- or judgmental-based decision processes? Although a great deal of work has been done on organization decisionmaking, there has been little serious consideration of how the challenge to be highly reliable alters decisionmaking strategies.<sup>14</sup>

Decisionmaking strategies in the organizations described here are significantly different – in mix and dynamics – from those described and prescribed by incrementalists. For some major functions, these organizations cannot wait for problems to occur and then correct them, though for other functions they do. Even the use of “sophisticated trial-and-error” decision strategies, such as “taking more stringent initial precautions than are really expected to be necessary,” is not enough (Woodhouse 1988, 218). Errors in major portions of operations must also be avoided. The alternative is, therefore, to strive for trials without errors.

HROs struggle with decisions in a context of nearly full knowledge of the technical aspects of operations in the face of recognized great hazard. They court the dangers of attempting coordinated, integrated, and detailed attention to operations that are at once greatly beneficial and often very dangerous. The people in these organizations know almost everything technical about what they are doing – and fear being lulled into supposing that they have prepared for any contingency. Yet even a minute failure of intelligence, a bit of uncertainty, can trigger disaster. They are driven to use a proactive, preventative decisionmaking strategy. Analysis and search come before as well as after errors.<sup>15</sup> They try to be synoptic while knowing that they can never fully achieve it. In the attempt to avoid the pitfalls in this struggle, decisionmaking patterns appear to support apparently contradictory production-enhancing and error-reduction activities. The patterns encourage

- reporting errors without encouraging a lax attitudes toward the commission of errors;
- initiatives to identify flaws in SOPs and nominate and validate changes in those that prove to be inadequate;
- error avoidance without stifling initiative or operator rigidity; and
- mutual monitoring without counterproductive loss of operator confidence, autonomy and trust.

Without attention to both the mix and the special decision requirements of high-reliability units, then current analyses and prescriptions are likely to range from irrelevant to confounding and dangerous.<sup>16</sup> The challenge to students of organizational decisionmaking is to forward conceptual and prescriptive understanding of mixed-decision structures, when *both* comprehensive and incremental strategies may sharply increase risk and when there is not (yet) a clear sense of the dilemmas or dynamics of high-reliability decision processes.

## Structural Responses to Hazards and Peakloads

The operational challenge for the HROs here is to stand ready to increase performance of a complex of technologies to deal with peakloads at any time and to avoid crippling operational failures in doing so. Do the formulations of organization theory provide a sure guide for what to expect regarding organization structure and, particularly, patterns of authority?

In a cogent, cryptic summary of literature on the relation of technology to structure, Scott (1987a) provides a starting point:<sup>17</sup>

[W]e expect *technical complexity* to be associated with structural complexity or performer complexity (professionalization); *technical uncertainty*, with lower formalization and decentralization of decisionmaking; and *interdependence* with higher levels of coordination. Complexity, uncertainty and interdependence are alike in at least one respect: each increases the amount of information that must be processed during the course of a task performance. Thus, as complexity, uncertainty, and interdependence increase, structural modifications need to be made that will either (1) reduce the need for information processing, for example, by lowering the level of interdependence or by lowering performance standards; or (2) increase the capacity of the information-processing system, by increasing the channel and node capacity of the hierarchy or by legitimating lateral connections among participants. (239, emphasis added)

The technical systems at the core of the HROs here are quite complex, requiring considerable differentiation of task groupings. They also require tight (coupled) horizontal coordination between different technical units in order to produce the desired benefits and services. Two of the three conditions noted above – structural complexity and interdependence – are met. The third – technical uncertainty – is not evident and does not increase with complexity and coordination interdependence. While the summary quoted seems implicitly to expect correlative increases in complexity, interdependence, and uncertainty, this need not be the case. These organizations have gone to considerable effort to understand the physical and operational subtleties and behavior of their technical systems. There is substantial investment in often very detailed technical descriptions, analyses, and continuous review of system performance. This drive for operational predictability has resulted in relatively stable technical processes that have become quite well understood within each HRO.

The literature leads one to expect that when the task structure is complex and well-known, a finely articulated division of labor with a centralized, directive authority structure is likely to result: stable, hierarchically complex structures with substantial information flows in the interests of coordination. Departmentalization of function into homogeneous working groups will minimize coordination costs (Thompson 1967). Both formal and informal information exchanges should be evident within a framework of rules and programs representing agreements (e.g., SOPs) about how things will be done (Galbraith 1973 and 1977). “Switching rules” will signal which of a variety of activities should be performed and in what

expected order, with strong emphasis on schedules to manage work flow (March and Simon 1958, 142–50, and Scott 1987a, 215).

These are acute predictions in complex organizations of scale, especially those that are stable and whose production technologies do not present high hazard. Are they adequate descriptors when the pace quickens and hazards grow?

Certainly, one observes in the HROs the predicted structure and processes outlined above, particularly during times of routine operations. Each organization shows a face of the bureaucratic mode of operations much of the time. This forms the ordering, status/rank-oriented background structure of the organization and is adequate for organizational responses to low to moderate demand. Is this structure adequate for response during peakload or high-tempo operations?

Extensive field observations on board both aircraft carriers and within air-traffic control centers found an unexpected degree of structural complexity and highly contingent, layered authority patterns that were hazard related. Peak demands or high-tempo activities became a solvent of bureaucratic forms and processes. The same participants who shortly before acted out the routine, bureaucratic mode switched to a second layer or mode of organizational behavior. And, just below the surface, was yet another, preprogrammed emergency mode waiting to be activated by the same company of members. There appear to be richly variegated overlays of structural complexity comprised of three organizational modes available on call to the members of hazard-related units.<sup>18</sup> Authority structures shifted among (a) routine or bureaucratic, (b) high-tempo, and (c) emergency modes as a function of the imminence of overload and breakdown. Each mode has a distinctive pattern, with characteristic practices, communication pathways, and leadership perspectives.

The routine mode is the familiar bureaucratic one. It is the most often observed and is associated with the many servicing and ordering functions that involve relatively error-limited and semiskilled activities. SOPs and job procedures are reasonably good at covering many job responsibilities. Superiors can know much of what is going on. One sees the familiar hierarchical pattern of authority, rank structure, and authority of formal position. Disciplined, reliable performance is based primarily on fear of superordinate sanction. “Do what I tell you, don’t negotiate!” Feedback is not valued; it is a time of punishment-centered operations.

Just beneath the surface of routine operations is another, quite different pattern. The high-tempo mode, practiced by the same operators who engage in bureaucratic patterns during slack times, is the pattern of cooperation and coordination necessary to deliver optimum capacity for sustained periods of time. It emerges in response to the rigors of increasing demand and peakload.

For example, this mode is evident during concentrated periods of flight operations at sea. During these, a variety of closely packed missions are flown, often by seventy of the Air Wing’s ninety aircraft. The latter range over the five different types on board, with day and night schedules stretching from 10 am that morning to 1 am that night, a 15-hour period. A somewhat less-intense period for air-traffic control occurs at peak hours (9:30–11 am and 3–5 pm) nearly every day during the summer and midwinter times of heavy air travel.

Critical operational functions involve relatively complex, tightly coupled activities that may involve substantial hazards during concentrated operation,



some of which are described in the next section. Many of these jobs can be specified in close detail, but contingencies may arise that threaten potential failures and increase the risk of harm and loss of operational capacity. In the face of such surprises, there is a need for rapid adjustment that can only rarely be directed from hierarchical levels that are removed from the arena of operational problems. As would be expected, superiors have difficulty in comprehending enough about the technical or operational situation to intervene in a timely, confident way. In such times, organizational norms dictate noninterference with operators, who are expected to use considerable discretion.

Authority patterns shift to a basis of functional skill. Collegial authority (and decision) patterns overlay bureaucratic ones as the tempo of operations increases. Formal rank and status declines as a reason for obedience. Hierarchical rank defers to the technical expertise often held by those of lower formal rank. Chiefs (senior noncommissioned officers) advise commanders, gently direct lieutenants, and cow ensigns. Criticality, hazards, and sophistication of operations prompt a kind of functional discipline, a professionalization of the work teams. Feedback and (sometimes conflictual) negotiations increase in importance; feedback about “how goes it” is sought and valued.

“On the floor” in air-traffic control centers, peakload, high-tempo times put each sector’s radar controllers and associate radar controllers under considerable pressure. They can expect the challenge of “handling” up to twenty-two to twenty-five aircraft simultaneously – “twenty-five spots moving on the screen” – perhaps for several hours. It is a time of challenge, rising excitement and strain, especially for the senior radar controller who “has the sector,” that is, who is responsible for “controlling” and communicating with the aircraft aloft. The number of aircraft to be controlled is displayed on a screen next to the radar. It indicates, by columns that each hold eleven flight numbers, the aircraft already in the sector and those due within fifteen minutes. As first one column (11 planes) fills up, then two columns (22 planes), and now is lapping over to a third, another controller silently joins the two who are coordinating the sector, one at the radar, the other the assistant. The one who joins may be a senior controller just off a break. It may be the area supervisor who oversees the five sectors. These adjunct controllers join vicariously in the small drama being played out during this hour of high tempo. They are watchers, “extra pairs of eyes,” experts who are able to see the evolving situation and give supportive assistance, sound alerts, and provide suggestions, usually in the form of questions rather than directives. Thus, those who perhaps earlier were training or evaluating the controller “in the seat” now perform an extended team function.

In times of bad weather and peakload, when communication demands are heaviest, yet a fourth role emerges. A communications controller complements the radar controller in the communication loop, slipping into the job of communications to everyone other than the aircraft aloft, to other Federal Aviation Administration facilities, reporting changes in weather, and fielding questions from air-traffic control managers, so the radar controller is undistracted. Each person “knows the boundaries” of his/her communications realm. The supervising controller remains in the background, rarely intervening or giving direction, rather assuring that the team is refreshed and that assisting roles are filled and “sensing the level of stress” on his/her people.

Other controllers may assume the supervisory role – since the assigned supervisor is likely to be caught up with helping some controllers deal with overload. They will alert “the super” to watch a controller who looks like he is in trouble. Or they will call to one of their colleagues coming off break that things are getting busy in the affected sector.

A particularly intense episode may occur when there is a substantial change in strong wind direction, a potentially hazardous situation. This may require a change in the final landing direction and, therefore, major shifts in the flight patterns of arriving and departing aircraft. And it may mean halving the quantity of aircraft that can be handled due to the substitution of a single runway for a dual parallel arrangement. If this happens just before or during a peakload time, especially when the flight path structure serving multiple airports in a region is tightly packed, there is very great demand on the local approach control and higher altitude enroute center controllers.

This is the situation in the San Francisco area when the wind shifts to the southeast from the northwest. While dual-runway capacity remains the same, air traffic has to be rearranged by swinging it round 180 degrees from a southeast approach heading to a northwest one, and this must be coming within an airspace that is nearly saturated much of the morning and afternoon. Since there are some three major airports, two large military air bases, and five smaller general aviation airfields in this area, there may be a rather large number of aircraft aloft. Reorienting the flight paths so much becomes a major program for the controllers on duty. The tempo at the approach-control facility and the enroute center increases, and controllers gather in small groups around relevant radar screens, plotting the optimal ways to manage the traffic as the shift in direction becomes immanent. Advice is traded, suggestions put forward, and the actual traffic is compared with the simulations used in the long hours of training the controllers undergo to deal with “the Southeast Plan.” While there are general rules and controllers and supervisors have formal authority, it is the team that rallies round the controllers in “the hot seats.” It will be the experienced controller virtuosos who dominate the decision train. “Losing separation” – the key indicator of controller failure – is too awful to trust to rules alone.

Notably, there are a number of contradictory behaviors and relationships between the bureaucratic and high-tempo modes. Recall that they are carried out by the *same people* facing different degrees of pressure. The character of delegation, communication costs, and status vary considerably.

There still remains a final, emergency-response mode that is galvanized by the highly consensual, unequivocal indications of emergency or superordinate threat. These are signals that operations are proceeding in a way (“coming unraveled”) that could result in very serious, harmful consequences for the unit. These may be life threatening; they are sometimes organization threatening as well. This mode is based on a clear specification of emergency events. When they occur, there are a number of carefully assigned, practiced operations that are activated. Flight deck crews have predetermined roles in fire-fighting situations. When air-traffic control computers go down, controllers know exactly what to do, for example, to “spin” the aircraft in place (fly in circles) to buy time to sort out the mess and correct the computer problem.

Authority patterns are based on predetermined, preprogrammed allocation of duties, a directed – in a sense scripted – collegial teamwork process of instant response. HROs devote considerable effort to simulating emergency situations and practicing responses to them. Again, these are many of the same people who have already incorporated the bureaucratic and high-tempo modes of behavior in their behavioral repertoire.<sup>19</sup>

Contemporary organization-theory literature does little to alert one to the likelihood of these multilayered, nested authority systems.<sup>20</sup> In the literature, different types of organizations parallel each mode: there are bureaucratic, professional, and disaster-response organizations. Each has a distinctive character. It is unlikely that all three might be usable by the same organizational membership.<sup>21</sup>

The conceptual and research questions that flow from this situation are important. How does one conceptualize nested authority structures? What is the process of arriving at the rules for shifting from one mode to another? What are unambiguous indicators of the onset of increasing load so that most or all of those who would need to undergo the shift do so in a timely manner? And perhaps most importantly for operating effects: to what degree do variations in authority preferences and styles vary the speed and onset of the shift in bureaucratic operations versus high-tempo operations?

A most interesting problem arises in situations where the organization is confronted with increasing demands and units are experiencing pressures that would be relieved by the processes of higher-tempo operations. Overlaying high-tempo operations upon bureaucratic ones (order-enhancing functions must still be carried on) adds to the dominant mode of hierarchical and directive relations those relations associated with functionally oriented leadership (nearly regardless of organizational status). In this situation, feedback is valued, negotiations and accommodation among interdependent units are critical, and interpersonal skills are of increased importance. At the same time, of course, many bureaucratic, formal organizational disciplinary relationships persist, e.g., the Code of Military Justice remains, as do the regular administrative functions of accountability. When activities associated with high-reliability operations increase in urgency, they call for additional sets of behaviors with the result that routine and high-tempo behaviors may be in tension. Some operational modes call for different, sometimes contradictory, behaviors, and attitudes. Operational modes also represent dominant authority modes or styles: hierarchical or collegial.

To what degree does an imbalance of authority skills or inclinations to use a less-comfortable style bias the character of operations in the different modes? Would a preference for collegial, professionally oriented direction lead to undue weakening of the bureaucratic order maintaining operations? Do leaders who favor hierarchical direction, based on formal positions and possibly superior knowledge, resist too long in turning to their formal subordinates for operational cooperation? It is likely that there would be a conflict of expectations arising from the same person being subjected to several sets of authority/organizational modes. This was evident for one of the aircraft-carrier captains. He noted, one night on the bridge, the importance of encouraging deckhandling people to report mistakes that might lead to real troubles. At the same time, he recognized the irony of the situation and the clash of norms. Pointing down to the dimly lit flight deck below, he said

I just had to sentence the third-class petty officer who fires the waist cat (catapult) to three days in the brig – on bread and water – for going AWOL [absent without leave]. He felt he had to move his mother into another place before he left on this exercise. He didn't clear this "leave" with anyone. I hated to do it. [Apropos the need to maintain loyalty and positive attitude toward his operational job.] But we have to have [bureaucratic] discipline among the men.

The range and intensity of these tensions and the organizational norms that arise to reduce them are of considerable interest.

Nested authority patterns challenge organization theory to add a new level of complexity to existing models of organization decisionmaking and authority structure. The logical foundations for these models are available in the literature.<sup>22</sup> Thompson's (1967) definition of *organization*, for example, can be modified slightly to acknowledge the challenge associated with trying to be a highly reliable organization.<sup>23</sup> While these organizations may be natural systems trying to be rational, they cannot afford the errors associated with acting as if the organization has achieved complete closure when it has not.<sup>24</sup>

#### Challenges of Modeling Tightly Coupled Interdependence

The most vivid impression of the operating groups in these HROs is one of close interdependence, especially during high-tempo or emergency activities. Interactions are a mix of J.D. Thompson's sequential and reciprocal interdependencies prompted by the functional needs of the technologies and the pressures of high demand (Thompson 1967). Relationships are complex, tightly coupled, sometimes intense and urgent. Air-traffic control dynamics and aircraft operations at sea provide many examples, several of which are outlined below.

Activities in an enroute air-traffic control center have a palpable sense of ebb and flow. During the early morning hours before 6:30 am, one person handles both the radar and the associate controller roles. As activities increase to normal routine, (7 am) a radar controller – talking and directing – is assisted by an associate controller handling the paper-based backup "flight strips." The associate controller provides alerts regarding which aircraft may seek or need a change. As the high-tempo demands approach (9:30 am), the dynamics discussed above evolve. A third, often senior, controller joins the two regulars as "another pair of eyes." At top tempo (10–11 am), the area supervisor (over five sectors) may also be nearby, along with perhaps two or three other controllers who are interested spectators.

This evolution is rarely overtly directed. Rather, it is self-organized by the controllers, who take their place "next in line" to replace those controllers in the area who have gone longest without break. "Onbreak" controllers observe and assist their fellow radar controllers, who are formally responsible for the watch, but accept support of "other sets of eyes." Close reciprocal coordination and information sharing is the rule.

As aircraft proceed through a sector, they must be "handed off" sequentially to adjacent sectors. This flow requires close, cryptic coordination with radar controllers "over there [in sector 44] and there [sector 32]." As an aircraft nears the sector boundary, a set sequence of communications and computer handoffs is

initiated, and an acknowledgement of “handoff accepted” is expected. At the same time, aircraft are being “handed to” the radar controller, logged in and spotted by the Associate, and acknowledged as received in turn. For a busy sector – up to twenty planes being monitored simultaneously – handoffs and “hand to’s” may be coming from and going to three or four neighboring sectors, perhaps as many as five or six a minute. A helping unit – the traffic-management coordinator (TMC) – is in the background monitoring the whole center’s situation on another, more far-reaching radar. “Flow control” (the TMC) adjusts the overall flow rate into and out of the center’s region. The TMC does this by anticipating approaching traffic and steadying the external and internal flows in order to head off overloading a sector or area. The TMC “sees” the pattern of traffic flows over much of the U. S. through computer readouts and a recently installed nationwide, integrated radar presentation.

Aircraft carrier operations at sea present similar, much noisier examples of interdependence.<sup>25</sup> The typical activity segment is the periodic cycle of launching and recovering a burst of sorties. Perhaps twelve to seventeen planes have been scheduled for a variety of missions. They are generally sent out for about 1.25 to 1.5 hours. “Launching” – catapulting the plane – the “event” takes about twenty-five minutes. “Recovery” by arresting the landing of the plane begins about forty-five minutes after the last plane has been launched. Coming in, often at about sixty-second intervals, aircraft circle the ship at an altitude of five hundred feet, swinging round aft of the ship into the final approach an eighth of a mile from the “trap.”

A recovery cycle is an extraordinary mix of delicate maneuvers, thunder, and careful, concentrated movement of aircraft deck handlers (“yellow shirts”) and dozens of watchful eyes intently scanning the deck for any potential misadventure. As each aircraft comes round to the final approach, a television camera picks it up for video recording and later debriefing. These images are sent round the ship and into squadron spaces on a hundred screens.

The aircraft will “setup” nose high, power high, dragging the plane with sufficient power so an instant waveoff can be made. Far back on the aft, port side, nearly pitched into the sea, the senior landing signal officer (LSO) from the airwing and the LSO from each pilot’s squadron “bring each aircraft round,” attentive to the positioning and techniques as each pilot brings his aircraft screaming down toward the four deck pennants (wires) of the arresting gear a few feet away. The LSO’s role is to advise on, then authorize a final landing. At the same time as the aircraft is turning onto “final,” the arresting-gear setters receive the proper setting for the pressures on the arresting-gear braking machines. The pilot has radioed his “fuel state” to the air boss (tower). Based on the weight of the type of plane and the weight of the fuel remaining, the tower calculates the proper pressure setting and calls it to the arresting-gear positions. Plane types and fuel loads change constantly.

Four men individually set the braking pressure for each aircraft approach. A setting too low will let the plane “run out” too far along the deck and dribble off the deck into the sea; too high a setting risks tearing the plane in half. Meanwhile, ten pairs of eyes scan the deck to assure that no newly parked aircraft, towing equipment, or crew members stray over the designated “foul lines” on either side of the landing area.

With arresting-gear set and decks clear, the carrier is ready for the plane to land. If technique holds, the plane lands – crashes, really – into the midst of the arresting wires at a speed between 120 and 130 knots (roughly between 135 and 150 mph, depending on the type of aircraft) usually to “catch number three wire.” Just as the pilot feels touch down, he accelerates the throttle to 100 percent and begins to take off again. If he has “engaged a wire,” he is brought to an abrupt stop, engines howling at full bore. If he has “boltered” (floated over the last wire or if his hook has bounced over it), he is already airborne for another go. (“Full cuts” – abrupt, full reductions of engine throttle – quickly slow the jet engine turbine and air speeds, leaving one with insufficient time to regain engine speed and power in order to recover enough air-speed to escape the sea if a “go round” is necessary.) As the plane comes to a stop, “yellow shirts” run out to check the hook as it is raised and direct the plane out of the runout area. The arresting wires are retracted, checked for frays, and made ready for the next landing in fifty-five seconds. After one hundred engagements, the wire – a very husky cable – is disengaged and thrown over the side, well before it is likely to fray and weaken.

This whole process is overseen by the air boss, with the assistance of the “miniboss,” while the ship’s captain observes from the bridge. Incoming aircraft are coordinated by air operations deep in the midst of the ship and the “handler,” the aircraft handling officer, rides herd on the sometimes 150 men who direct, fuel, position, and arm the aircraft during an “evolution.” A smooth twenty-plane cycle takes hours to set up and involves an intricate technological ballet of men and machines carried out by a closely integrated team monitoring incoming aircraft and handing each off to the next “station.”

In the backgrounds of both the carriers and the air controllers stands a much larger number of people who assure that the machines and communication systems are up and running; that fuel and power is on hand; and that the process is planned well enough so that each aircraft fits more or less snugly into a pattern of hundreds of flights and journeys.

These examples, simplified here for presentation, represent remarkable bits of human cooperation and the exposure the participants to very hazardous circumstances. Yet in both cases the safety record of these organizations is astonishing, especially if one calculates failure rates, i.e., the number of failures contrasted to the number of times they could have failed. The decision-behavior dynamics and structural pattern that support this extraordinary level of accomplishment defy simple or complicated description. In a sense, HROs “*work in practice and not in theory.*”

Decisionmaking dynamics are often in flux and vary as function of the gravity of consequences. Structural relationships within HROs and with the important overseers in their environments are quite intricate, exhibit high degrees of interdependence, and vary as a function of tempo. These patterns are remarkably complicated and confound attempts satisfactory description. The key problem is to relate (a) the character and social properties of the task technology to (b) the properties of intra- and interoperational unit structure in ways that (c) inform analyses of decisionmaking dynamics, organizational cultural characteristics, and ultimately performance.

A growing body of literature on analyses of social and organizational networks, interdependence, and structural complexity appears to address this problem. Does this work serve to provide conceptual and formal languages and

methodologies that could be used in charting these “complex, tightly coupled systems?”<sup>26</sup> Would their application provide a basis analysis of structural changes and organizational stability, on the dynamics of demand overload in the most stressful situations facing HROs? If these tasks could be done, even at considerable theoretical and empirical effort, it would be worth it in terms of an increased understanding about the implications of organizational or technical changes for the dynamics of high-reliability systems.

Complicated relationships in HROs begin in the work unit, the small groups of men and women who are closest to the productive action – and to the hazard. They operate with an extending web of suppliers, support units, and operation planning groups. This is the level where one might turn to social-network analysis as an aid to understanding.<sup>27</sup> Perhaps the interlocking corporate relations work could complement.<sup>28</sup> This literature, while suggestive conceptually, mainly addresses the identification of emergent smaller and inform networks. Considerable effort has gone into developing a method of teasing out the regularity of often-invisible relationships between individuals in relatively unstructured social life. There are very few attempts to deal with second- or third-order relations – either within status levels or between them – in groups formally structured by organizational or technical design (Lincoln 1982). Redressing this situation could be important, for example, in examining the degree to which a system is tightly coupled and the consequences, say, for the propagation of the effects of failures as systems vary in their degree of tightness or looseness.

Recent work on problems of interorganizational relationships or interdependence also seems promising on its face.<sup>29</sup> These are efforts to provide a conceptual basis for describing the interactions or linkages between organizations (and sometimes within them). An underlying premise is that social relationships are strongly dependent on the exchanges of various social and economic resources deemed by the parties and groups to be important for their well-being and survival. Some empirical work attempts to match regularized informal or formal relationships with the flows of resource exchanges that make up a central part of organization life. These notions are intuitively very suggestive of what is seen in HROs. Indeed, both within and among critical operating groups, patterns of high degrees of interdependence, i.e., the mutual exchange of social and financial resources, appears particularly evident.

But when turning to this literature, one discovers that “interdependence” is taken to be interaction with little development of more elaborated exchanges of specific resources.<sup>30</sup> At its present stage of development, types of resources, or their empirical indicators are insufficiently developed to specify the bundles of resources exchanged within patterns of the multiple dependencies one observes in organizations. Nor are there useable concepts and indicators assisting in mapping the flows of resource exchanges through networks of some scale or in specifying the “tightness” or looseness” in relationships.

Organizational scale in technically sophisticated and demanding systems suggests the descriptive and analytical language of structural complexity.<sup>31</sup> Again, much of this work is conceptually interesting, with some attempts to encompass large organizations at a macroscopic level of description using rough measures of differentiation, size, and structure. There are, however, few efforts to get “into the field” at a refined level of analysis. While there are some descriptions of

small systems, such as boards of directors or small emergent groups forming social networks, there is scant work dealing with organizations of scale in ways that attempt to take into account status levels or hierarchies in much detail.

Common limitations across these literatures are (a) the relatively small scale of the activities they address empirically; (b) the implicit expectation that the phenomena to be described, however complex, will be essentially loosely coupled; and (c) infrequent, limited attention to phenomena that exhibit hierarchical, status-stratified behavior (Lincoln 1982, 8 ff.). Methodological and instrument limitations also inhibit careful description.<sup>32</sup> These reflect both attention to analyzing the smaller-scale, emergent network phenomena and the more general descriptive and calculational difficulties of attempting rigorous analysis of behavior in large-scale, tightly coupled social activity.

In sum, for purposes of close dynamic or structural descriptions or hypotheses about HROs, these literatures disappoint. This is more an observation than a criticism. None of this work was intended to address the challenges that HROs confront. While the conceptual problems of interdependence and complexity have been part of the social science agenda for at least twenty years, this work is still in a very early stage of development when sent against the organizational phenomena being observed.

### **Conclusions**

Given the theoretical (and practical) limits to achieving failure-free operations in organizations of scale, some organizations are astonishingly reliable – much higher than seems theoretically possible. We have argued here that the organizations that operate hazards systems and achieve high levels of continuous reliability reveal a richness of structural possibilities and dynamics that has not previously been recognized. Decision dynamics and authority and functional patterns suggest layered complexities that facilitate extraordinary performance. Deeper understanding of these phenomena will require more layered analytical complexities as well. Theories that can account for what has been thought highly unlikely will enlighten the conditions, costs, and relationships associated with a level of regularly exhibited organizational performance that has been expected only for brief episodes under emergency and exceptional conditions. Such speculation calls for a wide range of empirical work that examines the evolution and dynamics of high-hazard/low-risk public and public-service organizations and the agencies that support and regulate them.

Current research based tacitly on the trial-and-error decisionmaking perspective reinforces unexamined assumptions about what phenomena are important and what problems should be taken up. Much organizational research is driven by practical problems – that is, it is prompted by outcomes that managers, academics, and policy outsiders view as undesirable, unwarranted, and unnecessary. It is attentive to concerns about decisionmaking and policy direction of “machine” bureaucracy without addressing the possibility that organizational life may have gotten beyond our implicit and unexamined understandings of it. There is, in a sense, the implicit view that all experienced students of organizations or politics know what a positive, viable, and realistic organizational situation is



and can therefore go immediately to studying the problem as if they knew what the right way was. Rarely does this perspective include questions about how good an organization can be or about what might be expected as the highest regularly sustainable level of accomplishment possible given the circumstances facing the organization. Absent a perspective about maximum possible accomplishments, students of public organizations and public policy often have exaggerated expectations of what one might or should expect of social cooperation in modern society.

A second implication closely follows. Most HROs provide important public services that require operating for long periods at high-peak capacity. Failures of their task and production technologies can be catastrophic – the costs of major failures seem much greater than the lessons learned from them. Public and official concern has grown concerning HRO operations, costs, and safety performance. In responding to these concerns, analysts and policymakers have tended to suppose that behavioral patterns in effective HROs do not vary significantly from those in the more familiar, effective trial-and-error organizations. If this were the case, there would be little reason to give special attention to HROs, except perhaps to placate a nervous public. The idea, however, that there is a close similarity between HROs and trial-and-error organizations is unlikely; as argued above, there are several limitations to contemporary theory.

Without an improved theoretical understanding and subsequent changes in conventional organizational wisdom there are likely to be unexpected, subtle, and unpredictable consequences from the introduction of powerful and demanding new technical systems into complex HROs of scale. Criticisms and proposals for change are likely to underestimate and be underinformed regarding their consequences for organizational operations. Overlooking the requisites for high-reliability organizations and the costs and processes that assure them is a source of major policy error and the roots of tragic remedies.

## Notes

1. The quotation in the title is from a remark by Walter Heller brought to our notice by Richard Hug. This article is a revision of a paper delivered at the annual meeting of the American Political Science Association, Washington, D.C., September 1988, and the Conference on the Future of Public Administration II, Minnowbrook Center, Syracuse University, September 1988. The research was supported in part by Office of Naval Research contract N-00014-86-k-03123, National Science Foundation grants SES-8708804 and SES-8911105, and the Institutes of Governmental Studies and Transportation Studies, University of California, Berkeley. The paper draws on discussions of the High Reliability Organization Project research team; see note 4. The authors thank Karl Weick, Richard Hug, and several anonymous reviewers for their constructive comments.
2. We thank Austin Hoggatt for this compact phrase.
3. The “failure-free” or high-reliability goal has been part of organizational life for some time, for example, in hospital operating rooms, the delivery of water supplies, preventing accidents in the workplace, care in financial accounts, and other activities within organizations. Recently, however, high-reliability demands have been applied insistently to technical systems of such scale that the failure-free goal is sought for whole organizations.
4. The organizations are the Federal Aviation Administration’s air-traffic control system and the two nuclear aircraft carriers and air wings of the U.S. Navy’s Carrier Group Three, USS Carl Vinson and USS Enterprise. We are also studying Pacific Gas and Electric Company’s electric power system. The illustrations reported here have strong parallels in

the utility, including its nuclear power station. The project team has included Geoffrey Gosling, Transportation Engineering; Todd R. La Porte, Political Science; Karlene H. Roberts, Business Administration; Gene I. Rochlin, Energy and Resources; and Paul Schulman, Political Science, Mills College, with student members Paula Consolini, Douglas Creed, Jennifer Halpren, Barbl Koch, Edward Lascher, Suzanne Stout, Alexandra Suchard, and Craig Thomas. For an overview of the project see La Porte, Roberts, and Rochlin (1989), and Roberts (1989, 1990). The full study also considers organizational culture and technological change.

5. When systems begin to take on this characteristic, societies generally turn to government to assure such performance, either as operators or as regulators. It is a remarkable task to shift to the public sector.
6. If this were the case, these organizations would exhibit much the same phenomena as described or predicted in organization and management studies. See Perrow (1984) for a pointed and vivid discussion of the organizational aspects of "normal accidents" in hazardous systems from just such a perspective; *cf.* La Porte (1982). In null-hypothetical terms, organizations would not vary in internal authority or communication patterns, decisionmaking behavior, or internal culture as a function of the degree to which their production technologies are perceived to be hazardous or to which the consequences of individual failures in production are seen to vary in severity. This hardly seems plausible. Yet organization theory literature rarely speaks to this situation. This literature has been derived almost exclusively from organizations in which trial-and-error learning is the predominant and accepted mode of learning and improvement. Contemporary administrative/organization theories are essentially theories of trial-and-error, failure-tolerant, low-reliability organizations. For the rare exceptions, see Landau (1969, 1973), Lerner (1986), Lustick (1980), and Woodhouse (1988) for a beginning logic that calls for empirical work. There is an extensive literature on equipment reliability in the engineering literature, but it does not inform the organizational problem.
7. A prior question concerns the characteristics of an organization's production technologies which result in perceptions that its failure is increasingly hazardous. For examples of studies of risk and risk perception, see Fischhoff; Slovic; and Dietz, *et al.* (1991). See also Metlay (1978).
8. Thompson and Tuden (1959); see Thompson (1967) and Scott (1987a) for more recent uses and interpretations of the logic of each decision strategy.
9. Interestingly, this seems a precursor to the garbage-can model of decisionmaking in a much different structural situation; see Cohen and March (1972).
10. See Reason (1990) for a comprehensive review of studies of human error mainly at the individual level. In contrast, the interest here is on the group or organizational context of human performance.
11. See, for instance, Simon (1957b), March and Simon (1958), Braybrooke and Lindblom (1963), Lindblom (1959), Etzioni (1967), and especially Landau and Stout (1979).
12. See the work of Lindblom and others developing the concept of "disjointed incrementalism," "muddling through," and "partisan mutual adjustment." See Braybrooke and Lindblom (1963), Luidblom (1959), and Lindblom (1965) for early expressions of this perspective. See also Lindblom (1979) and Etzioni (1967 and 1986) for a revision of mixed scanning and Lustick (1980) and Wimberley and Morrow (1981).
13. See Etzioni (1967) for a discussion of the difficulties of incremental decisionmaking in "fundamental" situations. Etzioni expects errors to occur: "While mixed scanning might miss areas in which only a detailed camera could reveal trouble" (389), it is less likely than incrementalism to miss obvious trouble spots in unfamiliar areas. A similar but unaddressed situation obtains for operational processes of high hazard.
14. Landau (1973), Morone and Woodhouse (1986, chapters 8 and 9), Woodhouse (1988), and Lustick (1980) are exceptions. See also Perrow (1984) and Schulman (1980) for views that touch on these issues.
15. See especially Schulman (1990) and La Porte and Thomas (1990) for an unusual case from another example of a HRO.
16. See Rochlin (1988) for a description of this situation during flight operations at sea.
17. See also Thompson (1967) who argues that administration in these situations is likely to be programmed, with hierarchical authority structure.

18. Cf. Rochlin (1989) for a complementary view stressing patterns of informal organization.
19. There are still some situations that surprise operational personnel. The emergency-response mode is often operative when this happens and a special form of the high-tempo operations mode emerges. Those on the spot with both technical skills and personal presence take charge until the emergency is in hand, then they revert to the directed mode. See, for example, Sallings (1978) and the research on community response to disasters and on risk management after the Three Mile Island nuclear power plant disaster.
20. The modes-of-operation observations are consistent, *post hoc*, with the contingency theory claim that the better the match between structural differentiation and the complexity of the work performed, the higher the organization's effectiveness. The more specific contingency expectations, however, are too simple to account for the complexity and flexibility observed. Earlier work of Lawrence and Lorsch (1967) argued that some organizations will be more highly formalized and have greater goal specificity than others and that the differences are associated with the organization's environment. As summarized in Scott (1987a), organizational forms are ranged along a *single* continuum: at one end are organizations that have clearly specified goals, are centralized, and have highly formalized organizational structures; at the other end are organizations that lack agreement on goals, are decentralized, and have less formalized organizational structures. This continuum may explain the range of trial-and-error organizational forms, but it needs elaboration to account for HROs that at times exhibit high formalization and, at others, exhibit low formalization. The modes-of-operation pattern could be rationalized in terms of Lustick's (1980) logic, but this is not a central part of his paper.
21. Cf. Rasmussen (1988) for a similar insight from the engineering risk-management community.
22. There are two views from widely divergent perspectives that are also consistent with the observations here but still too abstractly applied to use as a basis for deriving hypotheses concerning internal authority patterns in HROs. See K. Weick's (1987) notion of requisite variety and the work on organizational networks, especially W. W. Powell (1989).
23. See Lawrence and Lorsch (1967); see also the extension of the contingency theorists' views in Galbraith (1977, 107), Pfeffer (1981), and Pfeffer and Salancik (1978).
24. Scott's (1987a) extraordinary summary also provides conceptual logics that could be used *post hoc* to suggest elaborations of theory once the observations have been made. However, in an attempt to assist the researchers here in doing so before the fact, Scott (1987b) found that the literature is quite limited in terms of overall organizational reliability. Its main conceptual utility is in addressing the conditions associated with individual reliability in situations in which improvements would be from relatively modest to above-average levels.
25. See Rochlin *et al.* (1987), Rochlin (1989), and Roberts (1990) for descriptions of other activities as well.
26. One of the authors here returned to this task (after some ten years) under the auspices of the Max Planck Institute for Social Research, Cologne, FRG, October 1987; see La Porte (1975, chapter 1, and 1987).
27. See especially the work of Burt and his followers: Burt (1978, 1980, and 1983), Burt and Schott (1985), Cook (1982), Cook and Emerson (1978), Cook *et al.* (1983), Dunn and Ginsberg (1986), Leinhardt (1977), Lincoln (1982), Mandel (1983), Marsden (1982), Skinner and Guiltinan (1986), Tichy (1981), and Willer and Anderson (1981, especially chapter 1 introduction and Willer, “Structurally Determined Networks,” chapter 9).
28. See, for example, Ornstein (1984), Palmer (1983), and Stearns (1986).
29. See, for example, Aldrich (1976), Aldrich and Whetten (1981), Benson (1975), Cook (1977), Fombrun (1986), Galaskiewicz (1985), Gerlach and Palmer (1981), Hall *et al.* (1977), Levine and White (1961), Powell (1989), Tjosvold (1986), Turk (1986), and Wievel (1985).
30. See particularly the work on interdependence in the *Administrative Science Quarterly* for this emphasis.
31. See, for example, Beyer and McKinley (1979), Blau (1970 and 1977), Carneiro (1986), Cohen (1984), Dewar and Hage (1978), Klatzky (1970), Meyer (1972), La Porte (1975), Morin (1974), Richardson and Wellman (1985), and Streufert and Swezey (1986).
32. Lincoln (1982, 32 ff.). See also Boorman and Harrison (1976), Boorman and White (1976), Doreian (1974), Granovetter (1976), Holland and Leinhardt (1979), Marsden and Campbell (1984), Schwartz and Sprinzen (1984), and White, Boorman, and Breiger (1976).

## References

- Agnew, N. McK., and Brown J.L. 1986 "Bounded Rationality in Unbounded Decision Space." *Behavioral Science* 31:148-61.
- Aldrich, H.E. 1976 "Resource Dependence and Interorganizational Relationships." *Administration and Society* 7:419-54.
- Aldrich, H.E., and Whetten, D.A. 1981 "Organizational Sets, Action Sets, and Networks: Making the Most of Simplicity." In P.C. Nystrom and W.H. Starbuck, eds. *Handbook of Organizational Design*, vol. 2. New York: Oxford University Press.
- Benson, J. 1975 "The Interorganizational Network as a Political Economy." *Administrative Science Quarterly* 20:229-49.
- Beyer, J.R., and McKinley, W. 1979 "A Reexamination of the Relations Between Size and Various Components of Organizational Complexity." *Administrative Science Quarterly* 24:48-64.
- Blau, P.M. 1970 "A Formal Theory of Differentiation in Organizations." *American Sociological Review* 35:201-18.
- Blau, P.M. 1977 *Inequality and Heterogeneity*. New York: Free Press, 1977.
- Boorman, S.A., and Harrison, C.W. 1976 "Social Structure from Multiple Networks." *American Journal of Sociology* 81:1384-446.
- Braybrooke, D., and Lindblom, C.E. 1963 *A Strategy of Decision: Policy Evaluation as a Social Process*. Glencoe, Ill.: Free Press of Glencoe.
- Burt, R.S. 1978 "Applied Network Analysis." *Sociological Methods and Research* 7(Nov.): 123-256.
- Burt, R.S. 1980 "Models of Network Structure." *American Sociological Review* 6:79-141.
- Burt, R.S. 1983 *Applied Network Analysis*. Beverly Hills, Calif.: Sage Publications.
- Burt, R.S. and Schott, T. 1985 "Relation Contents in Multiple Networks." *Social Science Research* 14:287-308.
- Carneiro, R.L. 1986 "On the Relationship Between Size of Population and Complexity of Social Organization." *Journal of Anthropological Research* 42:355-64.
- Cohen, M.D. 1984 "Conflict and Complexity: Goal Diversity and Organizational Search Effectiveness." *American Political Science Review* 78:435-51.
- Cohen, M.D. and March, J.G. 1972 "A Garbage Can Model of Organizational Choice." *Administrative Science Quarterly* 17(March):1-25.
- Cook, K.S. 1977 "Exchange and Power in Networks of Interorganizational Relations." *Sociological Quarterly* 18:62-82.
- Cook, K.S. 1982 "Network Structures From an Exchange Perspective." In P. Marsden and N. Lin, eds. *Social Structure and Network Analysis*. Beverly Hills, Calif.: Sage Publishing.
- Cook, K.S., and Emerson, R.M. 1978 "Power, Equity and Commitment in Exchange Networks." *American Sociological Review* 48:721-39.
- Cook, K.S., Emerson, R.M., Gillmore, M.R., and Yamagishi, T. 1983 "The Distribution of Power in Exchange Networks: Theory and Experimental Results." *American Journal of Sociology* 89(Sept.):257-305.
- Dewar, R., and Hage, J. 1978 "Size, Technology, Complexity and Structural Differentiation: Toward a Theoretical Synthesis." *Administrative Science Quarterly* 23:111-36.
- Dietz, T., Frey, R.S., and Rosa, E. 1991 "Risk, Technology and Society." In R. E. Dunlap and W. Michelson, eds. *Handbook of Environmental Sociology*. Westport, Conn.: Greenwood Press.
- Doreian, P. 1974 "On the Connectivity of Social Networks." *Journal of Mathematical Sociology* 3:245-58.
- Dunn, W.N., and Ginsberg, A. 1986 "A Sociocognitive Network Approach to Organizational Analysis." *Human Relations* 39:955-75.
- Etzioni, A. 1967 "Mixed Scanning: A Third' Approach to Decision Making." *Public Administration Review* 27:5(Dec.):385-92.
- Etzioni, A. 1986 "Mixed Scanning Revisited," *Public Administration Review* 46:1(Jan./Feb.): 8-14.
- Fischhoff, B., Waston, S.R., and Hope, C. "Defining Risk." *Policy Sciences* 17:123-29.
- Fombrun, C.J. 1986 "Structural Dynamics Within and Between Organizations." *Administrative Science Quarterly* 31:403-21.

- Galaskiewicz, J. 1985 “Interorganizational Relations.” *American Review of Sociology* 11:281–301.
- Galbraith, J. 1973 *Designing Complex Organizations*. Reading, Mass.: Addison-Wesley.
- Galbraith, J. 1977 *Organization Design*. Reading, Mass.: Addison-Wesley.
- Gerlach, L.P., and Palmer, G.B. 1981 “Adaption Through Evolving Interdependence.” In P.C. Nystrom and W.H. Starbuck, eds., *Handbook of Organization Design*, vol. 2. New York: Oxford University Press.
- Granovetter, M. 1976 “Network Sampling: Some First Steps.” *American Journal of Sociology* 78:1287–303.
- Hall, R., et al. 1977 “Patterns of Interorganizational Relationships.” *Administrative Science Quarterly* 22:457–74.
- Harmon, M.M., and Mayer, R.T. 1986 *Organization Theory for Public Administration*. Boston: Little, Brown and Company.
- Holland, P.W., and Leinhardt, S. 1979 “Structural Sociometry.” In Holland and Leinhardt, eds. *Perspectives on Social Network Research*. New York: Academic Press.
- Jaffee, L. 1973 “The Illusion of the Ideal Administration.” *Harvard Law Review* 86(May): 1183–98.
- Klatzky, S.R. 1970 “Relationship of Organizational Size to Complexity and Coordination.” *Administrative Science Quarterly* 15(Dec.): 428–38.
- Kraft, M.E., and Vig, N., eds. 1988 *Technology and Politics*. Durham, N.C.: Duke University Press.
- LaPorte, T.R. ed. 1975 *Organized Social Complexity: Challenge to Politics and Policy*. Princeton, N.J.: Princeton University Press.
- LaPorte, T.R. ed., 1975 “Organized Social Complexity as an Analytical Problem.” In La Porte, ed., *Organized Social Complexity: Challenge to Politics and Policy*. Princeton, N.J.: Princeton University Press.
- LaPorte, T.R. ed. 1982 “On the Design and Management of Nearly Error-Free Organizational Control Systems.” In D. Sills, C. Wolf and V. Shelanski, eds. *The Accident and Three Mile Island: The Human Dimensions*. Boulder, Col.: Westview Press.
- LaPorte, T.R. ed. 1987 “Increasing Organized Social Complexity: Research Challenge.” Paper presented at the Max Planck Institute for Social Research, Cologne, FRG.
- LaPorte, T.R. ed. 1988 “The United States Air Traffic System: Increasing Reliability in the Midst of Rapid Growth.” In R. Mayntz and T. Hughes, eds. *The Development of Large Technical Systems*. Boulder, Col.: Westview Press and Frankfurt am Main, FRG: Campus Verlag.
- LaPorte, T.R., Roberts, K., and Rochlin, G.I. 1989 “High Reliability Organizations: The Research Challenge.” Institute of Governmental Studies, University of California, Berkeley (April).
- LaPorte, T.R., and Thomas, C. 1990 “Regulatory Compliance and the Ethos of Quality Enhancement: Surprises in Nuclear Power Plant Operations.” Paper presented at the American Political Science Association, San Francisco.
- Landau, M. 1969 “Redundancy, Rationality and the Problem of Duplication and Overlap.” *Public Administration Review* 39:6(Nov./Dec.):346–58.
- Landau, M. 1973 “On the Concept of Self-Correcting Organization.” *Public Administration Review* 33:6:(Nov./Dec.):533–39.
- Landau, M. and Stout, R. 1979 “To Manage Is Not to Control: Or the Folly of Type II Errors” *Public Administration Review* 39:1(Jan./Feb.):148–56.
- Lawrence, P.J., and Lorsch, J.W. 1967 *Organization and Environment: Managing Differentiation and Integration*. Boston: Graduate School of Business Administration, Harvard University.
- Leinhardt, S., ed. 1977 *Social Networks: A Developing Paradigm*. New York: Academic Press.
- Lerner, A.W. 1986 “There Is More Than One Way To Be Redundant: A Comparison of Alternatives for the Design and Use of Redundancy in Organizations.” *Administration and Society* 18:334–59.
- Levine, S., and White, P.E. 1961 “Exchange as a Conceptual Framework for the Study of Intraorganizational Relationships.” *Administrative Science Quarterly* 5:538–601.
- Lincoln, J.R. 1982 “Intra- (and Inter-) Organizational Networks.” In S. Bacharach, ed. *Research in the Sociology of Organizations*. Greenwich, Conn: JAI, pp. 1–38.
- Lindblom, C.E. 1959 “The Science of Muddling Through.” *Public Administration Review* 19:1:79–99.
- Lindblom, C.E. 1965 *The Intelligence of Democracy: Decision-making Through Partisan Mutual Adjustment*. New York: The Free Press.

- Lindblom, C.E. 1979 "Still Muddling, Not Yet Through." *Public Administration Review* 39:6 (Nov./Dec.):517-26.
- Lustick, I. 1980 "Explaining the Variable Utility of Disjointed Incrementalism." *American Political Science Review* 74:342-53.
- Mandel, M. 1983 "Local Roles and Social Networks." *American Sociological Review* 48:376-86.
- March, J.G., and Simon, H.A. 1958 *Organizations*. New York: John Wiley.
- Marsden, P.V., and Campbell, K.E. 1984 "Measuring Ties Strength." *Social Forces* 63:482-501.
- Marsden, P.V., Campbell, K.E., and Lin, N., eds. 1982 *Social Structure and Network Analysis*. Beverly Hills, Calif.: Sage Publishing.
- Metlay, D.S. 1978 "Error Correction in Bureaucracy." diss., University of California, Berkeley. forthcoming *Tempting Fate*.
- Meyer, M.W. 1972 "Size and the Structure of Organizations: A Causal Analysis." *American Sociological Review*. 37(August).
- Morin, E. 1974 "Complexity." *International Social Science Journal* 24:4:555-82.
- Morone, J.M., and Woodhouse, E. 1986 *Averting Catastrophe: Strategies for Regulating Risky Technologies*. Berkeley, Calif.: University of California Press.
- Ornstein, M. 1984 "Interlocking Directorates in Canada: Intercorporate or Class Alliance." *Administration Science Quarterly* 29:210.
- Palmer, D. 1983 "Broken Ties: Interlocking Directorates and Intercorporate Coordination." *Administration Science Quarterly* 28:40-55.
- Perrow, C. 1984 *Normal Accidents*. New York: Basic Books.
- Pfeffer, J., and Salancik, G. 1978 *The External Control of Organizations*. New York: Harper and Row.
- Pfeffer, J., and Salancik, G. 1981 *Power in Organizations*. Marsh-field, Mass: Pitman.
- Powell, W.W. 1989 "Neither Market Nor Hierarchy: Network Forms of Organizations." In B.M. Staw and L.L. Cummings, eds., *Research in Organizational Behavior*, vol. 12. New York: JAI Press.
- Rasmussen, J. 1988 "Prospectus: Safety and Management of Risk in Large-Scale Technological Operations Workshop." World Bank (March).
- Reason, J. 1990 *Human Error*. New York: Cambridge University Press.
- Richardson, R.J., and Wellman, B. 1985 "Structural Analysis." *Canadian Review of Sociology and Anthropology* 39:955-75.
- Roberts, K. 1990 "Some Characteristics of High Reliability Organizations." *Organization Science* 1:2:1-17.
- Roberts, K.R. 1989 "New Challenges to Organizational Research: High Reliability Organizations." *Industrial Crisis Quarterly*, 3:3:111-25.
- Rochlin, G.I. 1988 "Organizational Structure and Operational Effectiveness in Complex Military Organizations: Naval Flight Operations as a Case Study." Paper presented at the American Political Science Association, Washington, D.C.
- Rochlin, G.I. 1989 "Organizational Self-Design as a Crisis-Avoidance Strategy: U.S. Naval Flight Operations as a Case Study." *Industrial Crisis Quarterly* 3:159-76.
- Rochlin, G.I., LaPorte, T.R., and Roberts, K.H. 1987 "The Self-Designing High Reliability Organization: Aircraft Carrier Flight Operations At Sea." *Naval War College Review* (Autumn):76-90.
- Sallings, R. 1978 "The Structural Patterns of Four Types of Organizations in Disaster." In E. Quaranteli, ed. *Disasters: Theory and Research*. Beverly Hills, Calif.: Sage, pp. 87-104.
- Schulman, P.R. 1980 *Large-Scale Policy*. New York: Elsevier.
- Schulman, P.R. 1990 "Reliability Through Fluctuation: Negotiated Order in a Nuclear Power Plant." Paper presented at the American Political Science Association, San Francisco.
- Schwartz, J.E., and Sprinzen, M. 1984 "Structures of Connectivity." *Social Networks* 6:103-40.
- Scott, W.R. 1987a *Organizations: Rational, Natural and Open Systems*, 2nd ed. Englewood Cliffs, N.J.: Prentice-Hall.
- Scott, W.R. 1987b "Hypotheses From Organization Theory Regarding Performance Reliability." Memo. August 30.
- Simon, H.A. 1957a *Administrative Behavior*, 2nd ed. New York: MacMillan.
- Scott, W.R. 1957b "A Behavioral Model of Rational Choice." In *Models of Man*. New York: Wiley.

- Skinner, S.J., and Gultinan, J. 1986 “Extra-network Linkages, Dependence and Power.” *Social Forces* 64:702–13.
- Slovic, P. “Perceptions of Risk.” *Science* 236:280–85.
- Stearns, L.B., and Mizruchi, M. 1986 “Broken-Tie Reconstitution and the Functions of Inter-organizational Interlocks: A Re-Examination.” *Administration Science Quarterly* 31:522–38.
- Streffert, S., and Swezey, R.W. 1986 *Complexity, Managers and Organizations*. New York: Academic Press.
- Thompson, J.D. 1967 *Organizations in Action*. New York: McGraw-Hill.
- Thompson, J.D., and Tuden, A. 1959 “Strategies, Structures and Processes of Organizational Decision.” In J. D. Thompson et al., eds. *Comparative Studies in Administration*. Pittsburgh: University of Pittsburgh Press, pp. 195–216.
- Tichy, N.M. 1981 “Networks in Organizations.” In P.C. Nystrom and W.H. Starbuck, eds. *Handbook of Organization Design*, vol. 2. New York: Oxford University Press.
- Tjosvold, D. 1986 “The Dynamics of Interdependence in Organizations.” *Human Relations* 39:517–40.
- Turk, H. 1986 “Macrosociology and Interorganizational Relations: On Theory, Strategies and Bibliography.” *Social Science Research* 69:487–500.
- Weick, K. 1987 “Organizational Culture as a Source of High Reliability.” *California Management Review* 29:112–27.
- White, H., Boorman, S., and Breiger, R. 1976 “Social Structure from Multiple Networks: Blockmodels of Roles and Positions.” *American Journal of Sociology* 81:730–80.
- Wiesel, W., and Hunter, A. 1985 “The Interorganizational Network as a Resource: A Comparative Case Study on Organizational Genesis.” *Administrative Science Quarterly* 30:482–96.
- Willer, D., and Anderson, B., eds. 1981 *Networks, Exchange and Coercion: Elementary Theory and Its Applications*. New York: Elsevier.
- Wimberley, T., and Morrow, A. 1981 “Mulling Over Muddling Through Again.” *International Journal of Public Administration*, 3:4:483–508.
- Woodhouse, E.J. 1988 “Sophisticated Trial and Error in Decision Making about Risk.” In M. E. Kraft and N. Vig, eds. *Technology and Politics*. Durham, N.C.: Duke University Press, pp. 208–26.

## State Behavior in International Crisis: A Model

Michael Brecher

**Source:** *Journal of Conflict Resolution*, 23(3) (1979): 446–480.**Definitions**

**W**hat distinguishes a crisis from a noncrisis in international politics? Viewed from the perspective of a state, a crisis is a situation with three necessary and sufficient conditions, deriving from a change in its external or internal environment. All three are perceptions held by the highest-level decision makers:

- (a) *a threat to basic values*, with a simultaneous or subsequent
- (b) *high probability of involvement in military hostilities*, and the awareness of
- (c) *finite time for response to the external value threat*.<sup>1</sup>

This definition of crisis concentrates on the perceptions and behavior of a single state. At the same time, inputs from other states and the international system as a whole influence the behavior of the crisis actor by shaping its definition of the situation and its response. In other words, crisis decisions are made in light of expectations about the behavior of other international actors. Moreover, a situational change, the precondition of crisis, also may be a destabilizing event in the international system. As such, a microanalysis of crisis incorporates some of the dimensions which are considered in a system-level analysis of crisis.<sup>2</sup> Nevertheless, the state remains the central object of investigation – how its decision makers perceive environmental change and how they choose, in the context of escalating or deescalating perceptions of threat, time pressure, and probability of war.

This definition builds on but differs significantly from the widely accepted Hermann view of international crisis for a state (1969a: 414):

A crisis is a situation that (1) threatens high-priority goals of the decision-making unit, (2) restricts the amount of time available for response before the decision is transformed, and (3) surprises the members of the decision-making unit by its occurrence. . . . Underlying the proposed definition is the hypothesis that if all three traits are present then the decision process will be substantially different than if only one or two of the characteristics appear.<sup>3</sup>

The definition of crisis offered here differs on five essential points: (1) the omission of “surprise” as a necessary condition; (2) the replacement of “short” time by “finite” time for response; (3) the recognition that the situational change which induces a crisis may originate in the internal as well as the external environment



of the crisis actor; (4) “basic values,” rather than “high priority goals,” as the object of perceived threat; and (5) the addition of perceived “high probability of involvement in military hostilities.” These changes will now be elaborated.

(1) High threat, probability of war, and finite time situations in the perceptions of decision makers are not unanticipated. Two illustrations will suffice. The situational change created by the Soviet Union in Berlin in 1961 and that brought on by Egypt’s closing of the Straits of Tiran in May 1967 did not come as a surprise to American and Israeli decision makers, respectively. But the perceived threat catalyzed stress in both cases, leading to changes in their decision-making process and behavioral response.

Hermann and others were to become skeptical about the surprise component. His early simulation analysis led to a finding (1969a: 69) of “no significant relationship between either the time and awareness [surprise] dimensions or the threat and awareness dimensions; however, a significant correlation did occur between decision time and threat.” This he reaffirmed in a later paper (1972: 208): “Consistent with this . . . is a review of the crisis literature that found the property of surprise mentioned less frequently than the other two traits.” The lower frequency of surprise and doubt about the adequacy of the overall Hermann definition of crisis are also evident in the findings of Brady (1974: 58): “In sum, . . . the absence of second-order interaction effects leads us to qualify our judgment concerning the typology’s utility.” And Hermann acknowledged (1977) that, after extensive research, he concurred with the view that surprise was not a necessary – or universally present – condition of crisis. However, when it occurs, it may increase the impact of time pressure.

(2) The lack of universality of the short time condition, too, is demonstrated by the 1961 Berlin and 1967 Middle East cases. The former lasted three months, the latter three weeks, with Israel’s decision makers willing to delay a military response for another week or two. It was not the perceived brevity of time that influenced decision-making behavior in those crises, but the awareness of the finiteness of time for choice. A response could not be delayed indefinitely; that is, whether a week, a month, or many months, there was a realization that decisions for or against war had to be made within some time frame, however imprecise the deadline.

(3) For many Third World states the situational change which triggers an international crisis has often occurred within the domestic environment, usually through physical challenges to the régime by strikes, demonstrations, riots, assassination, sabotage, and/or attempted coups d’état. Most new states are deeply penetrated political systems; and domestic situational changes, some of which derive from foreign sources, may give rise to an image of external threat. The assault on Chile’s Allende régime in 1973 is a dramatic illustration of a widespread phenomenon in Asia, Africa, and Latin America.

(4) “High-priority goals” as the focus of threat has been broadened to “basic values.” These include “core” values, which are near constant and few in number, such as survival of the society and its population, political sovereignty, and territorial independence. A second value dimension is context-specific “high-priority” values; these derive from ideological and/or material interests as defined by decision makers at the time of a particular crisis. “Core” values, by contrast, are shared by changing régimes and decision making groups, as well as the attentive and mass publics, of the state under inquiry. A crisis may be said to exist when

the threatened values are not only “high priority” for the incumbent élite, but also include one or more “core” values.<sup>4</sup>

(5) The most important change is the addition of “perceived high probability of war” as a necessary condition of crisis. In both cases cited above, decision makers of the United States (1961) and Israel (1967) thought it very likely that they would be involved in “military hostilities” before the threat to values was resolved.<sup>5</sup> Theoretically, perceived probability of war can range from .001 to .999. Operationally, “high probability” may be designated as .50 to .99 – that is, at least a 50/50 possibility. However, a marked change in the probability of war (for example, from .1 to .3) may be just as salient to decision makers as a move into the high-probability range, especially in cases where protracted conflict predisposes them to expect crisis. What is crucial to the existence of an international crisis is a high – or substantial change in – perceived war likelihood. Threat and time pressure may coexist without a situational change being defined or responded to as an external crisis. Moreover, probability of war necessarily implies a perceived threat to values – but the reverse does not obtain. Thus, probability of war is the indispensable condition of crisis, with threat and time closely related, as will be specified below in the model of behavior in international crisis.<sup>6</sup>

The centrality of “perceived high probability of war” is also contained in the Snyder-Diesing definition of crisis (1977: 6, 7):

An international crisis is a sequence of interactions between the governments of two or more sovereign states in severe conflict, short of actual war, but involving the perception of a dangerously high probability of war.

The centerpiece of [the] definition is “the perception of a dangerously high probability of war” by the governments involved. Just how high the perceived probability must be to qualify as a crisis is impossible to specify. But ordinary usage of the term *crisis* implies that whatever is occurring might result in the outbreak of war. The perceived probability must at least be high enough to evoke feelings of fear and tension to an uncomfortable degree.

While a perceived high probability of war is common to these two definitions of crisis, there are important differences. For Snyder-Diesing crisis is an *interaction* process; we focus on the perceptions and behavior of one state, an *action* process. Second, they ignore the time component, both its duration and intensity, though we share the view that crises need not be short – some last many months, even a year or more. And third, for them “the term *probability of war* excludes war itself from the concept ‘crisis’” whereas the International Crisis Behaviour (ICB) Project develops the concept of intrawar crisis.<sup>7</sup>

Preliminary research has shown that there are developments during a war which logically fall into the category of triggers to an international crisis for a warring state. An intrawar crisis (IWC) manifests conditions (a) and (c) of the definition specified earlier – a threat to basic values and an awareness of finite time for response, generated by an environmental change. By its very nature an IWC excludes the condition “perceived high probability of war.” The replacement indicator is a perceived deterioration in a state’s and/or ally’s military capability vis-à-vis the enemy – that is, an adverse change in the military balance. Six kinds of situational change have thus far been uncovered as triggers to actor-crises during a war: (1) the entry of a new major actor into an ongoing war; (2) the exit

of a major actor from a war; (3) technological escalation during a war; (4) a major escalation, other than the introduction of qualitatively advanced technology; (5) defeat in battle which decision makers perceive as significant; and (6) a perceived high probability that a major actor will enter a war.<sup>8</sup>

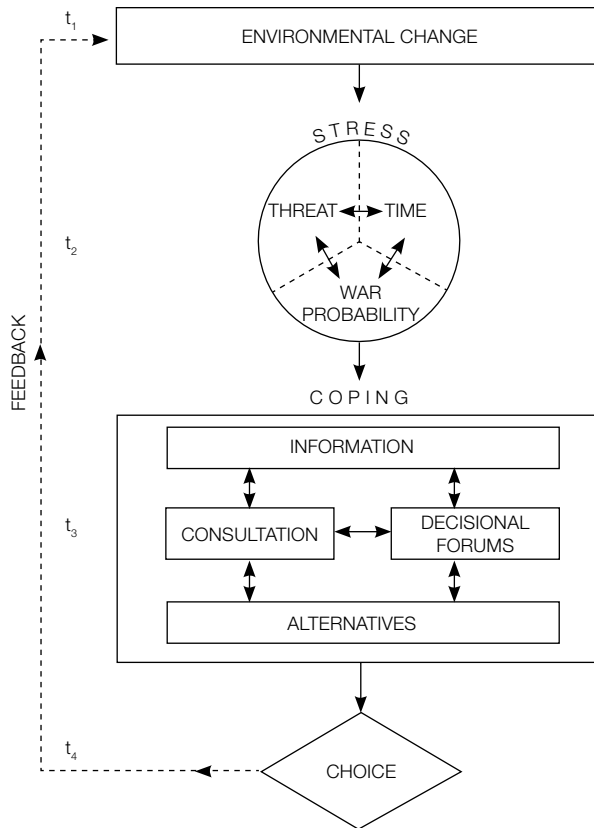
### Model

A model of state behavior in international crisis has been constructed within a general foreign policy framework specified elsewhere (Brecher et al., 1969; Brecher, 1972: ch. 1). The approach, designated as “structured empiricism,” is based on three assumptions: (1) every international crisis for a state can be dissected systematically through time in terms of a foreign policy system; (2) there are universal categories to classify relevant data; and (3) comparable findings can be used to assess the utility of a model, as well as to generate and test hypotheses about the crisis behavior of different types of states. The *independent* variable is *perception of crisis* as derived from decision makers’ images of stimuli from the environment. In operational terms, there are three independent – but closely related – perceptual variables: threat; time pressure; and high probability of war. The *intervening* variable is *coping*, as manifested in four processes and mechanisms: information search and absorption; consultation; decisional forums; and the consideration of alternatives. The *dependent* variable is *choice* (decision).

The model (Figure 1) postulates a time sequence and causal links among its variables.<sup>9</sup> The trigger event, act, or environmental change occur at time  $t_1$ . These are the sine qua non for an international crisis viewed from the perspective of a state; that is, they necessarily precede and stimulate changes in decision makers’ perceptions of threat (and, later, of time pressure and high war likelihood as well). Perceptions of crisis, the composite independent variable, are generated and are often expressed at time  $t_2$ . They are the cognitive reaction to the environmental stimulus and they induce a feeling of stress. Decision makers respond to threatening developments by adopting one or more coping strategies.<sup>10</sup> Whichever is selected, coping occurs within the broad time frame,  $t_3$ . Changes in perceptions of crisis affect not only coping mechanisms and processes; they also influence the content of decisions. In terms of the model, perceptions of crisis-induced stress (the independent variable) at  $t_2$  are mediated through coping (the intervening variable) at  $t_3$  and shape decisions (the dependent variable) at  $t_4$ . The direct link to choice is from the decisional forum, which selects one option after an evaluation of alternatives in accordance with a set of decision rules.

The variables of the crisis behavior model and their interrelations may now be elaborated. According to Lazarus (1968: 340), “*threat* refers to the anticipation of harm of some kind, an anticipation that is created by the presence of certain stimulus cues signifying to the individual [or group] that there is to be an experience of harm.” Threat perception incorporates the dimensions of activity (active-passive), potency (strong-weak), and affect (central-peripheral).

The notion of time pressure is closely related to uncertainty. Decision makers may be uncertain, for example, about their adversaries or the scope of information to be absorbed. Time pressure refers to the gap between available time and the deadline for choice. “Crisis time” cannot be equated with “clock time”: it depends on available time in relation to time pressure for decision. Thus, if a problem can



**Figure 1:**

be resolved in 24 hours, and 48 hours are available, time will be less salient for behavior. Conversely, time will be more salient if a decision cannot be reached for 96 hours in a 48-hour-clock time situation (Robinson, 1972: 24–25). When decision makers are uncertain, the pressure of time is likely to be greater.

The probability of war (or military hostilities), too, is related to uncertainty. If war is perceived to be certain or as certain not to occur, the situational change which generates that image is the source of something other than a crisis: there must be some uncertainty about war involvement. A sharp change in perceived probability of war may, as noted, be just as salient as high probability. Moreover, the saliency of changes in probability may also be a function of whether decision makers are confronted with nuclear as opposed to conventional war. It is uncertainty about war, value threat, and time pressure that makes a situation a crisis and leads to “crisis-type” decision-making.

The three independent variables are logically separate: threat refers to value, time to temporal constraint, and war to means of goal attainment. One would expect, however, to find interrelations among the three components of crisis. It may be argued that the more active and stronger the threat and the more central the value(s), threatened, the higher will be the perceived probability that military hostilities will ensue. That, in turn, would lead to a more intense perception of crisis. Similarly, the more active, the stronger, and the more central (basic) the

threatened value(s), the more limited will be the perceived time for response. Moreover, the greater the time pressure, the higher will be the perceived probability of war and the more intense the perception of threat. The reverse relationship also obtains: the higher the perceived probability of war, the more central, active, and strong will be the perceived value threat, and the more limited will be the time perceived to be available for response to that threat. In short, it is postulated that the three crisis components operate in mutually interacting relationships.

Two of these linkages, between threat and environmental stimulus, and threat and time, were lucidly summarized as follows (Lazarus, 1968: 340, 343):

The immediate stimulus configuration resulting in threat merely heralds the coming of harm. Threat is thus a purely psychological concept, an interpretation of the situation by the individual. . . . Another, less emphasized factor in the stimulus configuration is the imminence of the confrontation with harm. Threat is more intense when harm is more imminent.

The composite independent variable, as noted, creates stress among decision makers.<sup>11</sup> According to Janis and Mann (1977: 50):

*Psychological stress* is used as a generic term to designate unpleasant emotional states evoked by threatening environmental events or stimuli. A “stressful” event is any change in the environment that typically induces a high degree of unpleasant emotion (such as anxiety, guilt, or shame) and affects normal patterns of information-processing.<sup>12</sup>

Holsti and George remarked (1975: 257):

Psychological stress requires an interpretation by the subject of the significance of the stimulus situation. Psychological stress occurs either when the subject experiences damage to his values or anticipates that the stimulus situation may lead to it. “Threat,” therefore, is not simply an attribute of the stimulus; it depends on the subject’s appraisal of the implications of the situation.<sup>13</sup>

The first reactive (coping) step by decision makers is to seek information about the threatening event(s) or act(s): threat-induced stress generates a felt need for information and a consequent quest. The probe may be through ordinary or special channels. It will be marginal, modest, or thorough depending on the level of stress. The information may be received with an open mind or through a lens biased by ideology, memories of past experience or other such factors; and it will be processed by  $n$  persons in small, medium, or large groups. The kind of receptivity and size of the absorbing group, too, will vary with the level of stress. As indicated in Figure 1, changes in crisis-induced stress at  $t_2$  cause changes in information processing at  $t_3$ ; the *precise effects* on the extent of the probe, the type of receptivity, and the size of the absorbing group will vary among states, depending on diverse attributes.

The initial acquisition of information leads to a process of consultation. This involves peer members of the high-policy elite, bureaucratic and military

subordinates, and, possibly, others such as persons from competing elites and interest groups. Consultation may be frequent or infrequent, ad hoc or institutional in form, within a large or small circle, comprising one or more groups and  $n$  persons. Coping involves, too, the activation of a decisional forum which varies in size and structure. As with the several aspects of information-processing, changes in the intensity of crisis-induced stress will have effects on the pattern of consultation and the size, type, and authority pattern of the decisional unit. Case studies will illuminate the variation by international crisis actor. Moreover, as specified in the model, consultation will occur before and/or simultaneous with the creation of the decisional unit to consider alternatives and make a choice.

Search and evaluation have been defined as follows (Holsti and George, 1975: 271, n. 10):

*Search* refers to the process of obtaining and sharing relevant information, and of identifying and inventing alternative options; [and] *analysis* (or evaluation) refers to the processes of examining and evaluating the relative appropriateness of alternative options with reference to stated or alternative objectives and values.<sup>14</sup>

The search for and evaluation of options will depend on the intensity of crisis-induced stress, especially the amount of time perceived by decision makers as available before a response must be made. Once again, the model specifies a causal link between perceptions of crisis at  $t_2$  and the processing of alternatives at  $t_3$ . Just as changes in crisis-induced stress will affect one or all aspects of coping in various ways, so too, the model posits, different patterns of choice will be associated with different levels of stress and will vary among states.

Figure 1 specifies a model of state behavior in the crisis as a whole. However, several (perhaps many) choices will be made during a crisis. Moreover, stress changes, beginning with a more intense than normal perception of threat on the part of decision makers and ending with deescalation toward normal perceptions of threat, time pressure, and war likelihood. Thus, a three-period model of crisis behavior was designed to specify the changes that take place within a crisis, from its inception, with low stress (precrisis period); through rising, higher, and peak phases of stress (crisis period); to a moderating, declining phase (postcrisis period).

*The precrisis period* is marked off from a preceding noncrisis period by a conspicuous increase in perceived threat on the part of decision makers of the state under inquiry. It begins with the event/act (or cluster of events/acts) which trigger(s) a rise in threat perception.

*The crisis period* is characterized by the presence of all three necessary conditions of crisis – a sharp rise in perceived threat to basic values, an awareness of time constraints on decisions, and an image of the probability of involvement in military hostilities at some point before the issue is resolved. It, too, begins with a trigger event/act (or cluster of events/acts). If war occurs at the outset of the crisis period or within its time frame, the third condition takes the form of a perceived decline in military capability vis-à-vis the enemy (adverse change in the military balance) – that is, increasing threat.

*The postcrisis period* begins with an observable decline in intensity of one or more of the three perceptual conditions – threat, time pressure, and war probability.

If the onset of this period is synonymous with the outbreak of war, the third condition is replaced by an image of greater military capability vis-à-vis the enemy (positive change in the military balance) – that is, declining threat. The postcrisis period (and the entire crisis) may be said to terminate when the intensity of relevant perceptions has returned to noncrisis norms.

Demarcation into three periods can be established for any crisis, given the availability of data. This facilitates the attainment of several goals in the analysis of crisis behavior. First, it may clarify a causal link between decision makers' images and their choices within each period. Second, it can illuminate differences in behavior response across crises; for example, in the cases used in this article to apply the model, Israel decided to mobilize and, later, to preempt in 1967, in contrast to her decisions not to mobilize until the eleventh hour and not to preempt in 1973. And third, comparative analysis uncovers findings which can generate new hypotheses about how an array of states behaves in each of the three periods of diverse international crises.

The three-stage model (Figure 2) follows the integrated model in its central postulates: first, a time sequence from the trigger event or act ( $t_1$ ) to perceived threat ( $t_2$  – and later, to time pressure and probability of war), to coping ( $t_3$ ), to choice ( $t_4$ ), with feedback to the environment; and, second, a causal link from crisis-induced stress, mediated through coping, to choice, or decision. The three-stage model, however, goes further in trying to incorporate the pivotal concept of periods within a crisis, each with explicit indicators as noted above. Thus, whereas Figure 1 presents behavior in crisis as a total, integral phenomenon, Figure 2 monitors change from the beginning to the end of a crisis through each period.

Viewed in this frame, the sequence from trigger to choice is replicated three times:  $t_1 - t_4$  in the precrisis period;  $t_5 - t_8$  in the crisis period; and  $t_9 - t_{12}$  in the postcrisis period. Among the independent variables, perceived threat alone is present in the precrisis period, as indicated. Stress will therefore be at its lowest and will have  $x$  effects on coping processes and mechanisms and on decisions. Their implementation will generate feedback to the environment. As long as this does not induce a sharp increase in threat, the flow from trigger to choice will be repeated. The essentially unchanged – and low – level of crisis-induced stress will lead to  $n$  decisions by a state during the precrisis period. It is only when feedback from decisions to the environment or some other situational change (or both) trigger a sharp rise in threat and, with it, an awareness of time pressure and the likelihood of war that the onset of the crisis period can be identified.

As evident in Figure 2, threat perception in the crisis period is conspicuously larger than in the precrisis period. Moreover, time and the probability of war become salient. Therefore, crisis-induced stress escalates, with consequences for both coping and choice. Their actual content will become known only as a result of empirical inquiry and will vary; thus, the boundaries of coping processes and mechanisms and of choice are represented in broken lines. As long as the perceived crisis components do not reveal declining intensity, the flow from  $t_5$  to  $t_8$  will be replicated within a crisis period encompassing rising, higher, and peak crisis phases. Just as the model predicts a distinctive pattern of choice in the low-stress, precrisis period, so too it posits different choice patterns in the stress phases of the crisis period.

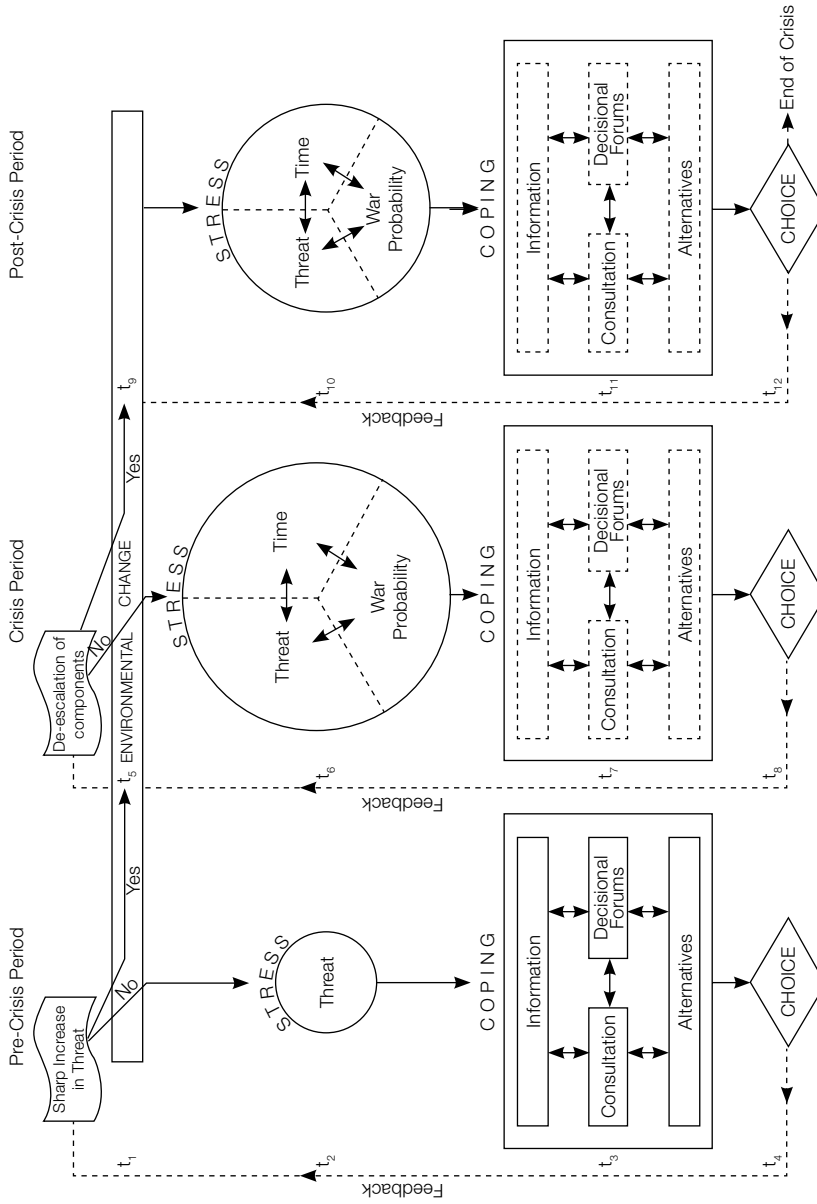


Figure 2:



When a situational change or feedback from one or more choices triggers a decline in intensity among the perceptual components of crisis, another breakpoint has occurred – namely, the transition from crisis period to postcrisis period. As indicated, stress will lessen and that, in turn, will affect coping and choice in forms and extent hypothesized as different from those in the crisis and precrisis periods. In short, the model predicts at least three patterns of choice. The broken lines there, too, indicate lack of a priori knowledge about the content of effects. Ultimately, a decision or cluster of choices in the postcrisis period will lead to a situational change which is perceived as no more threatening, time constraining, or likely to confront the state with war than events or acts in noncrisis periods. At that point, the crisis ends.

The model of crisis behavior includes two linkages: between different levels of crisis-induced stress and coping processes and mechanisms; and, second, between stress levels and choice patterns. As such, it attempts to fill a major *lacuna*:

In evaluating the consequences of stress it is necessary to consider not merely the effect on formal process variables but also the ultimate effect on the substance of the resulting decisions. We advocate, that is, a *two-step* model for evaluating the impact of stress on the process and substance of policy-making [Holsti and George, 1975: 269].

In the quest for knowledge and theory one seeks to discover or confirm relationships which obtain for a number of nonidentical occurrences, phenomena, processes, and so on. Thus, in the analysis of crisis behavior one seeks to predict the probable outcome of decision processes which have been investigated and those not yet analyzed which clearly fall within the scope of definition of the given universe of data – that is, crisis decisions. The ICB inquiry into crisis behavior is guided by an overarching research question and several that derive therefrom.

The central question may be stated thus: What is the impact of changing stress, derived from changes in perceptions of threat, time pressure, and the probability of war, on the processes and mechanisms through which decision makers cope with crisis and on their choices? Following the model, the ICB case studies of state behavior in crisis address nine specific questions. What are the effects of escalating and deescalating crisis-induced stress

- |                       |   |
|-----------------------|---|
| on information?       | (1) the perceived need and consequent quest for information,      |
|                       | (2) the receptivity and size of the information-processing group, |
|                       | (3) cognitive performance;  |
| on consultation?      | (4) the type and size of consultative units,                      |
|                       | (5) group participation in the consultative process;              |
| on decisional forums? | (6) the size and structure of decisional forums,                  |
|                       | (7) authority patterns within decisional units;                   |
| on alternatives?      | (8) the search for an evaluation of alternatives,                 |
|                       | (9) the perceived range of available alternatives. <sup>15</sup>  |

These questions provide the focus for comparative inquiry.<sup>16</sup> Findings will be used to generate new hypotheses on crisis behavior and to assess others drawn from the literature.

The independent variable, perception of crisis – or more precisely, perceptions of threat, time pressure, and probability of war – are analyzed by quantitative and qualitative techniques. The former combines several types of content analysis – of secretly communicated and recorded images prior to crisis decisions when they are available (as with Japan’s decisions for war and peace in 1941 and 1945), or of a sample of publicly articulated statements by decision makers before making their choices among options. More specifically, content analysis will take one or all of three forms depending on data availability:

- (a) *frequency and intensity of crisis perceptions*, derived from all statements expressing an awareness of threat, time constraint, and probability of war;
- (b) *analysis of attitudes*, based on statements of friendship and hostility, satisfaction with the *status quo*, and demand for change in the *status quo*, the intensity of which is measured by the “pair comparison” scaling method;<sup>17</sup> and
- (c) *advocacy analysis*, the coding of all goals enunciated by decision makers in the dissected messages or statements and their measurement along a nine-point advocacy statement scale constructed by the analyst from expert knowledge of the specific crisis, through the use of prototype sentences (Brecher, 1975: chs. 6–8).

The quantitative (and qualitative) content analysis of statements and speeches is supplemented by interview data where feasible and by post facto sources of perceptions, such as memoirs and historical accounts of the crisis under investigation.

A reconstruction of the decision flow is another essential part of our methodology, because of the dynamic character of the model. The link between perception of crisis, coping or decision-making, and choice is not static, nor is it one-directional. Rather, as indicated by the feedback arrows in Figures 1 and 2, a continuous interaction is posited. The initial set of decision makers’ images and their definitions of the situation on the eve of a crisis predispose them to choice. These perceptions are mediated through coping mechanisms in a decision-making process which begins with a quest for information and ends with an evaluation of options. Once a decision is taken, its implementation affects and may substantially change perceptions of the altered environment. That, in turn, leads to new choices in response to new stimuli which are filtered through changed coping mechanisms in a ceaseless flow of perception, coping, and choice until the crisis is resolved. Thus, a detailed narrative of the decision flow performs two important functions. First, it illuminates the responsive behavior of the crisis actor as decisions and actions through time. Second, it provides the indispensable data for an analysis of coping, or the decision-making process, throughout the crisis and of the dimensions and patterns of choice by one international crisis actor.

Coping is explored through qualitative and quantitative methods; so too is choice. Each pattern is a composite of *choice dimensions*; that is, traits of the option selected, the decision. They are not additive. Most are perceptual – how the decision makers view the choice they made, after the evaluation of alternatives has narrowed options to the one which is transformed into a decision. First among these is the *core input(s)*: What is perceived as the crucial stimulus(i) to each

decision? A second is *cost*, the perceived magnitude of the loss anticipated from the choice – human, material, political, and/or intangible losses. A third is the gravity or *importance* of the choice, measured along a five-point scale from “decisive” to “marginal.” A fourth is *complexity*, the breadth of the decision’s content: Does it involve only military or political or other issue-areas, one or more? Another dimension is *systemic domain*, the perceived scope of reverberations of the decision, from domestic through regional to global. A sixth is the *process* associated with choosing the selected option, designated as rational, affective, or routine. *Activity* is another trait of choice, whether verbal or physical, to act or delay. And finally, is the choice *novel* or is it based on precedent in the crisis behavior of the state under inquiry? Empirical data on coping and choice are coded. The findings facilitate search for patterns, the generation and testing of propositions, and thereby an assessment of the validity of a model of crisis behavior.

### Application

The analysis of stress and choice is generally confined to process – that is, the procedures used by individuals and groups to select one among perceived options directed to a specific goal. Janis and Mann (1977: 11) observe:

If we have no dependable way of objectively assessing the success of a decision, how can we apply and test the implication of propositions specifying favorable and unfavorable conditions for decision-making activity? Our answer is that all such propositions . . . on the effects of low and high levels of psychological stress – can be firmly anchored in observable measures by examining the *quality of the procedures* used by the decision maker in selecting a course of action.

In the model of crisis behavior presented here the procedures for choice comprise information-processing, consultation, decisional forum, and the search for and evaluation of alternatives. The overall effects of changing stress – induced by changes in perceptions of threat, time, and probability of war – on each of these coping mechanisms in Israel’s 1967 and 1973 crises have been examined elsewhere. So too have period-by-period effects within each crisis (Brecher, forthcoming: chs. 4, 7, 10, 11).

Here we confront, the second half of the central research question posed earlier: What are the effects of changing crisis-induced stress, mediated through coping mechanisms, on dimensions of choice? Stated in terms of the model, are changes in stress associated with distinctive choice patterns, or do decision makers tend to choose differently at various levels of stress?

In order to answer that question, Israel’s decisions in two international crises have been dissected – from that point in time at which options for each problem were narrowed to the most likely choice. Coding was done independently by the author and another specialist on Israel’s crisis behavior, with an average intercoder agreement of .85 for all choice dimensions and decisions combined.<sup>18</sup> However, because of space limitations, the findings as specified in this paper relate to only five of the eight choice dimensions for each stress phase.

## Findings

The decisions in the lowest stress phase and the findings on choice are reported in Table 1.

**Table 1:** Dimensions of choice: Lowest stress phase

<i>7–16 May 1967</i>						
<i>26 September–4 October 1973</i>						
<i>Decision number</i>	<i>Decision</i>	<i>Core inputs</i>	<i>Costs</i>	<i>Importance</i>	<i>Process</i>	<i>Novelty</i>
<b>1967</b>						
1	Threat to Syria	Arab Hostility	Low	2	Routine	No
2	IDF Alert	Arab Hostility	Low	1	Routine	No
3	Limited Mobilization	Arab Hostility	Low	3	Routine	No
<b>1973</b>						
1	Warning to Syria Brigade to Golan	Arab Hostility	Low	1	Routine	No
2	Delay Further Discussion Until 7 October	Past Experience Cost of Mobilization Rooted Belief	Low	1	Affective	No

The pattern of choice at minimal crisis-induced stress was characterized by decisions assessed as of little importance, with low cost, no novelty, one core input, and a heavy reliance on routine procedures.

The data on dimensions of choice during the rising stress phase are presented in Table 2.

A marked change occurred in the core inputs to choice, with much greater variety than in the lowest stress phase. Arab hostility and relative military capability were present in each of four decisions; other inputs were past experience, bargaining potential, status, and superpower pressures. Moreover, in the (wartime) 1973 rising stress phase, the perceived balance of Arab-Israeli military capability replaced hostile Arab acts as the pervasive core input. Perceived costs increased sharply, with only one of nine decisions viewed as low, two very high, and four high. The gravity of decisions almost doubled in that phase to midpoint on the scale, with an average of 2.95. Two of the nine choices were viewed by decision makers as “crucial,” one of them as “decisive” (point 5), another as “significant” (point 4). There was also a striking change in the process to choice, from almost all to only two of nine decisions arrived at by routine procedures. In the (nonwar) higher stress phase of 1967 there was a shift to affective evaluation. And when that higher stress was accompanied by a change from nonwar to wartime conditions in 1973, the process to choice was overwhelmingly rational calculus.

There was some tendency to novel choice: three of nine decisions lacked a precedent in Israel's experience, all in a wartime 1973 phase, compared to none in the (nonwar) lowest stress phase of both crises. In short, the pattern of choice in the second lowest stress phase was distinctive: a perception of more important but not crucial decisions; a sharp increase in perceived costs; a tendency to unprecedented choice; the greatest variety of core inputs, and declining resort to routine procedures to choice.

The data on choice dimensions during the second highest stress phase are reported in Table 3. The dominant input in that higher stress phase was U.S.

**Table 2:** Dimensions of choice: Rising stress phase

		17-22 May 1967		10-20 October 1973		
Decision number	Decision	Core inputs	Costs	Importance	Process	Novelty
<b>1967</b>						
4	Further Mobilization	Hostile Arab Acts	Medium	3	Routine	No
5	Large-Scale Mobilization	Hostile Arab Acts Past Experience	High	5	Affective	No
6	Defensive to Offensive IDF Posture	Hostile Arab Acts Past Experience	High	3	Affective	No
7	Mobilization Decisions Authorized	Hostile Arab Acts	High	1	Routine	No
<b>1973</b>						
11	General Attack on Syria	Military Capability Bargaining Potential	High	2	Rational	No
12	Canal Crossing Postponed	Military Capability	Medium	2	Rational	Yes
13	Accept Cease-Fire in Place (Abortive)	Military Capability Costs	Very High	3	Affective	Yes
14	Crossing of Canal	Military Capability Status	Very High	4	Rational	Yes
15	Advance West of Canal Short of Cairo	Possible Soviet Intervention	Low	3	Rational	No

**Table 3:** Dimensions of choice: Higher stress phase

<i>Decision number</i>	<i>Decision</i>	<i>Core inputs</i>	<i>Costs</i>	<i>Importance</i>	<i>Process</i>	<i>Novelty</i>
<i>23-27 May 1967</i>						
<i>21-26 October 1973</i>						
<b>1967</b>						
8	Decision on War Postponed Eban to Washington	U.S. Pressure Need for Information re U.S., U.K., France attitudes	Very High Low	5 2	Affective Rational	Yes No
10	U.S. Warned Egyptian Attack Imminent	U.S. Attitudes Need for Information about U.S. Attitudes	Very High	2	Rational	Yes
11	Await Eban Report		High	2	Rational	No
<b>1973</b>						
3	Highest IDF Alert	Hostile Arab Acts	Medium	3	Routine	No
4	Empower Mobilization by PM and DM	Hostile Arab Acts Costs	High	1	Routine	No
16	Accept First Cease-Fire	Pressure from Both Super Powers	High	4	Rational	No
17	Continue IDF Operations	Hostile Arab Acts Opportunity	Medium	3	Rational	No
18	Continue IDF Advance West of Canal	Opportunity	Medium	3	Routine	Yes
19	Accept Second Cease-Fire	U.S. Pressure	High	5	Rational	No
20	Supply Third Army	U.S. Pressure	Low	4	Rational	Yes

pressure or attitudes, with a remnant of Arab hostility and an emerging perception of opportunity for gain. The perceived costs remained considerable, with six of eleven choices estimated as high or very high; all high-cost decisions were in 1973. The importance of decisions continued to rise. Moreover, the number of choices viewed as “crucial” by decision makers was double that of the rising stress phase. There was a slight rise in reliance on routine procedures to choose. At the same time, an increasing resort to rational calculus is evident. There was slightly more novelty, four decisions being without precedent in Israel’s crisis behavior.

Another distinctive pattern of choice is thus apparent. With higher stress came a further increase in the perceived importance of decisions, an almost unchanged perception of high costs, a modest increase in novel choice, an awareness of U.S. pressure as preeminent, and a heavier reliance on rational calculus in proceeding to choice.

Decisions in the peak stress phase and findings on choice dimensions are presented in Table 4. The most striking change occurred in the content, variety, and number of perceived key stimuli to choice, with emphasis on past experience, the need for information, and the awareness of cost; and, in substantive terms, an emphasis on the “lessons of history,” information, ideology or doctrine, and cost calculations. External stimuli were less salient. Perceived costs increased, eight of twelve decisions being in the high or very high category. The perceived importance of decisions was the highest of any stress phase: no less than seven of the twelve choices were viewed at the time to be “crucial.” There was change, too, in the process to choice – a decline in reliance on routine procedures and a noticeable rise in the resort to affective calculus. Unprecedented decisions continued to increase – eight of twelve in this stress phase.

In short, Israel’s choices in the highest crisis-induced stress phase were characterized by (a) a sharp rise in the number of decisions perceived to be “crucial” and, in general, the highest average decisional value; (b) a further increase in perception of costs; (c) a marked increase in novel decisions; (d) greater variety and content of inputs to choice; (e) and a greater disposition to affective-based decisions.

The data on decisions and choice dimensions in the postcrisis stress phase are presented in Table 5. There was a decline from the peak stress phase in the number of core inputs to choice. However, the variety was as large, with anticipated U.S. pressure and Soviet pressure the most frequent. Other stimuli were military capability or strategy, pending elections, prisoners of war, ideology, opportunity for gain, and past experience and information need. Cost perception declined sharply to medium-low. There was, too, a marked reduction in the perceived importance of decisions: the average value was 2.5, a sharp decline from the peak phase (3.6) and lower than all three stress phases of the crisis period; but it remained higher than the average for the precrisis period. There was a slightly greater disposition to rational choice than at the highest level of stress. Resort to unprecedented choices remained high.

In summary, the pattern of choice during the postcrisis moderate stress phase revealed (a) a decline in the perceived importance of decisions, with an average decisional value lower than the lowest of the three stress phases of the crisis period; (b) a sharp reduction in perceived costs; (c) a continued high proportion of unprecedented choices; (d) a decline in the number of inputs; (e) and a higher disposition to rational and affective procedures to choose.

**Table 4:** Dimensions of choice: Highest stress phase

Decision number	Decision	Core inputs	Costs	Importance	Process	Novelty
28 May-4 June 1967 6-9 October 1973						
<b>1967</b>						
12	War Decision Again Delayed	U.S., U.K., France Pressure;	Very High	5	Rational	Yes
13	IDF Alert Renewed	Economic Costs Hostile Arab Acts	High	2	Routine	No
14	Amit to Washington	Need for Information about U.S. Attitudes	High	3	Rational	Yes
15	National Unity Government Formed	Past Experience Ideology	Low	4	Affective	Yes
16	Military Plans Crystallized	Past Experience	High	2	Rational	No
17	Launch Pre-emptive Air Strike	Past Experience Domestic Constraints Deterrence Credibility	Very High	5	Rational	No
<b>1973</b>						
5	Not to Pre-empt	U.S. Attitude World Public Opinion Past Experience Military Capability	High	5	Rational	Yes
6	Large-Scale Mobilization	Hostile Arab Acts	High	4	Affective	No
7	COG Empowered to Counter-Attack	Ideology	Medium	4	Routine	Yes
8	IDF Concentration on North	Cost in Equipment and Lives	High	3	Rational	Yes
9	Bar-Lev Appointed OC South	Past Experience Need for Information	Low	2	Affective	Yes
10	Meir to Washington (Abortive)	Need for Information about U.S. Attitude Military Capability Costs Past Experience	Medium	4	Affective	Yes



**Table 5:** Dimensions of choice: Moderate, declining stress phase

Decision number	Decision	Core inputs	Costs	Importance	Process	Novelty
<b>1967</b>						
18	Warning to Jordan	Past Experience Military Capability	Low	3	Rational	Yes
19	Attack on Old City Delayed	Anticipated Super-Power & Global Pressure	Medium	2	Rational	Yes
20	Encircle Old City	Anticipated Super-Power & Global Pressure	Medium	2	Rational	Yes
21	Enter Old City	Ideology Domestic Pressure Opportunity	High	4	Affective	No
22	Cease Advance East of Canal	Soviet Pressure	Low	3	Affective	No
23	Not to Cross Syrian Border	Soviet Pressure	Low	3	Affective	Yes
24	Attack on Syria Delayed	Soviet Pressure Military Capability	Medium	1	Rational	No
25	To Scale Golan Heights	Opportunity	Very High	3	Rational	Yes
26	Cease-Fire Accepted	Global and Super-Power Pressure	Low	3	Rational	No
<b>1973</b>						
21	Meir to Washington	U.S. Pressure POWs	Low	3	Affective	No
22	Sign Six-Point Agreement	U.S. Pressure	Low	4	Rational	Yes
23	Eban re Geneva Conf. Yariv re Km. 101	Military Strategy U.S. Pressure Information Search	Low	3	Rational	Yes
24	Postpone Geneva Conf. to December 18	Pending Elections	Low	1	Affective	Yes
25	Terms of Disengagement	Arab Hostility	Medium	3	Rational	No
26	Insist Veto Right over New Geneva Parties	Military Strategy Arab Hostility	Medium	3	Affective	Yes
27	Won't Sit with Syria at Geneva	Hostility to Palestinians POWs	Low	1	Affective	Yes
28	Start Negotiations Dec. 26	Ideology Pending Elections	Low	1	Affective	No
29	Disengagement Proposal to Kissinger	Military Strategy	Medium	3	Rational	Yes
30	Yield on Egypt Non-Belligerency Declaration	U.S. Pressure	High	3	Rational	Yes
31	Accept Interim Agreement	Military Strategy	Medium	1	Rational	Yes

The impact of changes in crisis-induced stress, as mediated through coping, on Israel's choices will now be summarized.

*Pattern I:* one core input – Arab hostility: low cost; low importance; routine procedures to choice; no novelty – reliance on precedent.

*Pattern II:* most variety of core inputs; sharp increase in perceived costs; marked rise in importance; less resort to routine procedures; some tendency to novel choice.

*Pattern III:* preeminence of superpower (U.S.) input, with declining variety of stimuli; continued high costs perceived; higher importance; more reliance on rational procedures to choice; slight rise in novelty.

*Pattern IV:* increase in variety and number of inputs; increase in perceived costs; maximum importance; increased reliance on affect in choice; great increase of unprecedented decisions.

*Pattern V:* decline in number and variety of inputs; sharp decline in perceived costs; marked reduction in perceived importance; more analytic and affective procedures to choice; continued resort to novel decisions.

These patterns may now be presented graphically, in the three-stage model of crisis behavior, as adapted to Israel's decisions in 1967 and 1973 (Figure 3).

### Hypotheses

A model must also demonstrate the capacity to test hypotheses and to generate new propositions. The findings on Israel's behavior under stress in the 1967 and 1973 crises, focusing on the nine research questions specified earlier in this study, were used to test 23 hypotheses on crisis behavior. These fall into three clusters:

#### (A) *Information Processing*

- (1) "The greater the crisis [that is, the higher the stress], the greater the felt need for information" (Paige, 1968: 292).
- (2) "The greater the crisis, the greater the propensity for decision makers to supplement information about the objective state of affairs with information drawn from their own past experience" (Paige, 1968: 295; Milburn, 1972: 274; Holsti and George, 1975: 281).
- (3) "The greater the crisis, the more information about it tends to be elevated to the top of the organizational pyramid" (Paige, 1972: 47).
- (4) "The higher the stress in a crisis situation, the greater the tendency to rely upon extraordinary and improvised channels of communication" (Holsti, 1972b: 75).
- (5) "In crises, the rate of communication by a nation's decision-makers to international actors outside their country will increase" (Hermann, 1972: 202–204).
- (6) "The greater the stress, the greater the conceptual rigidity of an individual, and the more closed to new information the individual becomes" (Shapiro and Gilbert, derived from Holsti, 1972a: 15, 19; see also Paige, 1972: 49; Holsti and George, 1975: 279–280).

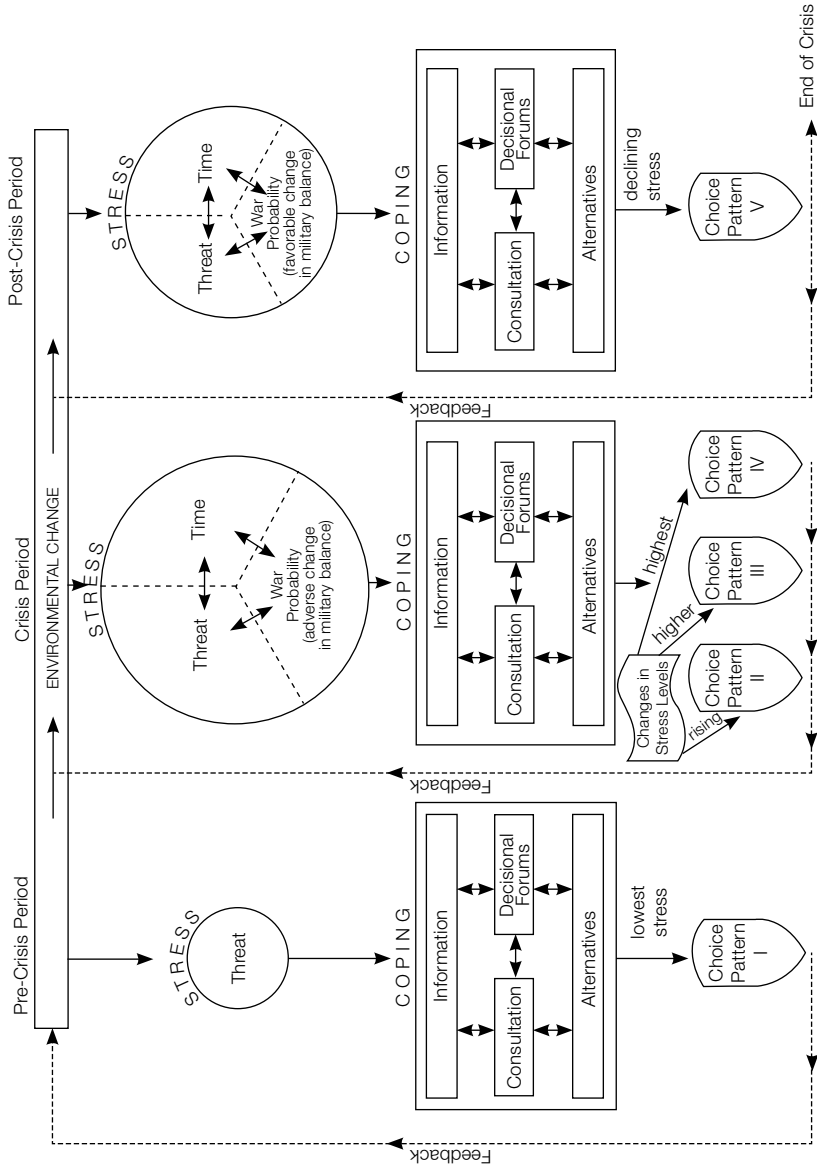


Figure 3:

- (7) As crisis-induced stress increases, the search for information is likely to become more active, but it may also become more random and less productive (March and Simon, 1958: 116).

(B) *The Performance of Decision-Making and Consultative Groups*

- (8) “The longer the decision time, the greater the conflict within decisional units” (Paige, 1972: 52; Lentner, 1972: 133).
- (9) “The greater the group conflict aroused by a crisis, the greater the consensus once a decision is reached (Shapiro and Gilbert, 1975: 55, derived from Guetzkow and Gyr, 1954: 380–381).
- (10) “The longer the amount of time available in which to make a decision, the greater will be the consensus on the final choice” (Shapiro and Gilbert, 1975: 56, derived from Paige, 1972: 52).
- (11) The longer the crisis, the greater the felt need for effective leadership within decisional units (Paige, 1968: 289, 1972: 52).
- (12) “The greater the crisis, the greater the felt need for face-to-face proximity among decision makers” (Paige, 1968: 288; Janis, 1972: 4–5).
- (13) In crises, decision-making becomes increasingly centralized (Lentner, 1972: 130).
- (14) “In high stress situations decision groups tend to become smaller” (Holsti and George, 1975: 288; Hermann, 1972: 197).
- (15) “Crisis decisions tend to be reached by *ad hoc* decisional units” (Paige, 1968: 281).

(C) *The Search-Evaluation-Choice (Decision-Making) Process*

- (16) As stress increases, decision makers become more concerned with the immediate than the long-run future (Holsti, 1965: 365, 1972a: 14–17, 200; Allison and Halperin, 1972: 50).
- (17) “The greater the reliance on group problem-solving processes, the greater the consideration of alternatives” (Shapiro and Gilbert, 1975: 83, derived from Paige, 1972: 51).
- (18) During a crisis the search for alternatives occupies a substantial part of decision-making time (Robinson, 1972: 26).
- (19) “The longer the decision time [in a crisis], the greater the consultation with persons outside the core decisional unit” (Paige, 1972: 52).
- (20) The relationship between stress and group performance in the consideration of alternatives is curvilinear (an inverted U) – more careful as stress rises to a moderate level, less careful as stress becomes intense (Shapiro and Gilbert, 1975: 36; Milburn, 1972: 264; Holsti and George, 1975: 278).
- (21) As stress increases, choices among alternatives are made before adequate information is processed; that is, there is a tendency to premature closure (Hermann, 1972: 21; Holsti, 1972a: 21).

- (22) As time pressure increases, the choice among alternatives tends to become less correct (Shapiro and Gilbert, 1975: 36–37; Holsti and George, 1975: 291).
- (23) As stress increases, decision makers tend to choose among alternatives with an inadequate assessment of their consequences (Pruitt, 1966: 411; Holsti and George, 1975: 278–279).

In essence, more than two-thirds of these hypotheses were supported by Israel's behavior in 1967 and 1973.<sup>19</sup> Since these propositions were generated by research on the behavior of great powers in the 1914 crisis and of a superpower in the Korean (1950) and Cuba Missile (1962) crises, it is reasonable to infer from our findings a tendency to common behavioral response in international crises affecting information patterns; the size, structure, and performance of decision-making groups; and aspects of the search-evaluation-choice process.

The findings about stress, coping, and choice derived from the operationalization of our model led to the generation of almost 40 new hypotheses about state behavior in international crisis.<sup>20</sup> Some will be noted here by way of illustration, in both rising and declining stress situations.<sup>21</sup>

#### *Coping Mechanisms*

As crisis-induced stress rises:

- (1) the quest for information about the threatening event(s), act(s) and/or environmental change(s) tends to become more thorough;<sup>22</sup>
- (2) decision-makers increasingly use ad hoc forms of consultation;
- (3) there is a heavy reliance on medium-large and institutional forums for decision; and
- (4) the search for options tends to increase.

As crisis-induced stress declines:

- (5) the quest for information becomes more restricted;
- (6) the consultative circle becomes narrower;
- (7) there is a maximum reliance on large, institutional forums for decision, regardless of whether it is a war or postwar phase; and
- (8) the evaluation of alternatives reaches its maximum care, more so when time salience is low.

#### *Stress and Choice*

As crisis-induced stress rises:

- (9) the number and variety of core inputs to decisions increases sharply;
- (10) decision makers assess their decisions as costly;
- (11) decision makers tend to perceive their decisions as more and more important;
- (12) the selected option tends to be chosen by rational calculus; and
- (13) there is a steady increase in resort to choices without precedent.

As crisis-induced stress declines:

- (14) the number and variety of core inputs to choice is reduced; and
- (15) unprecedented choices remain at their peak.

A model of state behavior in international crisis has been specified and applied. Its utility has been demonstrated through hypothesis-generation and, elsewhere, hypothesis-testing. Moreover, its claim to validity is supported by the production of choice patterns with distinct content traits in different stress phases. It is probable that other international actors experience different effects of changing stress on their coping processes and choice patterns. However, it is reasonable to conclude that these are discoverable through a model-directed systematic empirical analysis of state behavior in crisis, with a potential for more creative crisis management in the future.

### Author's Note

This article was designed to structure the large-scale International Crisis Behaviour Project (ICB), made possible by a Killam Award to the author from the Canada Council. It was presented to the XIth World Congress of the International Political Science Association, Moscow, August 12–18, 1979. Ernst Haas provided a valuable and rigorous critique of an earlier draft.

### Notes

1. A crisis defined here refers to the military-security issue-area. However, break-points may occur in any foreign policy issue, and the study of international political, economic, and status crises might yield no less valuable findings. For these types, an appropriate change is necessary in the second condition specified above. Thus, an *economic* crisis requires "an expectation of adverse material consequences unless the response were drastic and effective" (Brecher, 1977a: 1).
2. The most creative work on international crisis from the system perspective is that of McClelland (1961, 1962, 1964, 1968, 1972, 1977). Also noteworthy is Young (1967: 9–25, 1968: ch. 1).
3. Hermann's definition was derived from Robinson's (1962, 1968: 511, 1972: 23) conception of international crisis as a decisional situation with three traits or components: "(1) identification of the origin of the event – whether external or internal for the decision makers; (2) the decision time available for response – whether short, intermediate, or long, and (3) the relative importance of the values at stake to the participants – whether high or low." Hermann retained two of Robinson's traits, time and threat, but with significant changes: "restricted" or short time only; and threat to "high-priority goals," not values. And he replaced "origin of the event" with surprise. See also Hermann, 1963, 1969b. The Hermann version has been adopted by many scholars; for example, Holsti (1972a: 9, n. 13, 263), Milburn (1972: 262), and Nomikos and North (1976: 1).
4. The spillover – or translation – from core to high-priority values is recognized; for example, the South African government's attitude to the preservation of apartheid or the Soviet elite's view of perpetuating Moscow's domination over East Europe. Yet, the analytical distinction is important, for different groups of decision makers superimpose parochial, short-term, and narrow-gauge high-priority goals (for them) on values shared by their society as a whole. An illustration of the lack of congruity is the attitude to Taiwan by the People's Republic of China in the period of Mao Tse-tung's leadership and that of Teng Hsiao-ping. "Liberation" of Taiwan, by force if necessary, was a high-priority value of the former, but is not for the latter; integration of Taiwan with Mainland China was a core value for both.
5. These are not synonymous. Military hostilities may be brief, marginal in resource allocation, and peripheral in terms of a state's total responsive behavior during a crisis. War is of a qualitatively different order of significance in a state's reaction to a crisis. Yet, in the perceptions of decision makers, military hostilities contain the seed of war through uncontrollable escalation. Hence, "probability of war" or "war likelihood" are used interchangeably with "probability of involvement in military hostilities."

6. All five departures from the Hermann definition of crisis – omission of surprise, finite rather than short time, internal as well as external trigger mechanisms, basic values instead of high-priority goals, and the high probability of war – are supported by empirical evidence. It will be apparent that, with the first four changes, the definition of crisis offered here is very similar to the original Robinson view of crisis. One crucial difference remains – our emphasis on the perceived high probability of war.
7. Others, too, define international crises as situations that *might* lead to war. McClelland, for example (1972: 83), views crisis as a “transition from peace to war... A crisis refers to both a real prelude to war and an averted approach toward war. Crises are most commonly thought of as interpositions between the prolongation of peace and the outbreak of war.” But McClelland, as noted earlier, as well as Schelling (1966: 96–97) and Young (1967: 10), focus on crisis at the systemic (macro) or interaction level of analysis, not on the decision process within one crisis actor. Moreover, they identify the *possibility*, not *probability* of war. Other substantive and procedural definitions of crisis are discussed in Morse (1972: 127), Robinson (1968: 510–511), and Hopple and Rossa (1978: 6–25).
8. These are discussed, with illustrations, in Brecher (1977b: 45).
9. As distinct from a taxonomy or framework, a model, the most demanding construct, requires a clear specification of variables and the hypothetical relations among them; that is, a rigorous attribution of cause-effect linkages. These need not be (but are often) quantitative in form. The purest kind of model would also specify the threshold level for each stress phase in quantitative terms. I restrict myself here to indicating the attributes of the choice patterns identified with different intensities of crisis-induced stress. Statements about relationships are phrased in terms of probability; namely, if variable a, b, . . . then effects x, y, . . . .  
This model is concerned with *crisis behavior*, especially *decision-making* under stress, not with crisis warning and forecasting or with crisis management. Those are explored in Young (1977) and Hopple and Rossa (1978). Academic research on all three aspects is assessed in Tanter (1978).
10. Among these the most likely are:
  - (1) a “satisficing” rather than “optimizing” decision strategy;
  - (2) the strategy of incrementalism”;
  - (3) deciding what do do on the basis of “consensus politics”;
  - (4) avoidance of value tradeoffs . . . ;
  - (5) use of historical models to diagnose and prescribe for present situations;
  - (6) reliance on ideology and general principles as a guide to action;
  - (7) reliance on “operational code” beliefs (Holsti and George, 1975: 264).
11. For a comprehensive analysis of psychological stress, see Lazarus (1966).
12. The indicators of stress in the crisis behavior model are the perceptual changes that also mark period-to-period transitions within a crisis. Thus, higher threat and the onset of time pressure and perceived probability of war mean higher stress. And a decline in intensity of these perceptions is equated with less stress.
13. They thereby give “stress” an autonomy and significance greater than that specified in the model presented here. For them, threat creates stress, the dependent variable. For us, threat, time, and war likelihood perceptions, as manifested in stress, serve as the independent variable in a two-step or dual-linkage model of crisis behavior. Throughout this article “stress” and the term “crisis-induced stress” are used as codewords for the perception of threat and/or time pressure and/or probability of war. It is those perceptions which set in motion the multiple coping processes and mechanisms leading to choice.
14. This follows the work of leading organizational theorists, Simon, March, and Cyert. It will be evident that the several processes identified with the search stage of decision-making have been separated in the crisis-behavior model: “obtaining” information is in our “information processing”; “sharing” information is in all our four coping mechanisms; and “identifying and inventing alternative options” is in our “search for alternatives.” Information sought at the outset about the threatening event, act and/or environmental change is made available to the consultative circle and decisional forum and is revised during the consideration of alternatives.

15. The nine research questions are explored in depth for two Israeli crises in Brecher, forthcoming. An earlier formulation of (22) ICB research questions is to be found in Brecher (1977b: 59–60). Each referred to a link between one of the three perceptual variables – threat, time pressure, probability of war – and one aspect of crisis behavior. The nine questions above encompass almost all of the original 22 questions, but in a form which facilitates an analysis of the causal links between crisis components and coping specified in the model. The original set of questions served as the unifying thread for preliminary reports on nine cases, ranging in time from Holland in 1939–1940 to Syria’s behavior in the Lebanon civil war, 1975–1976 (Brecher, 1979).
16. The comparative case method of “structured empiricism” is similar in design to the method of “structured focused comparison” (George and Smoke, 1974: 95–97, and George, 1979).
17. For examples in international relations research, see Zinnes (1963) and Stein (1968).
18. The coding was based on the expert knowledge acquired from the voluminous data uncovered on the psychological environment for choice in 1967 and 1973, as well as the comparative findings on the psychological setting (Brecher, forthcoming; respectively. Section B of chs. 2, 3, 5, 6, 8, 9, and Section A of chs. 4, 7, 10, 11). Efforts were made to achieve representativeness – in audience, medium, type of presentation, and approximate equality of word volume for all the decision makers. Thus, for example, the dissected public documents for the 1973 precrisis period were as follows:

Meir	29 January 1972	Interview, Galei Tzahal (IDF radio)	3,200*
	25 July 1973	Statement to the Knesset	4,000
	1 October 1973	Speech, Council of Europe, Strasbourg	3,000
		TOTAL	10,200
Allon	29 January 1972	Interview, Galei Tzahal	1,500
	November 1972	Speech, Labor Party Central Committee	4,300
	3 June 1973	Address, Van Leer Jerusalem Foundation	6,000
		TOTAL	11,800
Dayan	13 February 1972	Interview on American TV, “Face the Nation”	2,500
	27 June 1973	Address, Haifa Technion	2,000
	9 August 1973	Lecture, IDF Command and Staff School	6,000
		TOTAL	10,500

\* The full text of Meir’s interview on IDF radio came to 7,000 words, but only 3,200 dealt with foreign policy and security. Sections on domestic affairs in all the analyzed documents were excluded from the word count and from the content analysis. In short, the data base for the analysis of publicly articulated images relating to the two basic decisions was nine documents totalling 32,500 words. The content analysis of perceptions was based on approximately 100,000 words for each of the two Israeli crises.

19. Those not supported by her behavior in one or both of these crises are 13, 14, 15, 21, 22, and 23. The ample evidence relating to these findings is contained in Brecher, forthcoming.
20. All are set out in Brecher (forthcoming: ch. 12). They are to be tested against the evidence from other ICB case studies.
21. Virtually the entire literature on international crisis is concerned with the effects of *increasing* stress (or *more intense* crisis) on state behavior. Only four of the 311 hypotheses on crisis in the Hermann inventory (1972: 304–320) refer explicitly to the consequences of *decreasing* stress (or *less intense* crisis). Exceptions are found in the work of McClelland (1972), Azar (1972), and Snyder and Diesing (1977: 14–21, 497–503).
22. This is an operational extension of a well-known hypothesis about the link between rising stress and greater *felt need* for information.



## References

- Allison, G. T. and M. H. Halperin (1972) "Bureaucratic politics: a paradigm and some policy implications." *World Politics* 24: 40–79.
- Azar, E. E. (1972) "Conflict escalation and conflict reduction in an international crisis: Suez, 1956." *J. of Conflict Resolution* 16: 183–201.
- Brady, L. P. (1974) "Threat, decision time and awareness: the impact of situational variables on foreign policy behavior." Ph.D. dissertation, Ohio State University.
- Brecher, M. (1978) "A summary of findings," pp. 264–276 in M. Brecher (ed.) *Studies in Crisis Behavior*. New Brunswick, NJ: Transaction.
- (1977a) "India's devaluation of 1966: linkage politics and crisis decision-making." *British J. of Int. Studies* 3: 1–25.
- (1977b) "Toward a theory of international crisis behavior." *Int. Studies Q.* 21: 39–74.
- (1975) *Decisions in Israel's Foreign Policy*. New Haven, CT: Yale Univ. Press.
- (1972) *The Foreign Policy System of Israel: Setting, Images, Process*. New Haven, CT: Yale Univ. Press.
- (forthcoming) *Decisions in Crisis: Israel, 1967 and 1973*, Berkeley and Los Angeles: Univ. of California Press.
- , B. Steinberg, and J. G. Stein (1969) "A framework for research on foreign policy behavior." *J. of Conflict Resolution* 13: 75–101.
- George, A. L. (forthcoming) "Case studies and theory development: the method of structured, focused comparison," in P. G. Lauren (ed.) *Diplomatic History: New Approaches*.
- and R. Smoke (1974) *Deterrence in American Foreign Policy: Theory and Practice*. New York: Columbia Univ. Press.
- Guetzkow, H. and J. Gyr (1954) "An analysis of conflict in decision-making groups." *Human Relations* 7: 367–381.
- Hermann, C. F. (1977) Panel on International Crisis, ISA Annual Meeting, St. Louis, March.
- (1972) "Threat, time, and surprise: a simulation in international crisis," in F. Hermann (ed.) *International Crises: Insights from Behavioral Research*. New York: Free Press.
- (1969a) *Crises in Foreign Policy: A Simulation Analysis*. Indianapolis: Bobbs-Merrill.
- (1969b) "International crisis as a situational variable," pp. 409–421 in J. N. Rosenau (ed.) *International Politics and Foreign Policy*. New York: Free Press.
- (1963) "Some consequences of crisis which limit the viability of organizations." *Admin. Science Q.* 8: 61–82.
- Holsti, O. R. (1972a) *Crisis, Escalation, War*. Montreal: McGill-Queen's Univ. Press.
- (1972b) "Time, alternatives, and communications: the 1914 and Cuban missile crises," pp. 58–80 in C. F. Hermann (ed.) *International Crises: Insights from Behavioral Research*. New York: Free Press.
- (1965) "The 1914 case." *Amer. Political Science Rev.* 59: 365–378.
- and A. L. George (1975) "The effects of stress on the performance of foreign policy-makers," pp. 255–319 in *Political Science Annual, Vol. 6*. Indianapolis: Bobbs-Merrill.
- Hopple, G. W. and P. J. Rossa (1978) "International crisis analysis: an assessment of theory and research." (unpublished)
- Janis, I. L. (1972) *Victims of Groupthink: A Psychological Study of Foreign-Policy Decisions and Fiascos*. New York: Free Press.
- and L. Mann (1977) *Decision Making: A Psychological Analysis of Conflict, Choice, and Commitment*. New York: Free Press.
- Lazarus, R. S. (1968) "Stress," pp. 337–348 in D. L. Sills (ed.) *International Encyclopedia of the Social Sciences*, Vol. 15. New York: Free Press.
- (1966) *Psychological Stress and the Coping Process*. New York: McGraw-Hill.
- Lentner, H. H. (1972) "The concept of crisis as viewed by the United States Department of State," pp. 112–135 in C. F. Hermann (ed.) *International Crises: Insights from Behavioral Research*. New York: Free Press.
- March, J. G. and H. Simon (1958) *Organizations*. New York: John Wiley.
- McClelland, C. A. (1977) "The anticipation of international crises: prospects for theory and research." *Int. Studies Q.* 21: 15–38.

- McClelland, C. A. (1972) "The beginning, duration, and abatement of international crises: comparison in two conflict arenas," pp. 83–108 in C. F. Hermann (ed.) *International Crises: Insights from Behavioral Research*. New York: Free Press.
- (1968) "Access to Berlin: the quantity and variety of events, 1948–1963," pp. 159–186 in J. D. Singer (ed.) *Quantitative International Politics: Insights and Evidence*. New York: Free Press.
- (1964) "Action structures and communication in two international crises: Quemoy and Berlin." *Background 7*: 201–215.
- (1962) "Decisional opportunity and political controversy, the Quemoy case." *J. of Conflict Resolution 6*: 201–213.
- (1961) "The acute international crisis." *World Politics 14*: 182–204.
- Milburn, T. W. (1972) "The management of crisis," pp. 259–277 in C. F. Hermann (ed.) *International Crises: Insights from Behavioral Research*. New York: Free Press.
- Morse, E. L. (1972) "Crisis diplomacy, interdependence, and the politics of international economic relations," pp. 123–150 in R. Tanter and R. H. Ullman (eds.) *Theory and Politics in International Relations*. Princeton, NJ: Princeton Univ. Press.
- Nomikos, E. V. and R. C. North (1976) *International Crisis: The Outbreak of World War I*. Montreal: McGill-Queen's Univ. Press.
- Paige, G. D. (1972) "Comparative case analysis of crisis decisions: Korea and Cuba," pp. 41–55 in C. F. Hermann (ed.) *International Crises: Insights from Behavioral Research*. New York: Free Press.
- (1968) *The Korean Decision*. New York: Free Press.
- Pruitt, D. G. (1965) "Definition of the situation as a determinant of international action," ch. 11 in H. C. Kelman (ed.) *International Behavior*. New York: Holt, Rinehart & Winston.
- Robinson, J. A. (1972) "Crisis: an appraisal of concepts and theories," pp. 20–35 in C. F. Hermann (ed.) *International Crises: Insights from Behavioral Research*. New York: Free Press.
- (1968) "Crisis," pp. 510–514 in D. L. Sills (ed.) *International Encyclopedia of the Social Sciences*, Vol. 3. New York: Free Press.
- (1962) *The Concept of Crisis in Decision-Making*. Washington, DC.
- Schelling, T. C. (1966) *Arms and Influence*. New Haven, CT: Yale Univ. Press.
- Shapiro, H. B. and M. A. Gilbert (1975) *Crisis Management: Psychological and Sociological Factors in Decision-Making*. Washington, DC: McLean Human Sciences Research, Inc.
- Snyder, G. H. and P. Diesing (1977) *Conflict Among Nations: Bargaining, Decision-Making and System Structure in International Crises*. Princeton, NJ: Princeton Univ. Press.
- Stein, J. G. (1968) "Krishna Menon's view of the world: a content analysis," pp. 351–362 in Brecher, *India and World Politics*. New York: Praeger.
- Tanter, R. (1978) "International crisis behavior: an appraisal of the literature." *Jerusalem J. of International Relations 3*: 340–374.
- Young, O. R. (1968) *The Politics of Force*. Princeton, NJ: Princeton Univ. Press.
- (1967) *The Intermediaries: Third Parties in International Crises*. Princeton, NJ: Princeton Univ. Press.
- Young, R. A. [ed.] (1977) "International crisis: progress and prospects for applied forecasting and management." *Int. Studies Q.* 21 (March).
- Zinnes, D. A. (1963) "Pair comparison' scaling in international relations," ch. 5 in R. C. North, O. R. Holsti, D. Zaninovitch, and D. A. Zinnes, *Content Analysis*. Evanston, IL: Northwestern Univ. Press.

## Crisis Simulations: Exploring Tomorrow's Vulnerabilities and Threats

**Arjen Boin, Celesta Kofman-Bos and Werner Overdijk**

**Source:** *Simulation & Gaming*, 35(3) (2004): 378–392.

The 11 September 2001 events in the United States propelled simulations to the top shelf of the crisis management toolbox. At least part of this elevated status is due to Mr. Giuliani, the former mayor of New York. As the dust of 11 September settled, the media elevated Giuliani to the status of super crisis manager. In the background story commemorating his election as person of the year 2001, *Time* magazine chronicled Mayor Giuliani's effective way of managing the biggest crisis ever experienced in New York City (Pooley & Ripley, 2001). The story revealed that the city's government had exercised a dozen crisis simulations in the months leading up to the disaster. The point that crisis researchers have made over and over was thus publicly validated: Crisis simulations help prepare for better crisis management (see Cottam & Preston, 1997).

Postdisaster investigations usually reveal an appalling *lack* of adequate crisis preparation. The New York City example mentioned above is the proverbial exception. Even in rich, developed countries, authorities are often wholly unprepared for the unexpected. In the Netherlands, for example, official inquiries into the Enschede fireworks factory explosion (May 2000) and the Volendam disco inferno (New Year's Eve 2001) unearthed a catalogue of individual, organizational, and political errors, blunders, and other "failures of foresight" (cf. Turner & Pidgeon, 1997). In the parliamentary wake of these disasters, the national cabinet made crisis exercises mandatory for all Dutch municipalities.

We believe that crisis simulations are destined to feature in wider circles than in American big-city government, Dutch municipalities, and a few scattered organizations. Crisis awareness has pervaded all spheres of life. The 11 September events undoubtedly accelerated this development, but it should be noted that it was gaining relevance before that time in the wake of many other time-defining crises (see Rosenthal, Boin, & Comfort, 2001). Taking the Netherlands as an example, we can see how crisis awareness has grown dramatically since the early 1990s. The increasing number of (publicly experienced) crises and disasters has motivated more and more academics, consultants, and practitioners to engage in crisis-related activities. The proliferation of media attention, crisis research, and crisis management courses is a complementary development. Moreover, crisis management is becoming increasingly important across Europe, not only within Western institutions such as NATO and the European Union but in every corner of Europe (Stern & Sundelius, 2002).<sup>1</sup>

In this article, we draw on the growing body of crisis management literature as well as our own experiences with crisis simulations to answer two questions that seem highly relevant for this special issue. First, we briefly summarize the trends

in crisis research, which suggest that the modern crisis is quite different from the “traditional” misfortunes that dominated the past century. If accurate, these predictions pose daunting challenges for future crisis managers. Second, we explore if and how different types of crisis simulations can help (future) crisis managers prepare for crises – whether these events are characterized as traditional or modern.<sup>2</sup> In the following section, we begin by outlining our perspective on crises and crisis management, and we explain how simulations have traditionally been used to prepare for crises. Section 3 explores how simulations can help policy makers prepare for so-called institutional crises. Section 4 does the same for the new generation of crises. We part with some concluding reflections in Section 5.

### **Traditional Perspectives on Crises and Crisis Management**

Crises and disasters have always been with us. Their names and dates mark eras; their impacts have changed societies and cultures. They form an integral part of history and will no doubt be a distinctive trait of our future.

Our thinking about crises has evolved, however. The notion that disaster and destruction are God’s punishment or Fortuna’s pebble stones has become more or less obsolete (even though the AIDS scourge is reportedly still viewed in these terms by many Africans). Rationalistic-scientific explanations of the origins, patterns, and characteristics of crises dominate contemporary thinking.

The term *crisis* is often used as a catchall concept that encompasses all types of “unness” events (cf. Hewitt, 1983). In this perspective, the term *crisis* applies to all situations that are unwanted, unexpected, unprecedented, and almost unmanageable, causing widespread disbelief and uncertainty (Rosenthal, Boin, & Comfort, 2001; Stern & Sundelius, 2002). The normative foundation is clear: Crises are invariably considered as negative events – the negative consequences usually applying to authorities, if not to all. Crises are then seen as “a serious threat to the basic structures or the fundamental values and norms of a social system, which – under time pressure and highly uncertain circumstances – necessitates making critical decisions” (Rosenthal, Charles, & ‘t Hart, 1989, p. 10). Crises are thus perceived as occasions for urgent decision making.

This decision-making perspective leaves little that crisis managers can do except for guiding the system back to normalcy. In small-group settings, crisis managers must deal with overwhelming events: They typically face an avalanche of bad tidings as they try to rescue everyone from doom and destruction. There is not much they can do to prevent crises either as a variety of factors can cause them: Crisis theories point to the forces of nature, technological flaws, the inevitable human error, and the unpredictable behavior of enemies.

This perspective defines crisis in subjective terms: We can only speak of a crisis if the actors in question perceive the situation as a crisis (the so-called Thomas theorem). This subjective nature of crisis makes it impossible to neatly demarcate the beginning and ending of a crisis because different actors perceive a situation in terms of crisis at different points in time (‘t Hart & Boin, 2001). Empirical research clearly shows that the worst challenges often happen after the initial crisis has already occurred (Rosenthal et al, 1994). The “crisis after the crisis” confirms

the notion that crises are best viewed as processes that include incubation periods, critical episodes, and difficult aftermaths.

The empirical research on crisis decision making confirms that crisis managers have a hard time coping with crises. The patterns and pathologies during crises can be grouped along three dimensions: information and communication, organization, and psychology (Rosenthal, Charles, & 't Harl, 1989). Time and again, it turns out that crisis managers did not have the right information to act on (but had more useless data than they could possibly handle). It becomes clear that the centralization of decision-making powers in a small crisis team far away from the threatening events is at odds with the necessity to make fast decisions on location (Rosenthal, 't Hart, & Kouzmin, 1991). And crisis managers are prone to the psychological effects – such as heightened stress or groupthink – that crisis situations can cause in individuals and groups ('t Hart, 1994). The behavior of crisis managers thus appears to be patterned, leading to recurring pathologies (and very few success stories) in crisis decision making.

Many crisis simulations are designed with the above perspective and patterns in mind. Crisis simulations can be applied to a wide variety of situations such as natural disasters, prison riots, kidnappings, and international conflicts. However, these simulations typically serve a limited number of purposes. Two appear particularly predominant in practice. First, simulations are often used to illustrate the patterns and pathologies of crisis decision making. Second, simulations have proved a very powerful tool to generate awareness among participants. Let us consider the “average” use of crisis simulations in some more detail.

### Simulations: Standard Use

The standard crisis simulation, as we see it used most often, is simple and quite effective. It goes something like this. Company X or public organization Y hires a crisis consultant to run an exercise. The consultant writes a crisis scenario, which forms the basis for the crisis simulation (see Table 1). The underlying scenario and key decision dilemmas are typically deduced from case studies or evaluation reports of real crisis situations, with fictitious events added to surprise participants. The crisis scenario can be specific to the trade of Company X or can pertain to some generic crisis (flood, fire, explosion, etc.).

**Table 1:** The typical crisis simulation

	<i>Scenario</i>
Triggers	Disasters, terrorism, public disorder
Organizational aspects	Coordination, cooperation, tasks, responsibilities, competencies, information and communication processes, group dynamics, media, etc.
Typical participants	Rescue services, middle-level public authorities, private managers
Impacts	Infrastructures (e.g., buildings), objects, geographic and social entities, systems, etc.

A selected group of employees participates in the exercise. Sometimes more organizational units are included, but the decision-making groups typically have a limited number of participants assigned to them. The participants usually sit in a room labeled as the crisis center. They form the crisis management team.

They are assigned roles and receive role descriptions with the necessary background information on their task and responsibilities and on the crisis that is about to evolve.

The crisis consultants – now known as the simulation staff – run the simulation from a separate room from which they can observe the mock crisis team through an audio and video uplink. The staff inserts information on behalf of various actors. The staff uses telephone, fax, messengers, and prerecorded news bulletins to describe the course of events. They gradually turn up the heat with their messages, (annoying) phone calls, faxes, interviews, and press conferences until the participants find themselves in an overload situation. The simulation staff tries to observe both group and individual behavior (in terms of the decision-making process, organizational adaptation, information and communication dynamics, and media management). The staff must guard the integrity of the simulation scenario. The preformulated script must be corrected with improvised messages as participants misunderstand the situation, make unexpected decisions, or fail to make other decisions. Staff must apply their acting talents and invoke some superior authority (e.g., the president) to force participants back to the original scenario. The simulation is typically concluded by an oral debriefing, sometimes followed by a written evaluation (‘t Hart, 1997).

Key ingredients for a “good” simulation include a credible script (all details must be correct), a grasp of crisis patterns (knowing when to bring the stew to a boil), and some acting talent (yelling at a “client” over the phone requires some nerve and imagination). And of course, the simulation staff must be able to present participants with useful feedback.

There are several reasons why students and practitioners alike love to participate in crisis simulations. First, crisis simulations offer a near-perfect opportunity to get acquainted with all aspects of crisis management. A simulation offers the unique experience of “sitting in the hot seat” – an experience that can otherwise only be gained by managing a real-life crisis (Flin, 1996). Most participants have never been involved in a real crisis situation. A good simulation generates the necessary awareness that crises can actually occur and the required motivation to assess and improve the crisis management structures of their own organization. When participants have become aware of the nature and potential extent of looming threats, they become more willing to discuss sensible solutions and learn from others (Caluwé, Geurts, Buis, & Stoppelenburg, 1996).

A second explanation for the popularity of the crisis simulation is its entertainment value, which makes it a great educational tool. Contrary to regular ways of transferring knowledge – such as oral presentations, written materials, standard assignments, and examinations – the learning-by-doing character of simulations has the heuristic power to make many students understand at once how difficult crisis management is. Practitioners and students experience crisis simulations as an engaging and convincing way to highlight the devilish dilemmas of crisis decision making and to explore the consequences of flawed decision making. A simulation can work magic in underwriting the real-world relevance of the course (Preston & Cottam, 1997).

The third explanation stems from the second. Crisis simulations can be very helpful in bridging the proverbial gap between theory and practice. It works both ways. Simulations present participants with a setting that generates real-life experiences. This setting enables them to directly apply theoretical insights to

crisis dilemmas (Kleiboer, 1997). Both the creation and the execution of crisis simulations provide academics with new and additional insights with regard to crisis decision making. In writing the scenario, the maker must derive crisis dilemmas from actual case studies and use crisis management theories to generate the required stimulus for learning. By running the simulation with many different groups of participants, one gets a sophisticated understanding of group behavior in crisis.

Fourth, if the simulation is repetitively used in the same environment, it may assume the function of training. Simulations offer participants a safe and controlled environment in which to experiment with skills, knowledge, and management concepts.

#### Assessing the Design and Use of Standard Simulations

In spite of all the fun and usefulness, some critical reflections apply. For instance, it should be remembered that simulations always differ from reality. Real crisis situations pose more problems and dilemmas than a simulation designer can imagine. Simulations cannot fully reenact the dramatics of real life-or-death decisions: The distinction between major and minor issues is therefore always a bit more difficult to detect in simulations. During a real crisis, such distinctions impose themselves on the decision makers. However, during a crisis simulation, participants are wont to underestimate the likelihood of the events presented to them. When the decision making gets tough, complaints about the “realistic” value of the scenario (or rather the lack thereof) get going.

It should also be noted that most crisis simulations are designed to train participants for the response phase of “classic” crises. The scenario confronts participants with, for instance, a toxic cloud, a hostage taking, a large fire, a crashed plane, or an exploding factory. Although we think it an excellent idea to prepare officials for such horrible and stress-ridden situations, it would also make good sense to train policy makers and other officials for the intricacies of crisis prevention and, perhaps even more important, the crisis aftermath. Mismanagement of the crisis aftermath can easily lead to the next crisis (‘t Hart & Boin, 2001). It appears that most crisis simulations underestimate the importance of these crisis dimensions.

One of the most serious drawbacks of many crisis simulations is that they follow fixed or predetermined scenarios. From the very beginning, it is clear that the situation will escalate no matter what participants decide. An overload of preformulated messages and predesigned interventions by the simulation staff almost guarantees that the participants will act and decide in accordance with the preconceived outcome of the scenario. Participants cannot in any way affect the final outcome. This rigidity in format can easily undermine the success of the simulation, as participants begin to act in a resigned or lethargic manner as yet another disaster is imposed on them.

In developing new crisis simulations, we have tried to remedy these shortcomings. For instance, our simulation THE PAN ASIAN ATHLETICS confronts a national and a local crisis team with a hostage taking of rich and famous guests in an exclusive hotel taking place during the Pan Asian Athletics event. Both crisis teams are placed in separate locations and receive a limited number of messages. The local crisis team receives information from the on-scene commander near

the hotel. The national crisis team gets their information from international authorities and organizations. The formal responsibilities are designed so that both teams must work together to manage this crisis situation. The teams can interact without interference from the simulation staff.

The open-ended scenario makes it possible for the participants to affect the outcome of this crisis. When both teams cooperate, exchange information, and coordinate their actions, they can bring the hostage taking to a good end. If they do not cooperate, failure is very likely. The teams can take as much time for their decisions as they need. This simulation could therefore easily take a day. The debriefing must take into account that these simulations follow a less structured course, which stretches over a longer time period.

## **Simulations for Institutional Crises**

### Defining Institutional Crisis

The classic simulation exercise, as discussed above, is a less effective training and education tool for crises that do not fit the subjective definition as discussed above. If we say that individuals or groups must perceive a situation in terms of crisis characteristics (threat, urgency, uncertainty), it automatically means that we miss certain events or processes that many of us would consider to be crises just because the authorities do not recognize the situation in terms of crisis. Take, for instance, an organization or policy sector that slides into crisis. As long as the authorities in question remain oblivious, analysts cannot treat this situation in terms of crisis. This is, of course, a theoretical problem. However, the lack of theory prevents the effective design of simulations that can help policy makers prevent and deal with this type of crises.

A shift toward an objective definition of crisis creates a new and promising perspective. It allows for a definition of institutional crisis, which occurs when the institutional structure of an organization or policy sector “experiences a relatively strong decline in (followed by unusually low levels of) legitimacy” (Boin & ‘t Hart, 2000, p. 13).

This crisis definition refers to a state of flux during which institutional structures of an organization have become uprooted. Within a relatively short time, political and societal support diminishes for the way an organization or sector operates, opening the door to imposed reform. At the heart of the crisis is an unremitting discrepancy between external expectations and perceived performance. A combination of internal and external factors causes and sustains this gap. Routines and outcomes that used to be satisfactory are suddenly thought unacceptable or inappropriate by external stakeholders, internal deficiencies blind an organization or policy sector to these new realities. This mismatch allows an organization to initiate or maintain a course of action that is considered undesirable from a societal or political perspective, eroding the legitimacy of that sector (Boin & ‘t Hart, 2000).

There are two scenarios that describe the birth of institutional crises. The first scenario features an unforeseen event (the launch of the Sputnik) that abruptly destroys the legitimacy of a sector’s institutional structure (U.S. space and weapons research). Events that trigger acute institutional crises are so drastic



that nonintervention is inconceivable and reform seems to be the only solution. Acute institutional crises are rare. More common is the second scenario in which institutional crises build up over time. During a long incubation period, societal expectations and organizational performance gradually begin to diverge, with media attention and political interference serving as catalysts.

Because the institutional structure has become discredited, the crisis period must be viewed as a critical phase that will at least partially determine the new future of the organization or sector in question. Crisis management should therefore be conceptualized as “governance at the crossroads” (Boin & ‘t Hart, 2000, p. 21). In addition to all the patterns and pathologies mentioned earlier, crisis managers will have to cope with the overriding tension between repair and reform (Lanzara, 1998). A return to the way things were before the crisis requires crisis managers to restore trust in the existing institutional structures. Incremental changes may improve the situation without tampering with the institutional crux. A reform strategy, on the other hand, aims to bridge the gap between performance and expectation by remodeling the foundations of the institutional structure to better fit the environment.

The challenge for authorities lies not so much in making a few hurried, critical decisions but in the formulation of some sort of future vision: redesigning or preserving – and convincing politicians and media that this is the way to go. Crisis preparing, then, is more than writing plans and organizing facilities or resources. Meaningful preparation requires recognition and an understanding of the dynamics of institutional crises. When such a crisis hits, management becomes more a case of shifting between alternative futures. We argue that the use of simulations can help to map this process and initiate thinking about institutional vulnerabilities that may give rise to crises.

### Designing Institutional Crisis Simulations

Institutional crises, as described above, present a new challenge to simulation designers and trainers (see Table 2). We must admit that at first, a simulated institutional crisis appeared less attractive to us than the usual high-stress, fast-decision simulation of the classic, acute crisis. Once you sit in the hot seat, it’s easy to get addicted to acute crisis management. However, based on our first experiences, we confidently predict that top officials will find simulations of institutional crises equally exciting.

**Table 2:** The institutional crisis simulation

	<i>Institutional crises</i>
Triggers	Decreasing organizational legitimacy, dysfunction, increasing political attention
Organizational aspects	Early warning management strategies, policy repertoire, rules, routines, policy paradigm
Typical participants	CEOs, top-level bureaucrats
Impacts	Institutional structure, values, perceptions, culture, image

This type of simulation serves several important functions. First, an institutional crisis simulation creates awareness with regard to a rather unique sort of vulnerability. It is hard to prepare for a type of crisis that falls outside the domain of imagination. Conventional crises happen somewhere every day, and the simulation

serves to burst the bubble that it “cannot happen here.” The institutional crisis simulation must begin by convincing an organization that this type of crisis can actually occur. It is something of a taboo. Even those who have experienced an institutional crisis are reluctant to revisit their experience as they feel it may tarnish their reputation. Institutional crisis simulations can help “unfreeze” these top-level officials by placing them in an organizational setting that is unfamiliar to them, with a different role description.

In addition to fostering awareness, institutional crisis simulations help practitioners understand the dynamics of institutional crises and the driving factors behind the processes leading up to the crisis. The study of institutional crisis is a relatively new effort, as we described above. When academics and practitioners try to analyze an institutional crisis with conventional crisis theories, they will find that many of the concepts and explanatory frameworks do not fit the problem at hand. In fact, the development of institutional crises seems harder to understand in many ways than the manifestation of an acute crisis. Simulations help to shape a common frame of reference, which enables participants to work with abstract concepts (such as “institutional structure”) and contemplate potential crisis management strategies.

An institutional crisis simulation can thus be used to explore preventive or preparatory countermeasures. Most organizations are not prepared to deal with a crisis that threatens its very existence. As the institutional crisis framework has more to say about the process of deinstitutionalization than the specific form of the threat to the organization, it is necessary for each organization to consider the abstract framework and discover potential future threats. In the absence of existing plans, simulations can guide this planning process.

Third, institutional crisis simulations can be used as an audit tool. Simulations help managers to assess organizational preparedness: Is the organization scanning the environment for potential threats? Does the organization periodically screen for performance vulnerabilities? Does the organization have the capacity to deal with sudden incidents that can trigger crisis processes? Does the organization have a clearly formulated philosophy on crisis management, prescribing what is important to preserve at all costs and prioritizing areas for immediate reform? If we look at Table 2 (and compare it to Table 1), it becomes clear that the institutional crisis poses new and rather different challenges.

#### Toward the Structured Use of Institutional Crisis Simulations

Institutional crisis simulations appear to be relatively rare. The general lack of awareness combines with the normal reluctance of top managers to engage in crisis simulations (Carrel, 2000). It should be added that most designers of crisis simulations have very little knowledge of the subject, which explains their near absence. As far as we know, most simulations that come close to institutional crises consist of either media management exercises or the development of worst-case scenarios. However, it is only a matter of time before organizations learn that institutional crises require a different set of strategies than the acute crisis does. The classic simulation formats do not suffice as they tend to focus on reactive decision making. Institutional crisis management is more about long-term strategy considerations, which requires new formats and very different scenarios.

In our efforts to develop an institutional crisis simulation that can fulfill the functions listed above, we are currently working with a five-phase approach:

- (1) *Background information.* To stimulate their curiosity, participants receive prior to the simulation general background information and easy-to-read literature on institutional crises.
- (2) *Theoretical presentation.* In a plenary meeting, we first provide the group with a theoretical framework on the development and consequences of institutional crises, including well-known examples of institutional crises. All participants are brought to the same knowledge level.
- (3) *First analysis.* We illustrate the theoretical discussion with a plenary, mildly interactive simulation based on an institutional crisis that happened in a well-known policy field (we use the Dutch prison case<sup>3</sup>). The participants are divided into subgroups. Most participants are unfamiliar with this prison case, which levels the playing field. Moreover, because it is unfamiliar terrain to all, participants feel free to suggest management strategies that would be controversial had the case been related to their own policy field or organization. Each subgroup receives the same information about a series of incidents in the Dutch prison sector. Participants discuss and present strategies that help contain the institutional crisis. Through mutual discussion, it soon becomes clear that the proposed management strategies can easily backfire and fuel rather than dampen the crisis process. We then explain which strategies were actually applied in the Dutch prison case. This first leg of the simulation helps to unfreeze the participants.
- (4) *Plenary vulnerability assessment.* The prison simulation is an effective mechanism for initiating a plenary discussion on the vulnerabilities and preparedness of the participants' organizations. It is not uncommon for them to reinterpret past events in terms of institutional crises. These insights offer the best lessons.
- (5) *Semiplenary, interactive simulation.* It is now time for the tailor-made simulation. We are currently experimenting with a format that mixes a generic script with instantly provided data to result in an on-the-spot, tailor-made simulation. Using relatively simple computer software and technology, the trainers turn into "crisis disc jockeys" as they mix the script with actual pictures of participants, instant press conferences, news reports, and participant feedback. This format provides both participants and trainers with maximum flexibility. They can contemplate management strategies that have actually been applied in the sector and consider possible strategy orientations and outcomes such as (un)intended reform and protracted crisis. The simulation concludes with a thorough discussion on the outcomes of the simulation.

### **Simulations for Future Crises**

#### From Contemporary to Future Crises

The 9/11 events underline a strong belief among crisis researchers that the very nature of crises is changing as a result of critical developments that occur on a worldwide scale (Rosenthal, Boin, & Comfort, 2001). If this is true, we must accept

that the crises of the future will pose intricate challenges to our crisis management structures and those who must deal with crises (Boin & Lagadec, 2000).

The thesis holds that the future crisis will be increasingly complex in nature, will not respect national, cultural, or temporal boundaries, and will easily intertwine with other issues and developments. The future crises will become endemic features of modern society as they reproduce themselves in mutating forms (Boin & Lagadec, 2000). Causal chains of cause and effect will become harder to determine, opening the door to politicization and mediaization. The impact will be harder to predict or even comprehend. It will be harder to come to terms with these crises as they are constantly redefined and reinterpreted (Rosenthal, Boin, & Bos, 2001).

The driving factors behind this development toward new crises are well-known, long-term trends such as transnationalization and globalization, mediaization, spectacular progress in information and communication technology and technology at large, demographic change, and the dissipation of state authority. Other trends, perhaps less discernable at this point, include the changing environment, DNA research, and the social fragmentation of society. If this line of thinking is correct, we should expect new forms of terrorism, environmental disaster, and technological failure in the future.

However, crisis managers have an administrative repertoire of prevention and intervention strategies that is based on traditional crisis forms and is therefore unsuited for the increasingly complex and interdependent character of future crises. For instance, crisis preparation will have to shift from anticipation to resilience (Boin & Lagadec, 2000). Traditional emergency preparation mainly entails anticipation-based strategies directed to prevent crises from happening. Organizations train to respond adequately to specific emergencies. However, anticipation-based strategies cannot deal with unexpected and inconceivable situations. Organizing for resilience appears to be a better answer. Resilience refers to “the capacity to cope with unanticipated dangers after they have become manifest, learning to bounce back” (Wildavsky, 1988, p. 77). Resilience does not replace anticipation but complements it. The challenge is to find the right balance between the two strategies.

#### Designing Simulations for Future Crises

We suggest four possible ways in which simulations can help prepare for future crises. First, simulations of future crises help deepen the awareness of the endless variety of events that can turn into a crisis (see Table 3). Whereas the conventional crisis simulation (as discussed above) fosters a sense of crisis awareness, this simulation is intended for a more seasoned audience that already understands that crises can occur anytime, anywhere. This type of simulation tickles the imagination by forcing the attention of participants to such “inconceivable” contingencies as bioterrorism, DNA engineering, the emergence of electromagnetic fields, or the crash of a satellite. These simulations move crisis managers from the previous war to the next war. Since 11 September 2001, many countries have begun to focus on the dangers of nuclear and biochemical warfare. However, crisis managers must be indoctrinated with the understanding that the next big crisis will be different from anything they have seen before.

**Table 3:** Future crisis simulations

	<i>Future crises</i>
Triggers	Unknown
Organizational aspects	Creating a culture of resilience, supported by crisis plans, procedures, training, exercises
Typical participants	CEOs, top-level bureaucrats, civil servants
Impacts	Infrastructures (e.g., buildings), objects, geographic and social entities, systems, etc.

Second, simulated future crises can be a useful tool in translating general awareness into organizational routines and group culture. It is a catalyst for constant attention to all aspects of crisis management. Organizing for resilience is, to a considerable extent, informed by the principles set forth in high reliability theory (Weick, Sutcliffe, & Obstfeld, 1999). One of these principles is a cultural preoccupation with possible failure (in terms of nonsafety). Simulations can be used to nurture this preoccupation. This catalyst function could also have a negative effect, however. When the cost-benefit ratios surpass a certain threshold, top management may be tempted to cut necessary resources or even terminate crisis management activities altogether (cf. Sagan, 1994),

Third, simulations of future crises are invaluable tools for the designers of institutional resilience. This type of simulation facilitates the exploration of organizational components needed to build an organization that can bounce back. Participants in this type of simulation will certainly sharpen their ideas about the required personal skills of the people who will be dealing with a future crisis. Participants will most likely discover that certain organizational resources are lacking. Moreover, participants will experience the absolute necessity for some kind of crisis management philosophy or “metastrategy.” In short, participants will discover the needs of their organization, explore dilemmas, and begin to plan for the future.

Fourth, future crisis simulations can be used to audit existing procedures, competencies, responsibilities, cultures, values, and plans. This function is, clearly, for the most advanced organizations only. Once an organization has created general awareness and designed a crisis management structure and a complementary set of procedures, a simulation can be used to identify weak links. It can also be used for individual assessment of crisis managers. Before loading crisis responsibilities on a manager’s shoulder, it may be useful to run the would-be crisis manager through a simulated future crisis.

#### Future Crisis Simulations: A Closer Look

The major challenge for crisis simulation designers has always been the inherent tension between inconceivability and credibility: An inconceivable crisis scenario is easily discredited by participants (which is quite damaging for the simulation), whereas a credible crisis scenario usually pertains to a familiar, complex problem rather than a crisis. Crisis designers tend to negotiate this tension by extrapolating from past crises – hardly an option for designers of future crisis scenarios. The 9/11 events have gone a long way to solve this problem, at least for the time being. It is now possible to present nearly any type of unconceivable contingency without alienating the participants.

Apart from the matter of credibility, there is also the problem of executive willingness to deal with future crises. The exploration of future crisis scenarios may run into a wall of information pathologies, issue complexity, transnational boundaries, or bureaucratic infighting. In addition, there is an inherent reluctance among those responsible for crisis management. The attention to new and future crises evokes new problems to be solved and proper action to be taken. Future crisis simulations may undermine the position of crisis managers, and they are sure to create extra work.

To overcome these potential drawbacks, we have worked with a format that respects standing procedures and previous efforts while stimulating the discovery process outlined above. We developed a scenario in which a future crisis (e.g., terrorist attack with smallpox) rapidly evolves. The scenario concentrates on the processes leading up to the crisis, the so-called incubation phase. The participants were instructed to use an existing protocol to deal with the impending crisis. The participants were divided into functional groups according to their actual function in the organization. The groups worked together to deal with the crisis, always using the existing protocol as their guide. During the course of the simulation, each group could stop the simulation and convene a plenary meeting. All participants then stepped out of the simulation to discuss the viability of strategies suggested by the protocol. Through discussion, the participants would discover weaknesses and design solutions that were fed back into the protocol. By running the simulation through the various layers of the organization, each time presenting the participants with the adapted protocol, the simulation took on the function of a bottom-up planning tool. The participants found the simulation both exciting and rewarding.

## **Conclusions**

Simulations improve the disaster and crisis management capacity of an organization or society. They provide a cost-efficient, controlled environment in which individuals and teams can safely experiment with procedures, protocols, and strategies – while testing suggested improvements of the coping repertoire. They call attention to all phases of crisis management; they help to recognize impending crises, and they familiarize participants with the long crisis aftermath. Simulations provide a means for exploring very different types of crises that may occur today or in the distant future. They can be used as an assessment tool, identifying weaknesses and strengths in individuals, groups, and organizations.

Because crisis simulations are such effective tools, we must wonder why so few organizations actually apply them. A crucial reason for this underutilization is the lack of awareness that a crisis can occur anywhere, anytime. We know, as everybody working with simulations does, that a good simulation can be a perception-shattering experience. Top executives who work through a 3-hour simulation become crisis converts. The sad reality, however, is that executives do not have the time or the need to make themselves participate in one (Carrel, 2000; Lagadec, 1997). Simulations are only used where awareness is high; they do not penetrate organizations where a good simulation would be needed most.

This Catch-22 can only be solved by expanding the benefits of a well-functioning crisis management structure. We already know that a good crisis

simulation benefits the organization as a whole: It is a great team-building instrument, it solidifies a culture of reliable performance, and it signals to the relevant environment that the organization in question is robust and well deserving of external trust and resources. However, those positive side effects are largely unintended. The great challenge ahead for crisis simulation designers is to connect crisis performance with overall organizational performance (cf. Weick et al., 1999). Once the simulation tool is shown to make a significant difference in terms of tangible results, crisis awareness is likely to increase as well.

### Notes

1. The desire of many eastern European countries to gain access to both the EU and NATO fuels convergence processes across Europe. For more information on European crisis management developments, consult the Web site of the European Crisis Management Academy, [www.ecm-academy.nl](http://www.ecm-academy.nl).
2. As a qualifier, we should note that our perspective is rooted in the Leiden school of crisis studies (a label coined by Professor Alexander Kouzmin). Members of the Leiden University Crisis Research Center and its offspring, Crisis Onderzoek Team, have conducted research in this field since the 1980s (see, e.g., Rosenthal, Boin & Comfort, 2001; Rosenthal, Charles, & 't Hart, 1989).
3. The scenario is based on a real institutional crisis (Boin & Resodihardjo, 2000).

### References

- Boin, R. A., & 't Hart, P. (2000). Institutional crises and reforms in policy sectors. In H. C. Wagenaar (Ed.), *Government institutions: Effects, changes and normative foundations* (pp. 9–31). Boston: Kluwer Academic.
- Boin, R. A., & Lagadec, P. (2000). Preparing for the future: Critical challenges in crisis management. *Journal of Contingencies and Crisis Management*, 8(4), 185–191.
- Boin, R. A., & Resodihardjo, S. (2000). Van Normale Incidenten tot Nieuw Beleid: Crisis in het Gevangeniswezen [From normal incidents to new policy: Crisis in the prison sector]. In R. A. Boin, S. Kuipers, & M. Otten (Eds.), *Institutionele Crises: Breuklijnen in Beleidssectoren* (pp. 59–82). Alphen aan den Rijn, the Netherlands: Samsom.
- Caluwé, L. de, Geurts, J., Buis, D., & Stoppelenburg, A. (1996). *Organisatieverandering met spelsimulaties* [Organizational change through simulations]. Den Haag/Amersfoort, the Netherlands: Twynstra Gudde/DELWEL Uitgeverij B. V.
- Carrell, L. F. (2000). Training civil servants for crisis management. *Journal of Contingencies and Crisis Management*, 8(4), 192–196.
- Cottam, M., & Preston, T. (1997). An overview of the value and use of simulations in the academic, business and policy communities. *Journal of the Contingencies and Crisis Management*, 5(4), 195–197.
- Flin, R. (1996). *Sitting in the hot seat: Leaders and teams for critical incident management*. Chichester, UK: Wiley.
- Hewitt, K. (Ed.) (1983). *Interpretations of calamity: From the viewpoint of human ecology*. Boston: Allen & Unwin.
- Kleiboer, M. (1997). Simulation methodology for crisis management support. *Journal of Contingencies and Crisis Management*, 5(4), 198–205.
- Lagadec, P. (1997). Learning process for crisis management in complex organizations. *Journal of Contingencies and Crisis Management*, 5(1), 24–31.
- Lanzara, G. F. (1998). Self-destructive processes in institution building and some modest countervailing mechanisms. *European Journal of Political Research*, 33(1), 1–39.
- Pooley, E., & Ripley, A. (2001, December 31). Mayor of the world. *Time* (International ed.), 158(27), 46–61.

- Preston, T., & Cottam, M. (1997). Simulating U.S. foreign policy crises: Uses and limits in education and training. *Journal of Contingencies and Crisis Management*, 5(4), 224–230.
- Rosenthal, U., Boin, R. A., & Bos, C. J. (2001). Shifting identities: The reconstructive mode of the Bijkmer plane crash. In U. Rosenthal, R. A. Boin, & L. K. Comfort (Eds.), *Managing crises: Threats, dilemmas, opportunities* (pp. 200–215). Springfield, IL: Charles C Thomas.
- Rosenthal, U., Boin, R. A., & Comfort, L. K. (2001). The changing world of crisis management. In U. Rosenthal, R. A. Boin, & L. K. Comfort (Eds.), *Managing crises: Threats, dilemmas, opportunities* (pp. 5–27). Springfield, IL: Charles C Thomas.
- Rosenthal, U., Charles, M. T., & 't Hart, P. (Eds.). (1989). *Coping with crises: The management of disaster, riots and terrorism*, Springfield, IL: Charles C. Thomas.
- Rosenthal, U., 't Hart, P., & Kouzmin, A. (1991). The bureau-politics of crisis management. *Public Administration*, 69, 211–233.
- Rosenthal, U., 't Hart, P., Van Duin, M. J., Boin, R. A., Kroon, M. B. R., Otten, M. H. P., Overdijk, W. I. E. (1994). *Complexity in urban crisis management: Amsterdam's response to the Bijkmer air disaster*. London: James & James.
- Sagan, S. D. (1994). Toward a political theory of organizational reliability. *Journal of Contingencies and Crisis Management*, 2(4), 228–240.
- Stern, E., & Sundelius, B. (2002). Crisis management Europe: An integrated regional research and training program. *International Studies Perspectives*, 3, 71–88.
- 't Hart, P. (1994). *Groupthink in government: A study of small groups and policy failure*. Baltimore: Johns Hopkins University Press.
- 't Hart, P. (1997). Preparing policy makers for crisis management: The role of simulations. *Journal of Contingencies and Crisis Management*, 5(4), 207–215.
- 't Hart, P., & Boin, R. A. (2001). Between crisis and normalcy: The long shadow of post-crisis politics. In U. Rosenthal, R. A. Boin, & L. K. Comfort (Eds.), *Managing crises: Threats, dilemmas, opportunities* (pp. 28–46). Springfield, IL: Charles C Thomas.
- Turner, B. A., & Pidgeon, N. F. (1997). *Man-made disasters*. Oxford, UK: Butterworth-Heinemann.
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (1999). Organizing for high reliability: Processes of collective mindfulness. *Research in Organizational Behavior*, 21, 81–123.
- Wildavsky, A. (1988). *Searching for safety*. Berkeley: University of California Press.



## Bridging the Two Cultures of Risk Analysis

**Sheila Jasanoff****Source:** *Risk Analysis*, 13(2) (1993): 123–129.**1. Introduction**

**D**uring the past 15 years or so, risk analysis has come of age as an interdisciplinary field of remarkable breadth, welcoming and nurturing connections among subjects as diverse as mathematics, biostatistics, toxicology, and engineering, on the one hand, and law, psychology, sociology, and economics on the other. But what has the presence of social scientists in the network meant to the substantive development of our field? What in particular has the “soft” or nonquantitative side of the social sciences – what we might call the culture of qualitative risk analysis – contributed to the field’s “hard” quantitative core? The answers I offer here are partly complacent and partly self-critical. Our community has made substantial progress in bridging the two cultures of risk analysis, but the work is not finished and, as in any physical structure, the gains we have made are in danger of wearing thin without continual monitoring and periodic repair.

On the positive side, humanistic and culturally grounded studies have added a handful of widely accepted precepts to our shared repertoire of information about risk. So, most risk analysts, regardless of their disciplines, would probably agree that risk assessment is not an objective, scientific process; that facts and values frequently merge when we deal with issues of high uncertainty; that cultural factors affect the way people assess risk; that experts perceive risk differently from other members of the public; and that risk communication is more effective when it is structured as a dialogue than as a one-way transfer of facts from experts to the public. These are not inconsiderable points of convergence, and we should not downplay their importance.

Yet side by side with these commonly held beliefs there exist other views suggesting that the two cultures of risk analysis have not yet entered into a perfect communion. There is a pervasive sense, for example, that “hard” analysis represents risks as they “really are,” whereas “softer” work in politics or sociology mostly explains why people refuse to accept the pictures of reality that technical experts produce for them with considerable investment of human ingenuity. Repeatedly, at professional meetings and conferences one hears the wishful refrain that the “problem” of risk perception would vanish if people would only understand probability better or would learn to compare the risks they most fear with those they encounter in their daily lives. Increasingly, as well, one hears that the public has a distorted view of risk because the media portray science in an inaccurate way,

with exaggerated accounts of uncertainty and conflict. Reverting as if by some natural law to the unidirectional model of risk communication, scientists complain that if only scientific information could be faithfully represented in the mass media, then people would not so misperceive the dangers that surround them.

The lack of complete engagement between the two cultures of risk analysis is also reflected in the persistent vitality of the old maxim that risk assessment should be separated from risk management. During much of 1992, for example, I had the good fortune to serve as a member of the National Research Council's committee on risk assessment of hazardous air pollutants. Month after month, two dozen sophisticated and knowledgeable people met in Washington to talk about how to improve EPA's risk assessment process. Many interesting technical developments and empirical experiences were discussed and debated. Clearly, much progress had been made in the previous 10 years on the details of how to do health risk assessment and represent its results. But when the committee came to pulling together a final report, it became clear that the dominant decision-making model among us was still that of the National Research Council's 1983 "Red Book,"<sup>1</sup> with its call for stringent separation between the scientific process of assessment and the value-laden process of management. From the standpoint of the NRC committee, most of the work done in the social and political studies of science in the past decade, including work on the nature of expert knowledge about risk, might just as well never have existed.

There is room then for a more radically integrated approach to thinking about risk analysis. Briefly, I want to suggest that qualitative studies focusing on the ethical, legal, political, and cultural aspects of risk exist conceptually on a single continuum with quantitative, model- and measurement-oriented analyses of risk. Each approach captures a different, and only partial, aspect of the complex and multidimensioned reality that our field tries to apprehend. Both are needed to produce anything like a comprehensive accounting of the nature and extent of risk in a technological society. Unless we find better ways of recognizing and acting on the complementarity of these two cultures of risk analysis, our knowledge of risk will remain fragmentary and will serve at best as an imperfect guide to personal or collective decision-making.

## **2. The Micro-Worlds of Risk Assessment**

A relatively noncontroversial place to begin the talk of bridging is the observation that risk – perhaps most simply defined as the probability of a bad outcome – does not exist in an objective space as an unchangeable feature of the physical world. Rather, risk is a construct which we, with our bounded human imaginations, overlay on the world around us.<sup>2</sup> In order to decide what is the "risk" of a given negative event, risk assessors have to make a host of simplifying assumptions about the context in which it arises. The kind of imagination they bring to this activity, moreover, depends on their objectives, values, training, and experience. The risks they measure therefore exist not "in reality" but only in an artificial micro-world of the risk analyst's creation.

Let me illustrate what I mean with some examples drawn from contemporary practices in health and environmental risk assessment. In models conventionally used to assess risks to public health, adult human beings live exactly 70 years,

stay indoors all day in radon-contaminated homes, drink precisely seven cups of water a day, smoke very heavily or not at all, and exercise while inhaling abnormal quantities of airborne pollutants. Similarly, in scenarios for assessing environmental risk, water and smoke plumes flow along mathematically exact pathways, dense population clusters are located immediately downwind from highly polluting factories, pregnant women and small children eat steady diets of pesticide-laden foods, and acid rain relentlessly drips down on red spruce forests. We know that nature and society actually behave in more complex and unpredictable ways, but we cannot begin to estimate the magnitude of particular risks except by building little model worlds where variation is artificially restricted.

Some of the ways in which the world is constricted for analytic purposes have been widely discussed in the risk literature. It is common knowledge, for example, that rats do not exist in nature as pure, laboratory-bred strains, and that they are not naturally inclined to consume excessive quantities of saccharin, aflatoxin, Alar, or EDB. Mice for their part did not evolve with special propensities for contracting cancer. Indeed the ability to manufacture an animal with this particular property earned its creator at Harvard the first legal patent ever granted for a higher organism produced by human ingenuity. We know as well that cancer is not caused in living organisms each time a chemical induces a mutation in a single cell, that benign tumors do not inevitably progress to a malignant state, and that responses to physical insults vary from individual to individual and species to species. When EPA or other agencies assume the opposite, we call the resulting counterfactual principles “default assumptions,” and we relegate them to some intellectual no-man’s land between science and politics. Default assumptions that no one cares to question are referred to as “science policy” or “expert judgment”; those that lead to politically controversial results are challenged as arbitrary rules that have no basis in either science or public policy.

Our ability to detect constraining assumptions in risk analysis, however, has proved to be highly selective and unsystematic. Let us consider, for instance, the controversy over Congress’s injunction that standards for hazardous air pollutants should be established with reference to the “maximally exposed individual” or MEI. EPA’s assumptions concerning the sedentary lifestyle of the MEI have been ridiculed in the risk community because they are at such variance with normal human behavior. A consensus has developed that the MEI should not be equated with the “porch potato” – that mythic being who sits unmoving for 70 years on a porch that fronts the fence-line of the nation’s most polluting factory. EPA’s risk assessors have been put on notice that they should find a more realistic way of representing how normal people leading normal lives may come into contact with heavy doses of outdoor air pollution.

Other times, however, assumptions that flatten variability, whether in physical systems or in society, are much slower to gain recognition. Thus, as Adam Finkel has observed, models for health risk assessment often do not give adequate recognition to interindividual variations in susceptibility to disease.<sup>3</sup> Similarly, recent work on the distributive features of risk has revealed that there are marked disparities in the risk exposures of different ethnic and socioeconomic groupings in our society.<sup>4</sup> By and large, these variations are not factored into the conduct of risk analysis. Occasionally, the biases that analysts bring to the creation of risk micro-worlds are so deep-seated that it takes a major upheaval, like a new social movement, to bring them to public notice. An illustrative case is the rather recent

“discovery” at the National Institutes of Health (NIH) that women have been systematically underrepresented in scientific inquiries concerning some of the most common diseases in American society. This rather obvious shortcoming in the health sciences came to national attention only when Dr. Bernadine Healy, NIH’s first woman director, responded favorably to the feminist critique of conventional research funded by her organization.

Although the hidden distributive assumptions in risk assessment are often hard to recognize, their revelation does more to discredit the risk assessment enterprise than perhaps any other form of criticism. Assumptions that can be shown to have ignored the plight of specially vulnerable populations – women, children, ethnic minorities, the elderly – can never be justified as legitimate exercises in science policy. This is one way to understand the Alar controversy that rocked the risk community only a couple of years ago. The attack on EPA’s assessment of Alar by the Natural Resources Defense Council captured the public imagination and enlisted the support of powerful media symbols like Meryl Streep largely because it focused on EPA’s apparently inadequate attention to children’s consumption of apples and apple products. No amount of disputation about the validity of the bioassay data on daminozide could counteract the public perception that government regulators had constructed their analytic framework in ways that underestimated the vulnerability of children.

### **3. Constraining Assumptions**

The disclosure of biases and basic omissions in risk assessment models often comes as a surprise to both experts and the public, as in the case of Alar and school children or women’s health issues at NIH. I would next like to develop the argument that the culture of qualitative risk analysis offers at least a partial antidote to such surprises, because it provides a relatively systematic approach to thinking about the constraining assumptions that are built into procedures for assessing risk. In particular, recent work in the field of science and technology studies suggests that there are recurrent ways in which the “scientific” construction of risk scenarios falls short of completeness. Pointing out these directions of likely bias may well be the most important service that qualitative risk studies can render to the culture of quantitative risk assessment.

The contributions that qualitative analysts have made to the understanding of risk can usefully be grouped under three headings: the first is “scale,” which can be further subdivided into spatial, temporal, and cross-cultural (or distributive) components; the second is “interactivity,” by which I mean the dynamic interplay between nature and society in the production of risks; and the third is “contingency,” which refers to the contextually delimited character of virtually all knowledge about risk. Inadequate attention to any of these three factors detracts from the robustness of risk analysis and increases the likelihood of disagreements among experts as well as between experts and the public.

Let me begin with the factor of scale. The pictures we construct of risk will always be underinclusive – that is, key elements will be left out of consideration – if the scale of the analysis is too small or too large. Risk assessment, as its practitioners well know, is often based on extraordinarily compressed models of physical systems, illustrating one aspect of the problem of scale. Thus, we try to

surmise what will happen to genetically engineered organisms in the environment on the basis of studies conducted in tiny, carefully isolated plots of land over one or two growing seasons. We use small, well-screened groups of animals and people to test products that will eventually be distributed to large masses of individuals with varying susceptibility to disease. The underlying assumption in all such studies is that the effects observable in the miniaturized domains that we actually study will reproduce themselves more or less predictably in the world at large – provided, of course, that we adhere to certain basic rules of statistics in selecting the size and composition of study populations.

Increasingly, as well, we use mathematical models to help us overcome the limitations of physical observation on a small scale. But the gap between prediction and experience warns us that modeling provides at best an imperfect bridge to reality. So, the oil fires in Kuwait did not in fact bring about the localized “nuclear winter”-like scenario that some modelers had fearfully predicted. On the other hand, our sad experience with diethylstilbestrol or DES shows how important elements of risk (in this case, the cancer risk to the children of DES users) can remain hidden if assessments are based on a temporal scale that ignores possible intergenerational effects.

Less often remarked, perhaps, are the many occasions when the scale for risk analysis is so large that it misses crucial aspects of local variation. Thus, a study of deforestation in the Himalayas by Thompson *et al.* determined that the reason why experts came to radically different conclusions about “per capita fuelwood consumption” was their failure to take account of highly variable, localized environmental conditions and associated variations in human consumption practices.<sup>5</sup> Similarly, a study by Wynne showed that, in the aftermath of Chernobyl, British radiation experts greatly underestimated how long radiation would contaminate soil and plants in Lancashire.<sup>6</sup> The error in this case was the apparent failure of experts, who were familiar with soil conditions in the south of England, to account for greater than expected acidity in the peaty soils of Britain’s northern sheep-farming country. Examples like this will no doubt arise more frequently as we try to come to grips with risk predictions on a global environmental scale.

Problems of scale may occur, finally, because of the failure to incorporate distributive considerations into the modeling of risks. The Alar controversy, in which risk assessors seemed insensitive to children’s exposure, offers one example of this phenomenon. More generally, the problem of distributively inappropriate scales makes itself felt whenever a community is asked to accept the risks of an activity that benefits it slightly or not at all. With zero benefits, the community perceives even a small threat of harm as infinitely large, regardless of expert assurances to the contrary. The burial of high-level radioactive wastes in Nevada or the construction of an incinerator on Long Island arouses controversy in part because the distributive scale by which experts have determined the “safety” of these operations fails to synchronize with the scale used by the recipient community.

My second point about the interactivity of nature and society is more subtle but no less important. Often, when we set about analyzing the risks of technology, we assume a more substantial barrier than in fact exists between the physical and social worlds. Actual, measurable risks are assumed to belong to the real world of hard, material things, whereas perceived risks are thought to lie in the domain of fallible human beliefs and intuitions. Time after time, however, our experience of risk has called attention to the intellectually untenable character of such assumptions.

We know, or at any rate should know, that technological artifacts are continually constructed and reconstructed through social practices. Risk is the product of this constant interaction; it is not simply there to be “found” as an unalterable characteristic of an inanimate physical system.

Disasters involving technology provide the most chastening examples of material things interacting with people and institutions to produce consequences that nobody thought to predict. The catastrophic gas leak in Bhopal was one such event. In this case, a factory design that had worked more or less safely in America had been transported to a country with a fundamentally different material and technological culture. The recipients contextualized the alien technology into their lives in accordance with their own cultural necessities and presuppositions. Colonies of service-providers, for example, sprang up within a few years around the factory’s periphery. These were the people who ultimately suffered the worst consequences of the disaster.<sup>7</sup> Workers inside the plant, too, developed their own ways of dealing with the breakdowns and sheer orneriness of the foreign object they had been asked to manage. After the accident, it was revealed that the constant malfunctions in valve and alarm systems had led the workers to rely on their sense of smell, a crude but generally reliable detection system for the acrid presence of methyl isocyanate. Tragically, this “early warning” mechanism proved completely ineffectual against the runaway reaction that precipitated the disaster.

One does not have to seek out cases of cross-national technology transfer to find risks created through the societal reshaping of technology. Another study of Wynne describes how an apparently harmless decision to deviate from prescribed cleaning practices became the prime cause of a fatal explosion in an underground water main in Abbeystead, Lancashire. As Wynne tells the story,

[A] large void had been allowed to form in the tunnel, partly because operators had evolved an informal work practice which left washout valves a crack open all the time. This extra drainage, against official procedures, was evolved as an alternative to the official procedure which involved fully flushing the (normally closed) valve about once every several weeks, to wash out accumulating silt.<sup>8</sup>

The practice of continuous drainage was adopted in this case because local anglers had complained about the river being muddied for days after an officially sanctioned desilting. As it happened, the unofficial practice that met their needs created a space for the methane to build up to explosive, and eventually deadly, levels.

The third direction in which qualitative research has advanced our understanding of risk is the one I referred to earlier as “contingency” or context-dependency. There is a large and growing body of work showing that scientific knowledge itself is neither so objective nor so uniform a commodity as we might wish to believe. What we claim to know about risk, how we acquire more information, and how we interpret the facts in our possession are all contingent on contextual factors, ranging from individual or organizational experience to national political culture. Research on contingency, as I suggest below, has important implications for risk analysis.

One immediate consequence of contingency is that what people claim to know about risk is in fact constructed in different ways in different political and

cultural settings. Countries as similar as the United States and Britain, for example, differ markedly in the kinds of information they deem necessary and sufficient to establish the existence of an actionable risk. A strong preference for empirical demonstrations has led British authorities to put high confidence in epidemiological data for purposes of health risk assessment; correspondingly, relatively low regard is shown for assessments based on mathematical extrapolations from animal data.<sup>9</sup> Physical observations are more highly valued than theoretical projections. Thus, scientists in Britain acknowledged the need to ban CFCs much more readily after the discovery of the ozone hole (spearheaded by a British scientific team) than on the basis of predictions made by American atmospheric chemists.

In spite of recent moves toward more public disclosure in Europe, technical information relevant to policy still remains under closer governmental control than in the United States. European environmental groups have varied greatly in the zeal with which they seek out scientific information and develop useful forms of counterexpertise. In Britain, Friends of the Earth has followed this course, particularly on questions of marine pollution and endangered species, and the Green Alliance has emerged as a locus of expertise on biotechnology. French environmentalists, by contrast, have opted less regularly for expertise as the route to power. The relative dearth of independent expertise even within the antinuclear movement may account for the fact that France alone of the major European countries undertook no serious protective action in the wake of Chernobyl. The situation could hardly be more different in the United States, where environmentalism has long embraced the Jeffersonian idea that an informed citizenry is the best guardian of its own interests.

These contrasts underscore the fact that knowledge about risk is produced to serve different functions and under different constraints across political and cultural boundaries. The resulting knowledge, in turn, shapes and directs our capacity to conceptualize risks. If we in the United States, for example, had never developed a chemical assessment program based on animal studies, then we would not today have raging conflicts over the validity of linear low-dose extrapolation, the acceptability of PB/PK models, or the role of default assumptions in risk assessment. If our regulators were less openly accountable, or commanded more public trust, then we would not try to develop elaborate methodologies for quantifying the subjectivity of expert judgments or seek out ever more refined techniques for representing uncertainty. Even when we move toward consensus with other nations, as currently in reassessing the carcinogenicity of dioxin, we quite often do so by different cognitive paths. While a safety factor approach on dioxin satisfied most European governments, here in America we required a strong scientific consensus on dioxin's mechanism of action to justify a more relaxed estimate of the compound's risks.<sup>10</sup>

The contingency of knowledge is also evident at the other end of the political and social scale, in the way individuals rather than governments make decisions about risk. Research in this area has moved far beyond Slovic *et al.*'s interesting and influential observation that experts and lay people perceive risks differently.<sup>11</sup> We know now that the differences among individuals are both deeper and more subtle. How people interpret a given set of facts about risk may depend on a host of variables, such as their institutional affiliations, their trust in the information provider, their prior experience with similar risk situations, and their power to influence the source of the risk. Far from being irrational, these private calculations

generally represent sophisticated attempts to translate risk information down to meaningfully intimate scales of personal experience. If a good driver risks going out in a blizzard or an AIDS patient tries out an inadequately tested experimental drug, the decision reflects a focused and localized interpretation of the “facts,” taking into account elements of self-knowledge that are not accessible to anyone but the immediate decision-maker.

A further dimension of contingency arises from the fact that people are not mere passive consumers of risk information. Many studies of community responses to risk have shown that citizens are capable of learning extraordinary amounts of technical information, and indeed of participating actively in creating relevant new knowledge, when the stakes are high enough.<sup>12</sup> Parents who believe their children are being hurt by chemicals have become proficient amateur toxicologists, and ordinary citizens have become knowledgeable in the reproductive habits of brown pelicans and spotted owls in order to fight developers on scientific grounds. What people “know” about risk is accordingly a fluid and changeable concept. Given appropriate stimuli, the “lay person” can become an “expert” in a very short span of time, and her expertise can be all the more formidable because it combines formal technical knowledge with local knowledge that is as relevant as it is unstructured and informal.

#### **4. Exchange Programs**

What do these findings from qualitative research in risk analysis mean for future workers in our field? What possibilities are there for exchange programs that might encourage more frequent border crossings and mitigate the feelings of strangeness that still exist between the two cultures of risk analysis?

First, the insights drawn from social, political, and ethical studies of risk can be used, I believe, to improve the methods of conducting risk assessment as well as communicating about risk. This is not the place to discuss how such exchanges might work in detail, but my general point is that qualitative research can help to illuminate the blind spots in established approaches to risk assessment. In particular, such research can make explicit the key variables of scale and interactivity that structured, quantitative assessments often overlook in their effort to reduce the world to manageable proportions. Productive engagement between the two cultures of risk analysis is especially likely to happen when assessments generated in one scalar framework are applied to management decisions in a different scale: for example, when field test results for a hazardous agricultural product are used to determine control options for general environmental use; when randomized clinical trials of drugs and devices are used to determine use restrictions for an entire population; or when risk information produced in one cultural setting is applied to another, as in cases of technology transfer between nations.

Awareness of the contingency of knowledge can also help improve the methodology of risk assessment. Understanding that there are connections between technical knowledge and the context in which it is produced may make practitioners more reflectively conscious of biases built into their own methodological approaches, and hence more sensitive to possibilities they have not considered. This is one area in which comparative studies of risk can be expected to play a major part. I know of few more powerful devices for making one stop



and rethink an approach to a problem than the discovery that someone else, with similar capabilities and resources, has chosen an entirely different analytic route, leading to substantially different management practices.

The two cultures of risk analysis could interact more fruitfully not only in the arena of regulatory action but also in defining and carrying out research programs. The more adventurous members of the quantitative research community have already looked to qualitative research as a source of testable hypotheses to guide quantitative analysis. Frameworks such as Mary Douglas's cultural theory of risk, for example, have begun to guide the work of some social psychologists.<sup>13</sup> Similarly, psychometric surveys have begun to build on theories of communication and of mental models. Such collaborative ventures, however, remain both rare and fortuitous. Few survey researchers working on the public understanding of technological risks have begun to take seriously the points I made earlier about the social construction of risk, the contingency of knowledge, or the impact of learning and local knowledge on individual perceptions of risk. The critical ideas that are reshaping our views about the sociology of scientific knowledge have yet to strike a responsive chord in quantitative risk research.

More interaction of the kind I am suggesting would add greater depth and richness to an already fascinating literature. Let me offer one small example. Specialists in risk communication have been debating for some time the value of risk comparisons as a technique for setting priorities and determining which risks are acceptable. A recent article by Slovic *et al.* criticized the technique of risk comparisons on the ground that people's interpretation of comparative data is deeply influenced by contextual information.<sup>14</sup> In their study, participants reached different conclusions about the severity of the risk of asbestos exposure and the legal responsibility of the asbestos company when they were given different amounts of background information about the significance of the comparison. The authors concluded (consistently with prior work in the social studies of science) that the opinions of technical experts may not be convincing to the public in an adversarial context.

This elegant finding illustrates on a very modest, scale my more general argument about the contingency of knowledge: that what we "know" about risk is always conditioned by background facts. One wishes that studies of risk communication could be refined so as to build the assumption of contingency more centrally into the research design. A study that took contingency seriously, for instance, would treat as a significant variable not only the information provider's credibility (as in the Slovic *et al.* study) but also the hearer's prior experience and capacity to learn. One could then imagine a series of studies – each adding a further layer of cognitive complexity to the original, simple comparison of risk probabilities – to test how trust is created and feelings of empowerment are enhanced. In the end, such an approach could lead to highly interactive methods of risk communication, based more on the concept of learning than of communication, and relying more on the model of the hypercard than on a linear model of transmission from source to receptor.

The final contribution that qualitative studies can make to the field of risk analysis is to make us rethink several of the truisms that we so readily accept about risk. Separating risk assessment (what we know about risk) from risk management (what we wish to do about risk) is one dogma that is clearly in need of profound and critical reexamination. Risk assessment does indeed offer a principled

way of organizing what we know about the world, particularly about its weak spots and creaky joints. But the principles by which we organize the “facts” of risk have to derive, at least in part, from underlying concerns of public policy and social justice: whom should we protect, against what harms, at what cost, and by foregoing what other opportunities? We can hardly order, rearrange, or usefully supplement our knowledge about risk without incorporating these issues into a clear, framing vision of the social and natural order that we wish to live in. Reconnecting the technical minutiae of risk analysis with this larger vision is one of the major challenges that still lies ahead for our field.

### Author's Note

This article was adapted from remarks presented on receiving the 1992 Distinguished Achievement Award of the Society for Risk Analysis, (San Diego, California, December 1992).

### References

1. National Research Council, *Risk Assessment in the Federal Government: Managing the Process* (Washington, DC., National Academy Press, 1983).
2. Branden B. Johnson and Vincent T. Covello, *The Social and Cultural Control of Risk* (Dordrecht, Netherlands, Reidel, 1987).
3. Adam M. Finkel, *Confronting Uncertainty in Risk Management* (Washington, DC., Resources for the Future, 1990), pp. 20–23.
4. Robert D. Bullard, *Dumping in Dixie: Race, Class, and Environmental Quality* (Boulder, Colorado, Westview Press, 1990).
5. Michael Thompson, Michael Warburton, and Tom Hatley, *Uncertainty on a Himalayan Scale* (London, Ethnographica, 1986).
6. Brian Wynne, “Sheepfarming after Chernobyl,” *Environment* **31**, 11–15, 33–39 (1989).
7. Paul Shrivastava, *Bhopal: Anatomy of a Crisis* (Cambridge, Ballinger, 1987).
8. Brian Wynne, “Unruly Technology,” *Social Studies of Science*, **18**, 155 (1988).
9. Sheila Jasanoff, *Risk Management and Political Culture* (New York, Russell Sage Foundation, 1986); S. Jasanoff, “Acceptable Evidence in a Pluralistic Society, in Deborah G. Mayo and Rachele D. Hollander (eds.), *Acceptable Evidence* (Oxford, Oxford University Press, 1991), pp. 29–47.
10. Leslie Roberts, “Dioxin Risks Revisited,” *Science* **251**, 624–626 (1991).
11. Paul Slovic, Baruch Fischhoff, and Sarah Lichtenstein, “Why Study Risk Perception,” *Risk Analysis* **2**, 83–93 (1982).
12. Phil Brown, “Popular Epidemiology: Community Response to Toxic Waste-Induced Disease in Woburn, Massachusetts,” *Science, Technology, and Human Values* **12**, 78–85 (1987).
13. Mary Douglas and Aaron Wildavsky, *Risk and Culture* (Berkeley, California, University of California Press, 1982); Aaron Wildavsky and Karl Dake, “Theories of Risk Perception: Who Fears What and Why? *Daedalus* **119**, 41–60 (1990).
14. Paul Slovic, Nancy Kraus, and Vincent T. Covello, “What *Should* We Know About Making Risk Comparisons?” *Risk Analysis* **10**, 389–392 (1990).

## Homeland Security Warnings: Lessons Learned and Unlearned

**Benigno E. Aguirre**

**Source:** *International Journal of Mass Emergencies and Disasters*, 22(2) (2004): 103–115.

The intent in this paper is to examine the Homeland Security Advisory System (HSAS) in light of existing knowledge about effective warning systems in the social science of disasters, to point out some of the important difficulties faced by this federal program and to offer an alternative approach to increase the resilience of communities faced with the threat of terrorism.

### Effective Warning Systems

Warning systems have attracted sustained research attention in the social scientific studies of disasters for a number of decades, so that by now there is a strong degree of consensus as to what makes for effective warning systems and what makes for effective warning messages. The literature on the social science of warnings is extensive (for recent summaries see Subcommittee on Natural Disaster Reduction, 2000; Tierney, 2000; Partnership for Public Warning, 2003). At the system level, Joanne Nigg's (1995) concept of an integrated warning system summarizes this consensus. An integrated warning system is a complex system. Such a system comprises an agency or agencies involved in the gathering of scientific evidence, its analysis, and the production of information and forecasts about the relevant hazards. These agencies also have departments or units that format and encode the scientific information to increase its usefulness; develop appropriate wording or special terms and use this vocabulary to write warnings and distribute them to relevant end user groups; and establish networks of relations with these end user communities to educate them and increase the efficiency of the services they provide, allowing for feedback and correction. Scientific criteria often do not take into consideration the end users of science, thus these units "translate" scientific products, packaging them in warnings so that people can use them. As the Partnership for Public Warning (2003, p. 18) reminds us, warnings should be: focused on the people at risk; ubiquitous; capable of reaching people irrespective of what they are doing; easy to access and to use; should not create added risks; be reliable; provide-appropriate lead time so that people have a chance to protect themselves; and generate authenticated messages.

Much agreement exists about what makes warning messages effective: they need to be clear and understandable; accurate; frequent; credible; specific to the life situation of the intended users; giving potential victims specific instructions about the likely effect of the hazard and about what they should do to minimize their vulnerability. As those who have carried out extensive research on warning systems indicate, potential users of warnings must: receive the warning messages;

understand them; believe that the warnings involve real threats and that their contents are accurate; obtain confirmation from other people; understand the extent to which the threat will impact their own lives; and then they must decide what to do and hopefully act to protect themselves. Even in the best of systems, however, how people will eventually respond depends only partly on the quality of the warnings they receive, for other matters, such as personal disabilities, previous experience with, and knowledge of, the hazards, social class, ethnicity, race, and proximity and other available physical clues to the hazard, have important effects on how people define the situations in which they find themselves and fashion their subsequent lines of action.

While there are many potential user groups, some of the most common users of warning information are: the mass media; industry users; political leadership at the state and local levels of government charged with decision making in crisis situations; emergency agencies that eventually are responsible to activate measures to protect the public; and the general population, which is not a homogeneous entity but rather is composed of subpopulations with special vulnerabilities, such as the elderly, disabled persons, female headed households, the poor, racial and ethnic minorities, and people living in high risk areas.

Other important mitigation tools are not part of the system itself but are nevertheless subsidiary programs and measures that impact decisively on the ability of integrated warning systems to protect vulnerable populations. Indeed, such systems also include extensive efforts at public education about existing hazards, their likelihood of occurrence, as well as creating an awareness of these risks in families, business firms, public agencies, and communities so that they will take steps to mitigate them and to establish credible response systems to alleviate the effects of disasters when they occur, for people cannot respond appropriately if they lack the means to do so.

### **A Successful Warning System**

One of the most successful examples of an integrated warning system at present, and one which will be used here to contrast with the HSAS, is the one protecting people in the U.S. against hurricanes. It is worthwhile to outline some of its most important features. The National Hurricane Center (<http://www.nhc.noaa.gov>), in Miami, Florida and the National Weather Service are the two main federal agencies in charge of issuing hurricane forecasts. The Center is the home to scores of scientists and meteorologists involved in hurricane forecasts and predictions. They have established a tradition of service to the public and are a credible source of scientifically valid, reliable and effective information about hurricanes that people take very seriously. The Center has developed a sophisticated methodology to word various types of warning messages which incorporates the well known Saffir-Simpson Hurricane Scale based on physical measurements. The Center communicates and assists relevant mass media, the emergency management community, political leadership, economic sectors, and privately owned weather service organizations. It also participates in extensive public education efforts to help people understand the risk of hurricanes to the Gulf of Mexico coastal states and minimize their effects. The hurricane program is also successful because it encourages the development and use of new technologies, such as Doppler

radar and sea surge computer simulation modeling as well as interdisciplinary collaboration, particularly the application of social science knowledge, which helps it strengthen over time the operation of the system.

Thus, to mention only two examples, Baker has examined hurricane evacuation (Baker 1991, 1995; Baker and Boswell 1999), and finds that clear and unequivocal warnings by officials as well as people's perceptions of risk, their previous experiences with hazards, and their understandings about the level of threat of different categories of hurricanes, are very important predictors of subsequent evacuation behavior. Morrow and Peacock (1997) document the pervasive lack of coordination among government officials in the Miami metropolitan area faced with Hurricane Andrew. As they write, "most organizations, including those with direct emergency management responsibilities, were poorly prepared." (Morrow and Peacock, 1997, p. 229). They also indicate that the hurricane advisories put out by the National Hurricane Center were not very effective because of the vagaries of television coverage of the impending storm, such as the language and programming used by the various television stations, as well as the limitations experienced by primarily Spanish language users (Gladwin and Peacock, 1997).

The place of their hurricane warnings in the larger system of localized response and mitigation efforts is well known. Thus, the local and state emergency management community works closely with the National Hurricane Center to put in operation the relevant disaster plans and establish the proper time to issue evacuation orders. The elected officials of the impacted communities are part of the emergency plan, know where they must be to make decisions to protect their communities, and have developed working relations with the emergency managers and other emergency responders. While the evacuation routes are at times clogged with traffic as people evacuate in advance of threatening hurricanes, it is still the case that the routes are marked and well known to the local population, as are the location of public shelters, medical care facilities, and other organizations caring for the evacuees.

The National Hurricane Center is successful not solely because it houses experts and scientists in the various sciences concerned with hurricane forecasting and prediction, and not only because it issues effective warnings, but also because it takes into account the needs of the users of its forecasts and predictions and because it is part of an integrated warning system in which various subsystems are also involved such as public schools, transportation departments, hospitals, and guest communities, which in turn generate their own hurricane related programs and policies such as emergency shelters. Moreover, in conjunction with it are other state and community mitigation efforts, such as high wind building code regulation and enforcement, land use regulation, and coastal development guidelines. The end result is the gradual increase in the resilience of the communities and regions exposed to the effects of hurricanes,

### **The Homeland Security Advisory System**

Now, in contrast, let us discuss the HSAS. The Homeland Security Advisory System (for the full description see United States Department of Homeland Security, 2004; see also Emergency Email Network) consists of five levels of terrorist threat: Low, guarded, elevated, high, and severe, associated respectively with the

colors green, blue, yellow, orange, red. Each of the five levels brings with it a set of recommended actions for federal departments and agencies. The manifest intent is to increase these agencies' readiness to respond to terrorist attacks, and to relate the extent and type of their responses to the perceived severity of the threat. It is useful to compare this system to the previously explained integrated warning system.

The HSAS is not a warning system. The five color flags are inadequate to communicate the risk of terrorist attack (for some of the mutually contradictory messages of HSAS and the FBI terrorist alert system, as well as the misuse of HSAS on international-oriented threats see Pena, 2002a; 2002b; 2002c; the confusion and inappropriate response from the public generated by HSAS advisories, and who profit from them, are spelled out by Reynolds, 2003). It has not developed an appropriate methodology to word various types of warning messages about various types of terrorist threats. The advisories apply to the entire country rather than to specific regions and communities, rendering them much less useful as warnings, which should have much greater spatial specificity. Nor is there a methodology to communicate this information to the mass media, emergency management community, political leadership, economic sectors, and the general public. HSAS does not participate in effective public education efforts to help people understand the risk of various types of terrorist threats and what people can do to minimize their effects.<sup>1</sup>

The place of HSAS in a larger system of localized response and mitigation efforts is not worked out. The function of local and state emergency management agencies and of local and state elected officials is not specified in HSAS. There are no disaster plans that incorporate HSAS in a comprehensive fashion in the response to the various terrorist threats, nor are there mitigation activities that communities could implement. The behavioral responses desired from people responding to the advisories are not specified, which has the potential to create considerable anxiety in the public. Indeed, policies to combat terrorism need to be based on realistic scenarios regarding how citizens will react to these events. As Perry and Lindell point out (2003), it can be expected, on the basis of what is known about how people typically respond in moments of crisis, that they will be fearful but rational, proactive, and in compliance with the official recommendations they receive. Moreover, such policies must recognize that it is not possible to protect against all types of terrorist attacks, so that choices must be made about the types of attacks that will be considered. HSAS does not take into account the need of the users of its predictions; it is not part of an integrated warning system in which various subsystems of the threatened communities would be involved.

The argument that terrorism presents a configuration of tasks that are so different from other hazards as to require an entirely new approach has been made, and is reminiscent of previous arguments about the uniqueness of human-made, as compared to natural hazards. In a characteristic statement of the present-day emphasis, Wise and Nader (2002, p. 46) argue that terrorist attacks present unique tasks; they

“...impose a new level of social, economic, and fiscal dislocation on the nation and its communities, and they involve the use of many specialized resources that go beyond the capabilities of state and local governments...(the) potential to cause catastrophic damage quickly, and in so many different

ways, using difficult to anticipate modalities requires government agencies to diagnose the threats, decide on the most effective courses of action, and respond in an integrated fashion within extremely compressed time frames...unlike floods and forest fires . . . (there are) more serious sources of uncertainty...(1) understanding of the performance of the various types of terrorist weapons on civilian populations...;(2) warning time; and (3) predicting public reaction and behavior to terrorist attack....”

Undoubtedly, terrorist attacks, along certain dimensions, are different from other hazards; for example, the role of crime investigators and intelligence services, and the need to combine corporate and public programs, and these dimensions cannot be minimized (Trim, 2003). However, as the institution of risk management has evolved in the U.S. there is widespread consensus that, from the perspective of maximizing the effectiveness of organized efforts to protect the public, an all-hazard approach is the optimum approach to use. For example, the tasks faced by federal urban search and rescue (USAR) taskforces attempting to extricate victims of volcanic explosions, earthquakes and terrorist explosions do not change because of the origin of these hazardous agents. Rather they change due to the configuration of collapsed structures, access, command and control of the site, and the presence or absence of a division of labor and workable relationships with the local fire and police departments, security personnel, and other local, state, and federal actors involved in the societal response and emergency management operations. Thus, from the perspective of most social science specialists in emergency management and disasters, the concerns expressed by these authors are misdirected. For example, earthquakes, volcanic eruptions, hurricanes, and floods, to name a few natural hazards, have the potential to have multiple catastrophic effects on large regions and often involve very limited response time, requiring federal assistance. Moreover, there is no reason to assume that people will panic or that they will respond to terrorist attacks differently than they respond to other hazards.

It is unclear in the HSAS who are the persons or entities that should respond to the warnings. The explicit intent is for federal departments and agencies to do so, but in fact local and state agencies, as well as persons in the general population receive the warnings and are urged to take unspecified protective actions. Whether intended or not, the involvement of local jurisdictions as responders in the HSAS creates important uncertainties, for the system is a federal system and until now, its attempt to incorporate local jurisdictions in its response and preparedness efforts have been ineffective (PoliceOne, 2002). Following long term traditions in the political system of the country, emergency management programs and tasks are defined as local responsibilities, with federal agencies acting to support local initiatives, exemplified in the work of the Federal Emergency Management Agency, so that the HSAS represents, whether intended or not, a departure from this established mode of operations.

In contrast to the National Hurricane Center, the Undersecretary for Information Analysis and Infrastructure Protection, responsible for creating the terrorist forecasts, operates in secrecy. By the very nature of the work of the Undersecretary, the public does not know about its operations. In practical terms, however, most people do not know what atmospheric scientists do when they detect and predict the behavior of hurricanes, so that the real problem is less the

operational secrecy of the Undersecretary than the lack of reliability of its terrorist warnings; the validity and reliability of its forecasts are doubtful. So far, not one of them has come true! Obviously, the logic of the very warnings it emits is of doubtful value, for terrorists, if compared to hurricanes, can react to the warnings and prove them incorrect, and in so doing contribute to their lack of reliability (Hosenball and Isikoff, 2004).

While not usually recognized, apparently, HSAS has been created in part not so much as a warning system but as a way to let people know about developing vulnerabilities that could be brought about by terrorist attacks (for its use on “water terrorism” see Glasner, 2003), as these assessments are constructed by Homeland Security and other federal bureaucracies, thus defusing the blame of the impact of potential terrorist attacks from the president and his administration. Moreover, the advisory system is most probably operating as a mitigation tool, used by the federal government to discourage terrorist attacks. The implications of these uses need to be explored: Are there other ways to let terrorists know that we know what they are planning to do? Are there ways other than anticipatory public relations to protect the prestige of the presidency from the impact of future terrorist events? (Meade, 2003)

Complicating this lack of reliability is the politically partisan nature of the agency. It is nowadays so closely connected to the Bush administration through the person of the Attorney General of the U.S. that for many it appears as one of the tools that the administration uses to carry out its political goals and influence legislation and political life in general (The Economist, 2002). An important change that is needed is for the Undersecretary – and for the Department of Homeland Security more generally – to acquire organizational independence from the White House as a branch of government service (for an extended discussion of Homeland Security from a public administration perspective see Newman, 2002; Donley and Pollard, 2002).

Summarizing some of the most important problems with HSAS, the hazards it addresses are unspecific as to their origin, the nature of the threats, their time and place configurations, and what to do about them; the likely victims are unknown; the local government and emergency management response networks as well as the local and state political systems do not participate in preparing and mitigating their effects, although they are liable for the costs of reacting to the warnings; and it lacks an accurate understanding of the social psychology of people’s response to warnings, assuming an undifferentiated public that automatically behaves as it is told by the authorities. Moreover, it confuses warnings with mitigation and public relations and is too closely linked to politically partisan processes.

### **An Alternative Approach**

The lessons unlearned must be learned. For decades, the US taxpayers have supported scientific research on disasters and warning systems. The resulting information is readily available and can be of great use to Homeland Security. HSAS needs to disappear. It is a bad idea that will not work, for it violates most of the central principles of sound warning systems. It came about under the enormous pressure of the days following the September 11th attack, but we can do better (Herring, 2003). The need for secrecy to safeguard the national interest, inherent



in anti-terrorist governmental activities, cannot be successfully reconciled with the needs of an integrated warning system, which is founded on open access and coordination among multiple agencies, organizations, and the general public. Instead, the intent should be on promoting disaster preparedness, for which there is considerable information (Mileti and Peek, 2002).

Based on the accumulated experience in the social science of disasters, an alternative approach to the terrorist threat would use the tremendous opportunity that the present crisis created (on this point see Rubin et al, 2003) to educate the general public about the threat of terrorism and the impact of different weapons of mass destruction (WMD) to the communities and regions where they live. There is a need to stop talking in generalities about WMD and start educating people about what these weapons are and what people can do to protect themselves against their effects.

There is also a need to stop talking about undefined terrorist threats for the entire country and start talking about the specific vulnerabilities of specific communities to specific WMD threats; what is needed is the development of likely scenarios that will personalize the threat rather than doomsday accounts that create mass fears (Savage, 2003). The local emergency management community once again must be an integral, central part of the national preparedness, response and mitigation efforts.

Perhaps most importantly, the present crisis is a propitious time to begin to change the culture of the society, to change people's ways of life and increase their collective resilience – not just against terrorist hazards but also towards a number of other natural and human made risks, hazards and disasters that impact their lives (Mileti, 1999). It is in this context that emergency management policies and programs need to continue and to improve on those such as FEMA's recently renamed Project Impact, to encourage the mitigation of risks, community development, and quality of life (Marsh and Buckle, 2001). It is these that will help people cope and have happier lives.

## **Conclusion**

The current Homeland Security Advisory System does not draw from years of social science study and does not benefit the nation. It is not a warning system. At best, HSAS is a mitigation and anticipatory public relations tool. HSAS is a reflection of the shift in governance to a concern with public relations, due in part to the ubiquitous presence of the mass media in the management of crisis situations and the resulting need to protect the public images of government officials and agencies. In the fight against terrorism there may be very good reasons for the US federal government to strengthen its links to the security systems at the state and local levels, involving the sharing of information about likely suspects and their targets, training, and access to new technology and resources. There may also be very good reasons for the authorities to warn terrorists that they know what they are about to do, but these are matters for the intelligence services, about which most of us are ignorant. Warning populations against terrorism and what to do to protect against it, however, is not a police but a civil function, for which there is a panoply of well known emergency management instrumentalities and a firm social scientific basis. This basic distinction must be preserved, less we confuse hype with reality, public relations with sound public policy.

### Note

1. As late as March 2004, the United States General Accounting Office (2004a) indicated that the Department of Homeland Security “had not documented the policies and procedures it has used for assessing intelligence information, determining whether to raise or lower the threat level, and notifying federal, state, and local government agencies about changes in threat levels (2004a, p. 2)”. Moreover, 14 of the 15 federal agencies and three of the six local governments they contacted indicated that “they would have benefited by receiving additional information on region, sector, site, and event specific threats when deciding additional actions to take for the most recent code-orange alerts (2004a, p. 3).” The absence of communication protocols for inter agency notifications is contrary to USGAO standards and government practice (2004b, p. 7).

### References

- Baker, Earl J. 1991. “Evacuation Behavior in Hurricanes.” *International Journal of Mass Emergencies and Disasters* 9: 287–310.
- Baker, Earl J. 1995. “Public Response to Hurricane Probability Forecasts.” *The Professional Geographer* 47: 137–147.
- Baker, Earl J. and Boswell, M. 1999. “A Quantitative Method for Estimating Probable Public Costs of Hurricanes.” *Environmental Management* 23: 359–372.
- Donley, M. B. and Pollard, N. A. 2002. “Homeland Security: The Difference between a Vision and a Wish.” *Public Administration Review* 62: 138–144.
- Emergency Email Network. *Color Coded System and Its Meaning*. Available from [www.newsemergency.com](http://www.newsemergency.com).
- Gladwin, Hugh and Peacock, Walter Gillis. 1997. “Warning and Evacuation: A Night for Hard Houses.” Pp. 52–74 in *Hurricane Andrew, Ethnicity, Gender and the Sociology of Disasters*, edited by Peacock, W. G., Morrow, B. H. and Gladwin, H. London: Routledge.
- Glasner, Joanna. 2003. “Privacy threat in Primary Colors.” *Wired News*, 4:53 p.m. April 14, business section.
- Herring, Lee. “How Would Sociologists Design a Homeland Security Alert System?” *Footnotes* April ([www.asanet.org/footnotes/fn8.html](http://www.asanet.org/footnotes/fn8.html)).
- Hosenball, Mark and Isikoff, Michael. 2004. “War on terror.” *Newsweek*, January 12, p. 30.
- Jacoby, Mary. 2003. “Homeland Security Sputters into reality.” *St. Petersburg Times*, September 12, p. 1a.
- Marsh, Graham and Buckle, Philip. 2001. “Community: The Concept of Community in the Risk and Emergency Management Context.” *The Australian Journal of Emergency Management* 16: 5–7.
- Meade, Charles. 2003. *Don't Scare the Public with Vague Warnings*. Rand Commentary available at <http://www.rand.org/commentary/102401LAT.html>.
- Mileti, Dennis. 1999. *Disasters by Design*. Washington, D.C.: Joseph Henry Press.
- Mileti, Dennis and Peek, Lori A. 2002. “Understanding Individual and Social Characteristics in the Promotion of Household Disaster Preparedness.” In *New Tools for Environmental Protection: Education, Information, and Voluntary Measures*. Washington, DC: National Academy of Sciences.
- Morrow, Betty H. and Peacock, Walter G. 1997. “Hurricane Andrew and the Reshaping of Miami.” Pp. 226–242 in *Hurricane Andrew, Ethnicity, Gender and the Sociology of Disasters*, edited by Peacock, W. G., Morrow, B. H. and Gladwin, H. London: Routledge.
- Newman, William W. 2002. “Reorganizing For National Security and Homeland Security.” *Public Administration Review* 62: 126–137.
- Nigg, Joanne. 1995. “Risk Communication and Warning Systems.” Pp. 369–382 in *Natural Risk and Civil Protection*, edited by Horlick-Jones, T., Amendola, A. and Casale R. London: E & FN Spon.
- Partnership for Public Warning. 2003. *A National Strategy for Integrated Public Warning Policy and Capability*. McLean, Virginia: Partnership for Public Warning.

- Pena, Charles V. 2002a. *Back to Yellow Alert – But What Changed?* Washington, D.C.: The Cato Institute (available in [www.cato.org](http://www.cato.org)).
- Pena, Charles V. 2002b. *Homeland Security Alert System: Why Bother?* Washington, D.C.: The Cato Institute (available in [www.cato.org](http://www.cato.org)).
- Pena, Charles V. 2002c. *Danger, Will Robinson! Danger!* Washington, D.C.: The Cato Institute (available in [www.cato.org](http://www.cato.org)).
- Perry, Ronald W. and Lindell, Michael K. 2003. “Understanding Citizen Response to Disasters with Implications for Terrorism.” *Journal of Contingencies and Crisis Management* 11: 49–60.
- PoliceOne. 2002. *Homeland Security Advisory System Survey Results*. Available from [www.PoliceOne.com](http://www.PoliceOne.com).
- Reynolds, Alan. 2003. *The Duct Tape Economy*. Washington, D.C.: The Cato Institute (available in [www.cato.org](http://www.cato.org)).
- Rubin, C. B., Cumming, W. R., Renda-Tanali, I. and Birkland, T. 2003. *Major Terrorism Events and Their U.S. Outcomes (1988–2001)*. Boulder, Colorado: University of Colorado Natural Hazards Research and Applications Information Center, Institute of Behavioral Science.
- Savage, Charlie. 2003. “Specialists rap warning system.” *The Boston Globe*, December 23, p. 1a.
- Subcommittee on Natural Disaster Reduction. 2000. *Effective Disaster Warnings. Report by the Working Group on Natural Disaster Information Systems*. Washington, D.C.: National Science and Technology Council.
- The Economist. 2002. “Poor Tom. America’s homeland security is still chaotic, but it isn’t all Tom Ridge’s fault.” *The Economist* April 20.
- Tierney K. 2000. *Triner Studies and Planning Activities in Real-Time Earthquake Early Warning: Task 2: Lessons and Guidance from the Literature on Warning Response and Warning Systems*. Irvine, CA: ABS Consulting. Report prepared for the California Institute of Technology, Pasadena, CA.
- Trim, Peter R. F. 2003. “Disaster Management and the Role of the Intelligence and Security Services.” *Disaster Prevention and Management: An International Journal* 12: 6–15.
- United States Department of Homeland Security. 2004. <http://www.dhs.gov/dhspublic/display?theme=29>
- United States General Accounting Office. 2004a. *Homeland Security Advisory System: Preliminary Observations Regarding Threat Level Increases From Yellow to Orange*. Washington, D.C.: United States General Accounting Office, GAO-04-453R.
- United States General Accounting Office. 2004b. *Homeland Security Risk Communication Principles May Assist in Refinement of the Homeland Security Advisory System*. Washington, D.C.: United States General Accounting Office, GAO-04-538T.
- Wise, Charles R. and Nader, Rania. 2002. “Organizing the Federal System for Homeland Security: Problems, Issues, and Dilemmas.” *Public Administration Review* 62: 44–57.

## Blindsided? September 11 and the Origins of Strategic Surprise

**Charles F. Parker and Eric K. Stern**

**Source:** *Political Psychology*, 23(3) (2002): 601–630.

The terror attacks on the World Trade Center and the Pentagon (and the hijackings that enabled them) clearly caught the bulk of the U.S. leadership, the American people, and many supporters of liberal democracy around the world by surprise. Yet the severity of this shock should not be allowed to obscure the uncomfortable fact that the terrorists' motives and modus operandi were well known to many experts on terrorism within and outside of the U.S. government.<sup>1</sup> The World Trade Center had been attacked before, there had been many hijackings of large passenger aircraft around the globe during the last three decades, and Middle Eastern terrorists had regularly made use of vehicle-based suicide attacks such as truck- and boat-bombs (Prados, 2002, p. 18). Combining these elements was innovative and devastatingly effective – but virtually all of the major elements had been seen before. A parallel plot by Algerian (GIA) terrorists to crash a fuel-laden Airbus A-300 into the Eiffel Tower in December 1994 was narrowly averted by the intervention of a French elite counterterror force that stormed the hijacked aircraft on the ground during a “refueling” stop in Marseille before it could complete its deadly mission (Gunaratna, 2001, p. 7). The 1998 attacks on the U.S. embassies in Kenya and Tanzania highlighted the capacity of al-Qaeda to mount coordinated, simultaneous attacks. The enemies of the United States had thus demonstrated their capabilities in a series of attacks on U.S. targets abroad (most recently in the form of the attack on the U.S.S. *Cole* in Yemen in October 2000) and conveyed their ill intentions via a number of veiled and explicit threats detected by U.S. and friendly foreign intelligence services (Prados, 2002, p. 18; Wright, 2002).

In a story reminiscent of Homer's *Iliad*, the available record suggests that a number of government officials (represented at the highest levels by CIA Director George Tenet) were in fact keenly aware of the danger well before 11 September 2001. Like the Cassandra figure in Homer's epic, these officials had great difficulty in getting the other players in the national security policymaking system to act on their warnings and prioritize counterterrorism and what has come to be known as homeland security.<sup>2</sup> They saw the threat (posed in this modern tragedy not by Greeks bearing gifts but by the deadly purposes of terrorist organizations such as bin Laden's network) but failed to get others to respond with sufficient vigor. Given this background (and the benefit of 20/20 hindsight), it seems puzzling that the threat of catastrophic terrorism was not taken more seriously by the top levels of the U.S. government. Why was more not done to meet this threat and reduce societal vulnerability *before* the World Trade Center had been turned into

rubble, the Pentagon gravely damaged, four large passenger jets destroyed, and thousands of lives extinguished?

The rich international literature on strategic surprise provides a useful point of departure for ex post facto and post mortem analyses of surprise attacks (Betts, 1982; Handel, 1976; Jervis, 1976; Kam, 1988; Levite, 1987; Vertzberger, 1990, pp. 14–17; Wohlstetter, 1962). This article attempts to shed light on our puzzle through three broad explanatory “cuts” (see Allison, 1971; Allison & Zelikow, 1999; Snook, 2000; Vandenbroucke, 1984) that take their inspiration from psychological, bureau-organizational, and agenda-political approaches to the study of policymaking processes. The potential sources of failure that fall under these rubrics will be compared to the currently available empirical record in a preliminary attempt to understand more systematically what might have gone wrong and why. Our readings of the “surprise” and policymaking literatures suggest that these three interrelated types of explanations stand out as particularly plausible in light of previous historical experience. Furthermore, it should be noted that none of these factors are specific to the United States. They operate in similar fashion in liberal democracies all over the world. It should also be emphasized that the purpose of this early analysis of how the United States was caught woefully off guard by the attacks of 9/11 is not to mete out blame retrospectively, but to help us better understand what happened and to subject some existing scholarly “tools” for this task to a preliminary empirical plausibility probe (Eckstein, 1975, pp. 108–113). In the next section, we briefly discuss the concept of strategic surprise. This is followed by three sections, each consisting of a brief introduction to the relevant theoretical literature inspiring the analytical cut and an application to the empirics of our case. We conclude with some reflections on the fruit of our efforts and some tentative lessons and caveats for the future.

### Strategic Surprise

Was 9/11 an unavoidable bolt from the blue, or was it the result of a number of potentially avoidable failures? The strategic surprise literature provides a useful conceptual infrastructure and comparative empirical performance benchmarks for probing this crucial counterfactual question (see Fearon, 1991; Lebow, 2000, p. 559; McKeown, 1999, p. 184; Tetlock & Belkin, 1996). It is not surprising that, in the immediate aftermath of these successful terror salvos, observers immediately used the historical analogy of Pearl Harbor – perhaps the classic and certainly still a controversial case of strategic surprise in the American context – to make sense of what happened (Prados, 2002, p. 7; see also Khong, 1992).

If 9/11 is to be analyzed as a possible case of *strategic surprise* comparable to Pearl Harbor, it is necessary to define the term. Although the concept of surprise is notoriously difficult to operationalize (Wilkenfeld & Brecher, 1988, p. 2), the literature suggests that strategic surprise can be defined as a victim’s lack of preparedness based on erroneous judgments of whether, when, where, and how it would be attacked (Betts, 1982, p. 11; Brodin, 1978, p. 99; George, 1979). Somewhat more complex conceptualizations distinguish between surprise and unpreparedness, and between general warning and credible conclusive warning (Levite, 1987, pp. 3, 26). According to Kam (1988, p. 8), there are three main

elements inherent to a surprise attack: First, the attack is contrary to the victim's expectations; second, there is a failure of advance warning; and third, the attack lays bare the lack of adequate preparation. Unlike most of the historical examples of surprise attack studied in this genre, the kamikaze hijackings of 9/11 are thought to have been perpetrated not by a state but by a global terrorist network, al-Qaeda.<sup>3</sup> Furthermore, al-Qaeda's targets were primarily civilian and not exclusively military, it did not take public credit, and its goals were not to start or win a war in the traditional sense but to spread terror.<sup>4</sup> Despite these differences, we believe it is appropriate and fruitful to view 9/11 from the vantage points suggested by the strategic surprise literature.<sup>5</sup>

Although surprise (like warning) is a matter of degree, studies of past surprise attacks have led most scholars to conclude that in retrospect surprise was often not justified on the basis of available evidence and warnings that existed before the attack (Betts, 1980–81; Handel, 1976, p. 7; Knorr, 1979, p. 74; Wohlstetter, 1962). Furthermore, there are documented examples of cases in which the intelligence picture was fairly accurate, but appropriate action was not taken in response to the warning. Thus, as Betts (1980–81) has noted, warning alone is not enough: "Warning without response is useless" (p. 551). Falling victim to a surprise attack generally indicates failures in one or more links along a complex chain of policy, intelligence, warning, and response. Classical strategic surprise analysis has focused heavily, if somewhat narrowly, on the core questions of whether specific warning existed, whether it was accurately interpreted, and whether policymakers responded adequately.

Although we too are interested in these core questions, we propose to broaden the perspective somewhat in order to address an important prior question, namely the responsiveness of the system to more generalized warning and proposals for threat and vulnerability mitigation reforms in the months and even years before the strategic "surprise." Such an analysis should be contextually grounded in a fashion that takes the chronically overcrowded state of the policy agenda and the politicized nature of security agenda-setting into account. As Kam (1988) accurately observed, the "failure to prevent a surprise attack does not evolve overnight" and is "not the result of any single factor, . . . [or] mistakes committed on any one level" (p. 213). What, then, are some of the common sources of strategic surprise, and which ones can be identified as likely contributors to the tragedies of 9/11?

### **Psychological Factors**

It is customary to divide contemporary psychology into two broad camps: cognitive and psychodynamic (Gollwitzer & Bargh, 1996, p. ix; Higgins & Bargh, 1987; Stein & Welch, 1997, p. 60). Cognitive psychology focuses on the way human beings experience and interpret the physical and social environments in which we live. The human mind is likened to a computer that stores, organizes, categorizes, and selectively attends to information. However, the human mind is subject to severe limitations of information-processing capacity, especially with regard to monitoring and analyzing highly complex physical and social environments. As a result, people resort to a number of cognitive shortcuts and analytical rules of thumb to cope with information overload, uncertainty, ambiguity, and complexity

(Nisbett & Ross, 1980, pp. 15–16; Vertzberger, 1990, pp. 111–113).<sup>6</sup> Perception and interpretation of information is strongly colored by beliefs, prior experience, existing expectations, and the individual's current cognitive “set” or agenda (Bruner, 1957; Cohen, 2001, pp. 42–58; Fiske & Taylor, 1991; Jervis, 1976; Larson, 1994; Rosati, 1995).

Whereas cognitive psychology focuses on “cold” information processing, the psychodynamic branch is concerned with “hot” mental processes – that is, with phenomena that point to the ways in which our psychological motivations, needs, and emotional states affect our perceptions and judgments (see Crawford, 2000; Janis, 1989; Janis & Mann, 1977; Lebow, 1981; Markus, 2000; Mele, 2001). This perspective emphasizes the ways in which various kinds of motivational biases – such as denial, wishful thinking, severe value conflict, perceived betrayal, etc. – influence consequential decisions (Cohen, 2001, pp. 21–42; David, 1993, p. 23; Jervis, 1976; Lebow, 1981, pp. 101–119; Lebow & Stein, 1994, pp. 334–338; Vandenbroucke, 1993, pp. 164–166). The findings from this body of work suggest that powerful motivational forces can radically distort information processing and judgment and thus contribute to the occurrence of policy fiascos (Bovens & ‘t Hart, 1996; Janis & Mann, 1977).

The “cold” and “hot” psychological processes and tendencies identified above leave the interpretation of information and subsequent calibration of the policy response vulnerable to at least three important pathologies: (1) the overvaluation of past success, (2) overconfidence in current policy, and (3) an insensitivity to warnings critical of existing policy (Jervis, 1976; Lebow, 1981, p. 112; Lebow & Stein, 1994, pp. 15, 282–287; see also Janis & Mann, 1977; Jervis, 1976).

#### Overvaluation, Overconfidence, and Insensitivity

In the aftermath of 9/11, there is manifold evidence that these pathologies contributed to the four successful hijackings. Until 9/11, it had been 14 years since a U.S. plane had been successfully commandeered and 13 years since the last U.S. plane had been bombed (Easterbrook, 2001, p. 166). Improved security measures and the introduction of technology such as advanced scanners, metal detectors, and baggage-matching computers had helped to significantly reduce airline hijackings since the 1970s (Easterbrook, 2001; Falkenrath, 2001; Gladwell, 2001; St. John, 1991). Sadly, overconfidence and complacency were among the by-products of this success. For example, Paul Pillar, former deputy chief of the CIA's Counterterrorist Center, in his recent book on terrorism, cited the “drastic reduction in skyjackings” as a “major success story” and credited this achievement to a “comprehensive security system” (Pillar, 2001, pp. 25–26). 9/11 revealed this airline industry–based system, in which security screening was subcontracted out (often to the lowest bidder), to be anything but comprehensive. Despite “numerous studies, blue-ribbon panels, and presidential commissions” warning that air security was inadequate and vulnerable to terrorism, virtually nothing was done to address the weak points in the system (Easterbrook, 2001, p. 164). For example, the 1997 presidential commission on airline security, headed by Vice President Al Gore, recommended that the federal government should certify the contractors operating airport security screening.<sup>7</sup> The FAA never acted on this recommendation.

Thus, overvaluation of past successes in reducing airline hijackings, overconfidence in the current air security system, and insensitivity to previous warnings questioning existing airline security policy certainly contributed to 9/11.

Evidence of these pathologies can also be detected in past evaluations of the overall U.S. counterterrorist approach (Pillar, 2001, pp. 2–3). A number of well-publicized “successes” in counterterrorism may have produced a certain degree of complacency and distracted elite attention from the available warning signals. The overall frequency of terrorist incidents worldwide had declined to approximately half of the mid-1980s levels. There were many other events that were interpreted as indicators of policy success. These included the arrest and conviction of the perpetrators of the 1993 World Trade Center bombing and the 1995 Oklahoma City (Murrah) Federal Building bombing, the foiling of an alleged plot to bomb New York City landmarks in 1993, the swift identification of bin Laden and his network as the culprits in the 1998 Kenya and Tanzania embassy bombings, and the successful prevention of the so-called millennium plots. These “successes” were conducive to a widespread belief within the U.S. national security community that the counterterror and homeland defense programs were sufficiently managing the terrorist threat.<sup>8</sup> This prevailing view helps explain why the recommendations from the Gilmore, Bremer, and Hart-Rudman commissions on terrorism were not more promptly and aggressively implemented.<sup>9</sup>

#### Wishful Thinking

Lingering (and deceptively comforting) beliefs that terrorism was something that occurred abroad also contributed to lack of preparation to thwart the threat of catastrophic terrorism to the U.S. homeland. Before the first World Trade Center attack in 1993, it was widely thought that the United States was somehow protected from the kinds of terrorist attacks that plagued Europe and the Middle East during much of the 1970s and 1980s. When that attack took place, it was grudgingly accepted that foreign terrorism could hit the United States, although many clung to the hope that the attack would remain exceptional and that terrorism would not become a chronic part of American life. When the Oklahoma City bombing occurred, after initial speculation that Islamic fundamentalists were responsible, it was equally grudgingly accepted that terrorism in the United States could have domestic sources (Nacos, 1996; Prados, 2002, pp. 3–4). The pattern of circumstances suggests that the persistent belief that it can’t (or at least probably won’t) happen here helps to explain the relatively casual dismissal of the threat and the lax security on U.S. domestic flights relative to international ones.

This kind of comforting, but in the long term counterproductive, belief is the result of a motivated self-deception – a kind of wishful thinking that helps to relieve anxiety, but at the cost of increasing vulnerability (Wallenius, 2001, pp. 24–28, 53). In the Freudian psychoanalytical tradition, this phenomenon is known as *denial*: “a relatively primitive defense in which the individual simply fails to perceive or acknowledge an anxiety producing reality” (Hunt, 1993, p. 202; see also Cohen, 2001, pp. 25–37). Although the collective character of policymaking can be a defense and compensation for individual tendencies toward denial (George and Stern, 2002), the work of scholars such as the late Irving Janis and Paul ‘t Hart suggests that individual tendencies toward psychological avoidance



can, under certain circumstances, be amplified by the characteristics of the group setting in which much of the work of government takes place.<sup>10</sup>

As Americans living and working abroad, it also seems noteworthy to us that many Americans seem to have difficulty in understanding that non-Americans do not always share the positive national self-image cherished by U.S. leaders and citizens alike. American power, seen at home as largely benevolent and a source of virtue and security in the world, is often seen as threatening by others.<sup>11</sup> American interventions in conflicts abroad may well be seen as clumsy, gratuitous, and brutal. Americans may be inclined to see the use of violence as a distasteful duty forced on the United States by international circumstances, whereas others may see these same actions as indications of an “imperialistic” and arrogant super-powered elephant rampaging in the china shop of international affairs. This disparity is, of course, quite in line with the attributional biases (e.g., the self-serving and actor-observer biases) identified in the social psychological literature (Lebow, 1981; Monroe, Hankin, & Van Vechten, 2000, p. 425; Tetlock, 1985). To the extent that Americans underestimated the intensity of anti-Americanism in general and fanatical anti-Americanism of the al-Qaeda variety in particular, these biases may well have contributed to the gross underestimation of the threat.

Finally, it has been suggested – in a fashion quite compatible with the cognitivist accounts noted above – that a mismatch between the categories favored by security experts in and out of government also contributed to the neglect of the threat originating from “megalomaniacal hyperterrorists” such as bin Laden. Ehud Sprinzak (2001) argued that specialists favored collectivist conceptions of terrorism, classifying it “along organizational or ideological lines, with revolutionary left wing, conservative right wing, separatist-nationalist, and religious terrorism as typical categories” (p. 72). As such, charismatic and innovative individuals such as bin Laden tended to fly under their conceptual radar. Although Sprinzak’s argument seems to neglect the importance of the massive al-Qaeda network built by bin Laden and his associates, it is suggestive. The fact that al-Qaeda’s modus operandi did not fit the patterns established by previous terrorist groups may well have contributed to delaying recognition of the magnitude and urgency of the threat posed to the U.S. homeland.

### **Bureau-Organizational Factors**

Under this rubric we will concentrate on insights from two bodies of literature, on organizational behavior and governmental (cabinet and bureaucratic) politics. The first approach focuses on the outputs of complex organizations that act on the basis of characteristic subcultures and standard operating procedures (Allison & Zelikow, 1999, p. 143; March & Olsen, 1989, pp. 21–22; Sagan, 1993; Steinbruner, 1974). From this perspective, governmental decision-making is seen as organizational output, highly dependent on the structure, goals, preferences, priorities, rules, norms, roles, and routines of the organizations in question. Experiences from previous problems become embedded in dominant analogies and practices, which in turn color perceptions and suggest solutions to current problems. Policies inherited from predecessors or previous administrations are

often heavy constraints on the freedom of action of sitting policymakers as well as the nature and distribution of resources, competencies, and procedural repertoires (Lindblom, 1990, pp. 69–70; Rose, 1994; Soltan, Uslaner, & Haufler, 1998, p. 3; Stern, 1999a, pp. 38–39).

The governmental or bureaucratic politics approach views policy outcomes as the end result of competing bureaucratic interests and preferences (Allison, 1971; Allison & Zelikow, 1999; Halperin, 1974; Stern & Verbeek, 1998). This perspective highlights the extremely politicized nature of organizational life and the impact that organizational parochialism and inter- and intra-agency rivalry and competition can have on information processing, decision-making, and policy outputs. Although there is some degree of overlap between these approaches, it can be argued that organizational process emphasizes structural features of organizational life (e.g., institutional structure, culture, procedures), whereas governmental politics focuses on the interplay among intragovernmental agents in a pluralistic politico-administrative environment (see Allison & Zelikow, 1999, pp. 5–7, 392). As such, they complement each other, together providing a rich account of the interplay of socially embedded actors enabled and constrained by the terrain of the institutional landscapes in which they operate.

Insights from the bureau-organizational perspective highlight a number of ills that can lead to policy failure and increased vulnerability to surprise attack. Among these are avoidance, wait-and-see tendencies, a current-events fixation, the “cry wolf” phenomenon, the difficulties of distinguishing signal from noise, delays, biases in interpretation, compartmentalization, and problems in coordination, communication, and information sharing (Handel, 1976, p. 17; Kam, 1988, pp. 176–198; Levite, 1987, p. 12).

### Organizational Fragmentation

In common speech, we tend to refer to governments as monoliths, often using the name of the capital city as a kind of shorthand that lumps together all of the people and organizations of a given polity into a single actor (see Allison & Zelikow, 1999, pp. 24–27). Washington, or Moscow, or London adopt a given policy or act in a particular way. In fact, the “Washington” that makes foreign and domestic policy is actually composed of hundreds, if not thousands, of individuals belonging to dozens of departments, agencies, and legislative bodies (Allison & Zelikow, 1999, chapters 3 and 5). The problem of terrorism cuts across the mandates of many agencies, including the State Department, the Defense Department, the Justice Department, the Transportation Department, the National Security Council staff, the CIA, the NSA, armed services intelligence agencies, the FBI, the FAA, the customs and immigration services – not to mention numerous state and local police jurisdictions (see Prados, 2002, pp. 15–16). It is very difficult for these organizations – which are in turn made up of numerous subunits and sub-subunits – to share information and coordinate the analysis and policy response to threat. Furthermore, these agencies tend to be divided by organizational cultural and procedural differences, as well as bureaupolitical rivalries, which can impede information sharing and have a negative impact on policy formulation and implementation (Preston & ‘t Hart, 1999; Vertzberger, 1990).

## Cooperation, Coordination, and Organizational Structure

It has been well documented that there was a lack of cooperation when it came to sharing intelligence before 9/11. The 1997 Gore commission on aviation safety and security, for example, had proposed that the FBI, the CIA, and the Bureau of Alcohol, Tobacco and Firearms gather information regarding suspected terrorists and to make that information available for airline databases to help flag any suspected terrorist trying to buy a ticket.<sup>12</sup> The recommendation was not carried out, and on 9/11 two individuals already earmarked by the government as suspected terrorists were able to use their own names to successfully board different American Airlines planes out of Boston (*New York Times*, 2001). The names of these men also failed to be placed on the Immigration and Naturalization Service (INS) watch list before their entry into the United States and were never placed on the Inter-agency Border Inspection system (Nye, 2001, p. 202).

Bureau-organizational analysis provides a number of insights into why governmental organizations have tended not to share intelligence and have had a poor record with regard to cooperation and coordination. Organizational goals, approach, culture, and structure account for the reluctance in the past of agencies like the FBI and the CIA to share information with each other or with other entities, such as the airlines. The FBI takes a law enforcement approach to its mission; thus, it is oriented to collecting evidence in order to solve a crime and gain a conviction in court. The CIA mission is to protect national security, and its focus is on obtaining and analyzing intelligence to provide advanced warning or prevent an act from occurring. As John Deutch and Jeffrey Smith (2002, p. 64) have pointed out, both agencies have organizational motives for withholding information from others. The FBI fears that releasing information to others could hinder their ability to solve a crime or might jeopardize court action. The CIA, on the other hand, is fearful that any information they provide to the FBI might result in their sources and methods being revealed in court and thus compromised.

The bureaucratic and cultural obstacles to obtaining and sharing terrorist intelligence were highlighted by the Bremer Commission, which observed that

the FBI is far less likely to disseminate terrorist information that may not relate to an immediate threat even though this could be of immense long-term or cumulative value to the intelligence community, in part because investigators lack the training or time to make such assessments. The problem is particularly pronounced with respect to information collected in the FBI's field offices in the United States, most of which never reaches the FBI headquarters, let alone other U.S. government agencies or departments.<sup>13</sup>

Legal and structural factors have also hindered the free exchange of intelligence between agencies, as well as placing constraints on what type of intelligence could be collected and who could collect it. Civil liberty laws limit the FBI's intelligence collection activities, and laws also prevent certain law enforcement information (such as grand jury or wiretap information) from being shared with other organizations (CIA, NSA, DIA) in the intelligence community (Betts, 2001, pp. 152–154; Carter, Deutch, & Zelikow, 1998; Deutch & Smith, 2002, p. 68). The CIA is prohibited by law from collecting intelligence on American citizens, and it is

not organized to work directly with state and local law enforcement agencies (Cordesman, 2002, p. 289).

The legal and bureau-organizational tradition of separating responsibilities on the basis of the distinction between international threats and domestic ones is also reflected in the way the U.S. counterterrorism programs were organized (Cordesman, 2002, p. 247).<sup>14</sup> For example, with regard to international terrorism, the Department of State is the lead federal agency. The FBI, acting through the Department of Justice, is the lead agency for dealing with domestic terrorism, and the Federal Emergency Management Agency (FEMA) is the lead agency for consequence management. The continued organization of U.S. counterterrorism policy based on this foreign/domestic bureaucratic distinction is considered by many to be impractical and antiquated (Deutch, Kanter, & Scowcroft, 2001; Deutch & Smith, 2002).

The lack of a coherent overall national strategy for homeland security, the involvement of more than 40 federal agencies in U.S. counterterrorism efforts, and the fact that terrorism prevention and response cut across a multitude of sectors resulted in a lack of coordination and a fragmented policymaking process. At the time of the terrorist attacks, counterterrorism coordination was handled at the sub-cabinet level by the Counterterrorism Security Group (CSG), which was chaired by the National Security Council's top antiterror official, Richard Clarke.<sup>15</sup> The CSG consisted of the counterterrorist heads of the CIA, FBI, Joint Chiefs of Staff, and departments of State, Justice, and Defense (Pillar, 2001, p. 124). The lack of a clear-cut and effective domestic decision regime (see Kegley, 1987; Sundelius, 1989) for setting priorities, centralizing intelligence collection, and coordinating policy and response clearly contributed to the failures of 9/11. Most observers agree that it will be difficult to improve coordination over the long term unless budgetary and planing authority over the relevant involved agencies (which was lacking in the CSG) is granted to the head of a cabinet-level Homeland Security Agency or an empowered Director of Central Intelligence separated from the position of CIA head (see Deutch & Smith, 2002, p. 66; Nye, 2001, pp. 204–208).

#### Bureaucratic Conflict

Bureaucratic conflict can also create pathologies that lead to policy failure. Whereas the bureaucratic politics literature has emphasized rationalistic motivations for intragovernmental conflict (such as competition over scarce budgetary resources), social psychological research has suggested that “social categorization,” which is the human tendency to make “us”-versus-“them” distinctions, and “cognitive categorization,” in which one group stereotypes and accentuates the perceived differences of other agencies, tend to exacerbate intergroup conflict and hinder performance in situations where “groups must cooperate to achieve larger goals” (Kaarbo & Gruenfeld, 1998, pp. 228–229; see also Brewer & Kramer, 1985; Jones, 1983; Monroe et al., 2000). Clearly, intragovernmental rivalries can and do degenerate into feuds in which the animosities expressed – and the resulting negative effects on ostensibly common goals – seem out of proportion to the material interests at stake.

The antagonistic relationship between the Clinton administration and the Louis J. Freeh-run FBI is a case in point. The FBI was reportedly incensed with

the Clinton administration's failure to lean on Saudi Arabia to provide better cooperation in the Khobar Tower bombing investigation (Walsh, 2001). Unwilling to disrupt the Saudi-U.S. relationship, the Clinton administration refused to ratchet up the pressure on the Saudis. In turn, the Clinton administration was infuriated with the FBI's supposed lack of interest in bin Laden. *The New Yorker's* Joe Klein quoted a former Clinton official as saying, "Their standard line was that Osama bin Laden wasn't a serious domestic-security threat. . . . They said that bin Laden had about two hundred guys on the ground and they had drawn a bead on them. . . . The other problem we had with the F.B.I. was a real unwillingness to share information. They insisted upon a 'chain of custody'" (Klein, 2001, p. 48; see also Wright, 2002).

As noted above, conflicting organizational priorities and interests can cause government departments to clash over policy and refuse to cooperate with one another. The bureaucratic struggle over how to disrupt al-Qaeda's financial network is a good example. Although Clinton's national security advisor Samuel Berger, Secretary of Defense William Cohen, and chairman of the Joint Chiefs of Staff Gen. Henry H. Shelton all enthusiastically favored aggressive covert action and the use of cyberwarfare against bin Laden's and al-Qaeda's financial assets, the Treasury Department vehemently opposed such measures. Treasury Secretaries Robert Rubin and Lawrence Summers were strongly opposed to this initiative because it might undermine a nascent global norm regarding cyberattacks on banking systems as acts of war, as well as cause damage to the stability of the international financial system (Gellman, 2001; Klein, 2001, p. 48). On this issue, at least, where one sat was strongly correlated with where one stood, as predicted by Miles' Law (Allison & Zelikow, 1999, p. 307).

Excessive conformity and homogeneity within organizations (and working groups) can also have debilitating effects on policymaking (Janis, 1972, 1982; see also Steiner, 1989). Many critics have alleged that this phenomenon was to blame for the increasingly risk-averse culture of the CIA, where like-minded officers with the same cautious value system were promoted, the number of case officers abroad reduced, and the emphasis on human intelligence replaced by a focus on technical intelligence. A premium was placed on avoiding embarrassments and failures rather than taking chances and achieving intelligence successes (Baer, 2002; Gerech, 2001; Hersh, 2001; Powers, 2002). According to a young case officer quoted by former CIA operative Reuel Marc Gerech (2001), "Operations that include diarrhea as a way of life don't happen." These assessments suggest that these trends resulted in a decline in the quantity and quality of human intelligence, to the detriment of the U.S. warning and response capacity.

#### Crying Wolf and the Signal-to-Noise Problem

It should also be noted that heavy regular workloads and the so-called "signal-to-noise ratio" problem are serious obstacles to recognizing and preventing terrorist attacks and other forms of crises. Intelligence and other organizations working in the national security field pick up warnings and threats all the time. The vast majority of these are false or exaggerated. Many of those that turn out to be true are vague – a threat may exist but there may be little or no information as to when or where it will materialize. Organizations are constantly forced to balance risks of underreaction (complacency) with those of overreaction ("crying wolf"), both

of which can do great damage to organizational credibility. In the summer before 9/11, the Director of Central Intelligence (DCI), George J. Tenet, responding to a deluge of intelligence warnings that a major attack on U.S. interests by al-Qaeda appeared imminent, issued repeated and urgent warnings that the United States should maintain the highest anti-terrorist alert. On 7 September, the State Department too issued a public warning, but unfortunately it focused on the threat of terrorism against U.S. citizens abroad (De Young, 2001). Yet despite this further official recognition of the threat, *The Washington Post's* Barton Gellman (2002) reported that by "late July, according to one national security official, Tenet had delivered so many warnings with so much urgency that some administration colleagues grew tired of hearing them." In light of the torrent of incoming warnings, it is not surprising that the CIA's August 6 briefing to the President, one based largely on past intelligence warning of possible al-Qaeda hijackings and other methods of attack on U.S. soil (Woodward & Eggen, 2002), failed to trigger a vigorous policy response. Although 9/11 could be seen as vindication for Tenet's vigilance in taking the intelligence he received seriously, this demonstrates that repeatedly responding to intelligence warnings, even credible ones, can be tantamount to "crying wolf," resulting in receptivity fatigue and a lack of sensitivity to future warnings. To make matters worse, as Richard Betts (2001, p. 159) has pointed out, even accurate warnings (in which the vigilant response dissuades the attackers from carrying out their plans) can have the same deleterious effect on credibility as false alarms.

Thus, although attacks by al-Qaeda were anticipated, the targets and the specific means were not. The difficulty of sorting through the "noise" – the sea of incorrect information and false warnings – may have dulled response to the crucial signals that were available before the attacks. According to early reports, these included the following: high-level warnings supposedly provided to U.S. intelligence by France, an internal FBI memo urging vigorous investigation of multiple reports of suspicions that Middle Eastern men were seeking flight training in the United States for dubious purposes, warnings from a Minneapolis flight academy that one of its students, Zacarias Moussaoui, had exhibited suspicious behavior that suggested he might intend to use his training for a hijacking, and Abu Zubeida's confessed plan to carry out a suicide bombing of the American Embassy in Paris. Yet it is likely that some of the crucial pieces of the warning jigsaw puzzle were obscured by the many less important or irrelevant ones strewn around the intelligence landscape (De Young, 2001; Eggen, 2002; Risen, 2002).

#### Standard Operating Procedures

Ironically, the same standard operating procedures that ensure predictability and uniformity of service, and provide a basis for operations in vast and complex environments, can be a liability in a situation of strategic conflict (see Arreguin-Toft, 2001, pp. 95, 104–108). On 9/11 the terrorists successfully exploited organizational standard operating procedures (SOPs) to achieve their purposes. On the basis of past experience and assuming that most hijackers wish to survive, U.S. airlines had instructed their pilots to cooperate with skyjackers and let law enforcement take over once the plane is on the ground (Easterbrook, 2001, pp. 176–177; Hersh, 2001, pp. 34–35). Knowing that the pilots are trained to acquiesce, the terrorists may well have gained control simply through the threat of

violence. Gregg Easterbrook (2001, p. 177) reported that on one of the flights, air traffic controllers could hear one of the terrorists say something along the lines of “Don’t do anything stupid and you won’t get hurt.” SOPs are based on past experience and expectation. Aboard United Airlines flight 93, several passengers were alerted to what had happened in New York and, according to the prevailing hypothesis, a number of passengers then attempted to retake the aircraft from the terrorists and prevented it from reaching its intended target. The terrorists’ knowledge of the airline security systems’ SOPs allowed them to successfully smuggle knives and box cutters onto the planes undetected. The relatively lax security on domestic flights, and the failure to reinforce cockpit doors or teach U.S. pilots never to open them (as Israel’s El Al pilots are trained), also contributed to the outcomes of 9/11.

The inability of the North American Aerospace Defense Command (NORAD) to respond to the hijackings is another illustration of the relationship among expectations, SOPs, and the failures of 9/11. Although NORAD had practiced scenarios where they responded to hijacked aircraft entering U.S. airspace from abroad, they had never practiced one where a hijacked plane originating from Boston would be used as a guided missile aimed at a target in New York City. In fact, NORAD reportedly lacked a direct and secure telephone line to the FAA (Nye, 2001, p. 202).

As the typical post-crisis “blame game” heats up in the wake of the attacks, the bureaucracy provides a large and convenient target for political actors. For example, on 19 September 2001, CNN Online quoted Sen. Richard Shelby (R-Ala.), a member of the Senate Intelligence Committee, as attributing this “massive failure” of the U.S. intelligence community to “too many bureaucratic failures, not enough coordination between the agencies.” Still, bureaucratic pathologies are only one part of the story of the surprise.

### **Agenda-Political Factors**

This section draws on the insights from the agenda-setting literature and the wave of recent scholarship focusing on security and threat politics (Buzan, Wæver, & De Wilde, 1998; Eriksson, 2001; Kingdon, 1995; Sabatier, 1999; Stern, 1999b). The work on security politics has concentrated on trying to understand why some security issues and threat images at any given time are accorded a high degree of “societal salience” and thus rise above the increasingly dense thicket of competing threats and risks. Why do some issues capture a privileged place at the top of the political and policy agenda, whereas others languish in relative obscurity and neglect (Eriksson, 2001; Kingdon, 1995; True, Jones, & Baumgartner, 1999)? This literature is also helpful in addressing the closely related question of under what circumstances, and to what extent, recognition of a given threat leads to meaningful policy change and/or organizational reform.

The so-called “Copenhagen school” of security studies has developed a theory of “securitization” that examines how issues are framed and dramatized as security threats worthy of being treated “through extraordinary means” (Buzan et al., 1998, p. 23).<sup>16</sup> A similar focus can be found in agenda-setting theory and threat politics approaches. Kingdon, for example, concentrated on the process of “problem definition” and “categorization.” According to Kingdon (1995), if a condition is

designated as a “problem” it is more likely to be elevated onto the agenda and inspire the belief that change is needed (p. 198). Studies on threat politics examine the struggle between advocates of competing problem frames over what issues should take on “societal salience” as the most important (Eriksson, 2001, pp. 4–5; Garrison, 2001; Sabatier, 1999).

Security politics can be said to be about the definition of existential threats and the policy measures enacted to safeguard against them (see Buzan et al., 1998). Whether an issue achieves prominence and is acted upon depends to a large extent on the amount of attention that bureaucrats, politicians, the media, the public, academia, and pressure groups devote to it and whether they are able to successfully draw attention to it. Thus, it is of great importance to ask who is engaged in the process of issue definition and agenda setting and to what extent (and why) their advocacy has an impact on policy, especially when it comes to spurring or failing to spur major policy shifts. Whether it is agenda-setting theory’s “policy entrepreneur” leaping through “policy windows” (Kingdon, 1995), the securitizing actor in securitization theory (Buzan et al., 1998), or the framing actor of threat politics (Eriksson, 2001), there is a strong emphasis on agency and advocacy and the circumstances under which their actions have a policy impact.

The agenda-politics perspective points to three main sources to explain policy failure and unpreparedness: overcrowded agendas, the failure of key actors to place issues high enough on the agenda to be acted on adequately, and competing priorities.

#### Overcrowded Agendas

An uncomfortable fact of life is that the political and policy agendas are chronically overcrowded. A wide variety of domestic, regional, and international issues compete for the limited attention of policymakers, the political “opposition, the mass media, and citizens. Just as in the world of fashion, particular issues – much like pointy shoes or bell-bottom jeans – go in and out of vogue (see Gladwell, 2000; Kingdon, 1995). In the wake of a major terrorist incident in a country with which one can easily identify (relatively little attention was paid to the bombings in Moscow in recent years, for example), terrorism can become an “in” topic for political actors and observers. After periods of time without a major incident at home or in the emotionally near abroad, interest tends to wane. For those who are swimming against such issue tides, a critical event becomes an opportunity to dramatize the issue and to build political and public support for action (Keeler, 1993; Kingdon, 1995). In retrospect, it is clear that despite the attacks in recent years on U.S. interests in the Middle East and Africa, the tide of political interest in anti-terrorism was not particularly favorable. The Clinton administration did make some attempts to dramatize the risks posed by critical infrastructure vulnerability and weapons of mass destruction (which policymakers recognized could be wielded by terrorists as well as states). The Bush administration too recognized the potential threat of terrorism and charged Vice President Cheney with coordinating the effort. However, there was little interest in beefing up domestic and international security arrangements, and it was hoped that making threats, efforts to bring perpetrators to justice, and relative symbolic reprisals (such as occasional bombing raids and the cruise missile attacks against targets in Afghanistan and Sudan) would suffice to deter future terrorist attacks.



The open literature suggests that relatively little was done to improve the capacity of U.S. intelligence agencies to monitor terrorist networks at home and abroad. This was partly because the kind of medicine then (and now) being suggested to cope with the risk of terrorism was hard for Americans to swallow. Most people, understandably, have been reluctant to make compromises regarding civil liberties, to place ground troops at risk, to play the “dirty” and dangerous games of international espionage, to contemplate repealing the bans on the use of assassination as a tool of national security policy, etc. Richard Betts (1998) has recently reminded us that civil defense measures tend to be “unpopular: they remind people that their vulnerability to mass destruction is not a bad dream, not something that strategic schemes for deterrence, preemption, or interception are sure to solve.” In a similar vein, John Prados (2002) argued that a key factor was the lack of “public interest in programs aimed at countering terrorism” (p. 3). As Arnold Meltsner (1990) pointed out some years ago in his treatise *Rules for Rulers*, neither rulers nor their advisers are particularly keen to focus on problems without easy solution, unless they absolutely have to. Terrorism (domestic and international) is just such a problem, and political elites in the United States (and many other countries) have chronically avoided it.

#### Framing Failures

As we discussed above, the process by which an issue is perceived as a security threat, worthy of being placed on the agenda, and (most important) worth acting on is largely dependent on key “policy entrepreneurs” or actors. George Tenet, who held the post of DCI under both the Clinton and Bush administrations and who has long recognized the threat of bin Laden and terrorism in general, serves as an interesting case illustration. There is a wealth of evidence that Tenet made numerous “securitizing moves” – testimony to Congress, briefings to the president, repeated warnings – to illuminate the depths of this threat and to urge lawmakers and both Presidents Clinton and Bush to confront it. Yet he was only partially successful at best.<sup>17</sup> Why?

One of the key determinants of a DCI’s leverage is access to the president (Meltsner, 1990, pp. 55–64; Smith, 1988). Tenet reportedly has enjoyed great access to President Bush, for example, personally delivering the president’s daily brief (Powers, 2002). Yet (as discussed below) while this helped put the threat of terrorism on Bush’s agenda, it was still very much overshadowed by other priorities. Tenet has also been diligent in communicating the threat of terrorism to Congress. Seymour Hersh (2001, p. 39) quoted one Democrat as saying, “Tenet’s been briefing about bin Laden for years, but we weren’t organized to consider what are threats to the United States. We’re chasing whatever the hell is in the news at the moment.”

Tenet and others who sought to mobilize a greater effort in responding to terrorism faced an uphill battle in the Clinton administration too. For example, Fareed Zakaria reported that during the Clinton administration the CIA asked the National Security Council to rank a number of threats in order to help the CIA determine how it would allocate its resources and effort. China, Iran, and Iraq were all ranked 1, but terrorism was ranked 3 (Zakaria, 2002). Thus, Tenet was a successful policy entrepreneur to the extent of putting counterterrorism efforts on the agenda, but his policy achievements were only partial, and he

(and like-minded officials elsewhere in the government) failed in their attempts to place and maintain the issue at the highest echelon of security politics. The question of why that was the case brings us to the crucial issue of competing priorities.

#### Political Priorities

While campaigning for president and upon entering office, the centerpiece of George W. Bush's security policy was the pursuit of a ballistic missile defense system and scrapping the ABM treaty.<sup>18</sup> His other main security initiative was a comprehensive review of U.S. security policy. In February 2001 he ordered the Pentagon to conduct a top-to-bottom review of U.S. military strategy, force structure, missions, and weapons. Terrorism, which was not emphasized as an election issue by either Al Gore or George W. Bush, did not receive a particularly prominent place in presidential rhetoric or policy once Bush assumed office. To the extent that the Bush team was focused on terrorism and homeland defense, the focus was primarily on the threat of chemical, biological, or nuclear weapons being used against the United States. On 8 May 2001, citing the risk of weapons of mass destruction (WMD) being used in the United States and the lack of a coordinated national effort to protect against this threat, Bush appointed Vice President Cheney to rectify this deficiency. He also called for FEMA to create an Office of National Preparedness for terrorism to implement the results from Cheney's work. Bush even stated he would "periodically chair a meeting of the National Security Council to review these efforts."<sup>19</sup> As *The Washington Post's* Barton Gellman reported, "Neither Cheney's review nor Bush's took place" (Gellman, 2001).

It would be inaccurate and unfair to say the Bush administration was not paying attention to terrorism. It should also be noted that the policy to fight terrorism, like almost every other aspect of U.S. security, first underwent a time-consuming organized strategy review. By 4 September, this effort, which reportedly had formulated a strategy of phased escalation designed to eliminate al-Qaeda, was taken up by cabinet-rank policymakers (Gellman, 2001). Nonetheless, there was a clear lack of urgency, attention, and precedence given to the issue of terrorism. Outside of DCI Tenet, a holdover from the Clinton administration, terrorism was not a top priority among Bush's top policy advisors. The Bush administration also retained Richard Clarke, who was the National Security Council's top antiterror official from the Clinton administration. However, outside of Clarke's chronically isolated Counterterrorism Strategy Group, interest in the issue was lukewarm (Wright, 2002).

To the extent that the federal government was focusing on counterterrorism and response, it heavily (some have argued disproportionately) focused on WMD threats such as biological and chemical weapons (Prados, 2002, p. 17). *The Washington Post* reported that of the "201 federal planning exercises conducted in the late 1990s, two-thirds were aimed at defending the public against biological and chemical attacks . . . even as multiple studies concluded that bombings, hijackings and other low-tech missions were far more likely" (Warrick & Stephens, 2001). In fact, one expert panel commissioned by the Pentagon actually fretted about airplanes being used to bomb national landmarks. This scenario was not made public, in part to avoid giving terrorists ideas. Unfortunately, no other action was inspired by the report.

Bush's budget also suggests the lack of precedence for counterterrorism. Bush's first budget provided an increase of just \$1.6 billion from the \$12 billion that had been spent the previous fiscal year on counterterrorist programs spread across 40 departments and agencies. He also proposed to cut FEMA's budget by \$200 million and save money on the Nunn-Lugar programs designed to protect against loose nukes by securing fissile material in the former Soviet Union. For example, when the Senate Armed Services Committee attempted to find more money to combat terrorism by diverting \$600 million from ballistic missile defense, Defense Secretary Rumsfeld warned he would recommend a veto (Gellman, 2002).

Why was counterterrorism not a greater priority in the early (pre-9/11) days of the Bush administration? Clearly, even if an issue is formally acknowledged as a problem and placed on the government's agenda, it can fade from view if other issues crowd it out of the administration's spotlight. Attention tends to be fleeting in Washington (Kingdon, 1995, p. 198). The wave of terrorism that had inspired the existing counterterrorism programs happened on Clinton's watch. Bush's mind was evidently on other matters before 9/11. The evidence suggests that Bush's attention was very much focused on the issue of missile defense and his domestic agenda (Bruni, 2002). Thus, although the U.S. government and its policymakers had received many wake-up calls regarding the threat of catastrophic terrorism targeting the U.S. homeland, relatively few stayed very vigilant for very long.

## Conclusions

The strategic surprise literature has traditionally focused on interstate threats and conflicts. Here, we deployed the conceptual battery from that literature to a case of attacks perpetrated by non-state actors on a superpowered adversary. Our experience suggests that this extension was relatively unproblematic. In a sharp critique of the previous work in this area, Vertzberger (1990, p. 17) found that preoccupation with the type of surprise (military vs. diplomatic) merely distracted attention from the fundamental problems of information processing and politico-organizational action – the problems that make the difference between vigilant and negligent response to threat. We must agree and add our support to his call for a more generic and generalizing approach that can encompass a variety of types of surprise/non-surprise and can be applied to analysis of cases involving different types of adversaries.

Taken together, the psychological, bureau-organizational, and agenda-political approaches explored here shed considerable light on the interlocking sources of failure in policy, intelligence, warning, response, and preparedness that left the United States vulnerable to the surprise terror attacks of 9/11. Rather than providing competing interpretations, the three cuts performed should be seen as complementary, as all three help to explain the broad pattern of individual and collective problem avoidance and policy failure documented above.

The three analytical cuts reveal that to the extent that the United States was surprised on 9/11, it was due in large measure to a number of interrelated psychopolitical processes that produced a pattern of denial and distraction. Psychological factors contributed to the overvaluation, overconfidence, insensitivity to criticism, and wishful thinking regarding existing U.S. policies and practices. Bureau-organizational arrangements, dynamics, and procedures produced a fragmented

organizational structure, a lack of adequate cooperation and coordination, and standard practices that left the U.S. homeland vulnerable to terrorists eager and able to exploit these opportunities. Finally, the lack of an adequate counterterrorism and homeland defense policy should be seen as the result of an overcrowded policymaking agenda, threat-framing failures by key actors, and medium-low prioritization by several successive presidential administrations. As a result, the U.S. government failed to develop the strategy, policies, or capabilities needed to confront catastrophic terrorism (see Carter, 2001–02, pp. 22–23).

Acute failures or disasters often provide policymakers with the urgency, concentration, and resources to, if not fix the root causes that led to the failures, address them in a more comprehensive and dramatic fashion (Stern, 1997). America's newfound focus on counterterrorism and homeland security is a case in point. President Bush's 29 January 2002 State of the Union speech and subsequent budget proposals have left no doubt that he has placed the mission to protect the U.S. homeland and fight terrorism at the very top of his policy agenda. However, we would like to sound a note of caution. Although measures such as the Homeland Security Office, the 2001 Transportation and Aviation Security Act, and the U.S.A. Patriot Act were intended to address a number of problems recounted above, many sources of failure suggested by our analysis have yet to be (and some deriving directly from human and organizational frailties may never be) meaningfully addressed. Furthermore, the understandable sense of satisfaction regarding the early success of the military campaign in Afghanistan, the high levels of public support enjoyed by the administration, and short attention spans (of the media, public, and politicians) could see policymakers fall victim to some of the very pathologies – overvaluation, overconfidence, insensitivity to criticism, and wishful thinking – that contributed to the horrors of 9/11 in the first place. It is interesting to observe that rather than dramatically altering his priorities, such as missile defense and domestic tax cuts, Bush has simply added counterterrorism and homeland security to them. Moreover, there is a risk that attempts to redress the deficiencies unveiled by 9/11 will result in too much energy being expended in “fighting the last war.” As a number of commentators (see, e.g., Betts, 2001, p. 155; Bracken, 2001, pp. 181–184; Kam, 1988) have warned, hasty wholesale reforms often create new problems while failing to adequately redress past deficiencies.

For the most part, the strategic surprise literature, while holding out the prospect of achieving significant improvements, is not sanguine about the possibility of eradicating future surprise attacks. The inherent difficulties in achieving adequate warning and response have led many strategic surprise scholars to paint a pessimistic picture of the prospects of reforming and reorganizing the problem away (see Betts, 1980–81, 2001; Handel, 1980; Kam, 1988; Vertzberger, 1990; Wohlstetter, 1962). Although there are exceptions – such as Levite (1987), who was somewhat more optimistic regarding the possibility of acquiring excellent warning that policymakers act on – Kam's (1988, p. 232) fatalistic view that “successful surprise attacks are the general rule while their prevention is the exception” is not atypical. Like Kam, Betts (2001) allowed that the intelligence system can be improved and that some of the problems that lead to failure can be fixed, but warned that “some can never be eliminated, with the result being that future unpleasant surprises are a certainty” (p. 160). The special difficulties associated with detecting and responding to planned terrorist attacks (as opposed to more

conventional military operations mounted by states) exacerbate an already difficult problem (Prados, 2002, pp. 15–20).

On the basis of our review of the strategic surprise literature coupled with our examination of the failures of 9/11, we feel that there are reasons for both optimism and pessimism. Although we want to be very circumspect in our conclusions, we believe that the increased policy attention and focus on catastrophic terrorism could potentially lead to the development of improved governmental capabilities and policies that, when combined with better interagency coordination and cooperation, would drastically reduce the U.S. homeland's vulnerability to attack and strengthen the government's capacity to respond. As a number of contributions from the strategic surprise genre point out, lowering the warning threshold – although it entails high costs and results in more false alarms – can increase response and in fact may deter the enemy by sending a strong signal that the chances of success are slim (Kam, 1988, p. 233). Although the intelligence system was not able to produce “credible, conclusive” and specific warning (see Levite, 1987) of the threat to the Pentagon and the World Trade Center, our analysis suggests that the more significant failure was in the sluggish response to the many generalized warnings regarding the key threat and major societal vulnerabilities.

Our examination of the failures that contributed to 9/11 uncovered no single “smoking gun” problem (see Snook, 2000) that allowed the attacks to succeed. But we were able to point to a number of these general warnings and reform proposals that, had they been followed up more vigorously, would have greatly reduced the terrorists' chances of success. It will be provocative to some that so many of the contributing factors and phenomena we have identified are so banal and typical of human governance in our time. Denial, organizational complexity and conflict, overcrowded agendas, and distracted political leaders are everyday facts of life. Given the magnitude of the tragedy of 9/11, it is tempting to look for causes of failure that are equally dramatic. Ironically, the extraordinary disaster of 9/11 may well have been a “normal” failure (see Perrow, 1999; Sagan, 1993) of a highly complex and tightly coupled system of people and organizations dependent on an unbroken chain of intelligence, warning, and response to cope with an almost unlimited expanse of vulnerability. Our empirical analysis supports the contention that a contextually sensitive approach that takes domestic political commitments and constellations into account is crucial to understanding this kind of phenomenon (see Farnham, 1997; Geva & Mintz, 1997; see also George, 1997, 1980). The agenda-setting/security politics literature, which inspired our third cut, provided an indispensable piece of our puzzle.

Finally, in addition to improving our understanding of the failures that contributed to 9/11, we hope that our inquiry suggests an agenda for future research. Although we drew on a wide range of empirical material, we are fully aware of our heavy dependence on secondary sources. As Levite (1987) has warned, this can lead to a fragmentary picture of what happened and to distorted interpretations. As the record gradually becomes more complete, we look forward to reexamining our preliminary interpretations, and we invite our colleagues to help us in doing so.

In the immediate aftermath of the attacks, there was little appetite in most quarters for an independent board of inquiry to systematically investigate what went wrong. As time passes and the “rally 'round the flag” effect gives way to the “blame game,” leaders, journalists, and citizens alike will demand to know

more about why the United States did not foresee and do more to forestall 9/11. On 27 September 2001, just over 2 weeks after the attacks, U.S. Sen. Robert Torricelli (D-N.J.) called for a board of inquiry patterned after the post-Pearl Harbor Board of Inquiry into what he termed a “stunning failure” of U.S. intelligence. As he suggested, the purpose of such an inquiry should be to determine “what went wrong so we can prevent it from happening again.”<sup>20</sup> This is clearly the right way to approach the problem, although the obstacles noted above should make us humble about the prospects of eliminating dangerous surprises. Similarly, we should be aware of the limitations of even the best boards of inquiry and recognize that scholars must follow in the wake of the official inquiries and contribute to the learning process. The board of inquiry into the Pearl Harbor Fiasco was the beginning – not the end – of the struggle of policymakers and analysts to understand how such a traumatic event could come to pass (e.g., Janis, 1982; Levite, 1987; Wohlstetter, 1962). As we complete this article, we are pleased to note that this official inquiry process is finally under way. In February 2002, the House and Senate intelligence committees announced that they would conduct a joint investigation of the intelligence failures that led to 9/11. Although this inquiry is a useful first step, because of its narrow focus it should be followed up by a broader investigation conducted by an independent commission that includes the role of all the relevant agencies, the Congress, and the executive branch in its examination of what went wrong.

The World Trade Center and Pentagon attacks are the latest in a long line of unpleasant “surprises” experienced by the U.S. government in the pursuit of its domestic and foreign policies. We can be sure that they will not be the last. Wise, vigorous, and alert leadership combined with effective intelligence gathering and national security policymaking processes can help countries like the United States ensure that really devastating surprises are few and far between.<sup>21</sup>

Armed with usable knowledge about the surprises (and non-surprises) of the past, leaders and security policymaking institutions in many countries can be better equipped to detect and deal with the threats of today and tomorrow. In 1999, a European network of researchers and policymakers united to launch a European Crisis Management Academy to promote the development and exchange of knowledge and experience in this vital area.<sup>22</sup> Hundreds of scholars, non-governmental organizations, and government officials from nearly 20 nations – from transitional and established democracies alike – are already participating. However, 9/11 clearly demonstrates that regionally based partnerships will not suffice. In the future, Europeans must collaborate even more intensively with North Americans, Asians, Africans, Australians, and others to create a common knowledge base as a resource for building a safer future.

Clearly, the “it can’t happen here” syndrome is a major obstacle to preventing, learning from, and properly preparing for crises. If we recognize and accept that our societies are threatened, steps can be taken to do something about it. Unfortunately, as the late Aaron Wildavsky (1988) reluctantly concluded in his book *Searching for Safety*, not all crises are preventable.<sup>23</sup> The way of life embraced in liberal, democratic, urbanized societies like the United States implies vulnerability. Society must be robust and resilient enough to bounce back from crises and prepared enough to minimize the damage when devastating events occur. This entails cultivating a willingness to overcome the psychological, organizational,

and political denial and overload mechanisms identified above, to think the unthinkable, and to act on those disturbing thoughts. Preparing for the challenges of the future requires systematic efforts to study and learn from the cases that surprise us (and those that do not), from the crises that are managed well (and those that are not). We must wring every drop of usable knowledge from our own experiences and those of our neighbors around the world. Make no mistake: This is a matter of life and death not only for the United States, but for every open society.

### Acknowledgments

We are particularly grateful to the journal's editors for their constructive comments on an earlier draft of this manuscript. We also greatly benefited from the useful feedback of Johan Eriksson, Alexander George, Jakob Gustavsson, Paul 't Hart, Eric Paglia, and Bengt Sundelius. This article was made possible by the generous financial and institutional support of the Swedish Agency for Civil Emergency Planning, the Swedish Institute for International Affairs, Uppsala University, and the Swedish National Defense College. The analysis and conclusions are solely those of the authors. Correspondence concerning this article should be sent to Charles Parker, Department of Government, Uppsala University, Box 514, SE-751 20 Uppsala, Sweden (e-mail: charles.parker@statsvet.uu.se) or to Eric Stern, Swedish National Defense College, Box 27805, SE-115 93 Stockholm, Sweden (e-mail: eric.stern@fhs.mil.se).

### Notes

1. See, for example, Prados (2002). For an illustrative (if somewhat FBI-centric and personalized) account of the U.S. government's investigation of al-Qaeda's activities, see Wright (2002).
2. For a sober and prescient analysis of the threat of mega-terrorism and some sensible suggestions for coping with it, see Carter et al. (1998). See also Lake (2001) and the various reports of the U.S. Commission on National Security—21st Century ([www.nssg.gov](http://www.nssg.gov)).
3. Examples of previous cases of strategic surprise include Pearl Harbor (December 1941), the German attack against the Soviet Union (Operation Barbarossa, June 1941), China's attack on India (October 1962), the Yom Kippur War (October 1973), and Argentina's invasion of the Falkland Islands (April 1982).
4. Terrorism can be defined as premeditated violence directed at civilians in the pursuit of specific political, religious, or social objectives. See, among others, Hoffman (1998), pp. 13–44; Pillar (2001), pp. 12–18; and J. Stern (1999), pp. 11–19. For analysis of al-Qaeda and bin Laden's aims and the source of their animus toward the United States, see Amanat (2001), Berger and Sutphen (2001), and Doran (2001).
5. A closely related literature examines relatively unexpected deleterious changes in the security environment, such as attacks on allies or clients (e.g., South Korea or Kuwait) or the fall of friendly governments (e.g., the Shah of Iran). See, for example, David (1993), George (1993), and Paige (1968).
6. Extensive research has shown that people often use simple strategies of inference to help them cope with the complexities of modern life. Among these are the use of historical analogies and metaphors (e.g., falling dominoes as a metaphor for the spread of communism in Southeast Asia). For example, 9/11 has been compared to the Japanese surprise attack on Pearl Harbor in 1941; to the previous attacks on the World Trade Center (1993) and the federal building in Oklahoma City (1995); and to the recent terrorist attacks on U.S. assets in Kenya, Tanzania, and Yemen. Ironically, these historical precedents (which are now being used as points of reference for interpreting the current events) are receiving much more attention now than during the year or so preceding 9/11. Thus, although these analogies were clearly in the repertoire of individual and collective experience, most government leaders, media commentators, and citizens did not focus on them. One reason for this is that the common

stock of historical analogies is very large, so these apparently did not stand out as vividly in the pre-attack situation as they do in retrospect. For a useful summary of the cognitive approach emphasizing the role of historical analogies in foreign policy making, see Khong (1992). See also Houghton (2001).

7. The final report of the White House Commission on Aviation Safety and Security was released on 12 February 1997 (<http://cas.faa.gov/reports/Whc97rpt.htm>).
8. Several of these cases can be construed as intelligence failures. For example, the CIA was reportedly given specific warning of the plots against the African embassies nearly a year before the attacks by an al-Qaeda member (Wright, 2002, p. 6 of the online version). Thus, the exemplary detective work after the fact may well have been preceded by a major warning-response failure.
9. The Gilmore Commission, also known as the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, released two reports: *Assessing the Threat* (15 December 1999, [www.rand.org/nsrd/terrpanel/terror.pdf](http://www.rand.org/nsrd/terrpanel/terror.pdf)) and *Toward a National Strategy for Combating Terrorism* (15 December 2000, [www.rand.org/nsrd/terrpanel/terror2.pdf](http://www.rand.org/nsrd/terrpanel/terror2.pdf)). The Bremer Commission, officially known as the National Commission on Terrorism, released its report, *Countering the Changing Threat of International Terrorism*, on 7 June 2000 (<http://w3.access.gpo.gov/nct/index.html>). The Hart-Rudman Commission refers to the *U.S. Commission on National Security 21st Century* (see note 2). For a further accounting and evaluation of U.S. readiness for a domestic terrorist attack, see Carter (2001–02), Cordesman (2002), Falkenrath (2001), Nye (2001), Pillar (2001), and Prados (2002).
10. For analyses of the potentially insidious effects of group dynamics on policymaking, see Janis (1982), Kowert (2002), 't Hart (1994), and 't Hart, Stern, and Sundelius (1997).
11. See, for example, the public opinion survey conducted by the Pew Research Center's Global Attitudes Project, which showed that opinion leaders outside of the United States saw U.S. policies around the world as a major reason for the terrorist attacks, in contrast to the view of Americans polled (19 December 2001, [www.people-press.org/reports/display.php3?ReportID=145](http://www.people-press.org/reports/display.php3?ReportID=145)). A Gallup poll conducted with residents of nine Muslim countries after 9/11 found that 53% of the people questioned had unfavorable opinions of the United States while only 22% had a favorable opinion (26 February 2002, [www.cnn.com/2002/US/02/26/gallup.muslims/index.html](http://www.cnn.com/2002/US/02/26/gallup.muslims/index.html)).
12. In the words of the commission (<http://cas.faa.gov/reports/Whc97rpt.htm>), the "FBI, CIA, and BATF should evaluate and expand the research into known terrorists, hijackers, and bombers needed to develop the best possible profiling system. They should keep in mind that such a profile would be most useful to the airlines if it could be matched against automated passenger information which the airlines maintain." Also, "the FBI and CIA should develop a system that would allow important intelligence information on known or suspected terrorists to be used in passenger profiling without compromising the integrity of the intelligence or its sources."
13. National Commission on Terrorism, *Countering the Changing Threat of International Terrorism*, 7 June 2000, pp. 15–16 (<http://w3.access.gpo.gov/net/index.html>). The FBI's failure to act on a memo from Phoenix field office to examine flight schools around the nation for potential terrorists and the botched handling of the Zacarias Moussaoui case are good examples of the problems pointed out by the commission (Eggen, 2002; Rissen, 2002).
14. The key principles of U.S. counterterrorism policy were established by Vice President George H. W. Bush's 1985 Terrorism Commission (Public Report of the Vice President's Task Force on Combating Terrorism, U.S. Government Printing Office, Washington, DC, February 1986). Under the Clinton administration, the current federal policy was elaborated and laid out primarily in Presidential Decision Directive 39 (PDD-39), U.S. Policy on Counterterrorism (21 June 1995). An unclassified summary can be found at [www.fas.org/irp/offdocs/pdd39.htm](http://www.fas.org/irp/offdocs/pdd39.htm).
15. PDD-62 (22 May 1998) established the Office of the National Coordinator for Security, Infrastructure Protection and Counter-Terrorism; a fact sheet on PDD-62 is available at [www.fas.org/irp/offdocs/pdd-62.htm](http://www.fas.org/irp/offdocs/pdd-62.htm).
16. In contrast to the position taken by the Copenhagen school, security threats can be successfully framed without legitimating extreme measures (militarizing the issue or sanctioning the use of violence) (Eriksson, 2001).



17. Many improvements in counterterrorism have been achieved since the mid-1990s, including the 1996 Antiterrorism Act, the Nunn-Lugar-Domenici legislation, and a 50% increase in counterterrorist spending from 1996 to 2001. In addition, the budget of the federal WMD program grew from virtually nothing in 1995 to \$1.5 billion in fiscal year 2000, and the CIA's Counter-Terrorism Center was strengthened.
18. A good example of Bush's focus on moving "beyond the constraints of the 30 year old ABM Treaty" and his intention to deploy "effective missile defenses" can be found in a speech delivered at the National Defense University, 1 May 2001 ([www.whitehouse.gov/news/releases/2001/05/20010501-10.html](http://www.whitehouse.gov/news/releases/2001/05/20010501-10.html)).
19. Statement by the President: Domestic Preparedness Against Weapons of Mass Destruction, 8 May 2001 ([www.whitehouse.gov/news/releases/2001/05/20010508.html](http://www.whitehouse.gov/news/releases/2001/05/20010508.html)).
20. CNN Online, 27 September 2001, and R. Torricelli, "Fora 'Pearl Harbor' Inquiry," *Washington Post*, 17 February 2002, p. B7.
21. On the role of leadership, see also Hermann and Hagan (1998).
22. For information about the European Crisis Management Academy, see the ECMA homepage ([www.ecm-academy.nl](http://www.ecm-academy.nl)). See also Stern and Sundelius (2002).
23. On the need for societal resilience, see Wildavsky (1988).

## References

- Allison, G. (1971). *Essence of decision: Explaining the Cuban missile crisis*. Boston: Little, Brown.
- Allison, G., & Zelikow, P. (1999). *Essence of decision: Explaining the Cuban missile crisis* (2nd ed.). New York: Longman.
- Amanat, A. (2001). Empowered through violence: The reinventing of Islamic extremism. In S. Talbot & N. Chanda (Eds.), *The age of terror: America and the world after September 11* (pp. 23–52). New York: Basic Books.
- Arreguin-Toft, I. (2001). How the weak win wars: A theory of asymmetrical conflict. *International Security*, 26, 93–128.
- Baer, R. (2002). *See no evil: The true story of a ground soldier in the CIA's war on terrorism*. New York: Crown.
- Berger, S. R., & Sutphen, M. (2001). Commandeering the Palestinian cause: Bin Laden's belated concern. In J. F. Hodge, Jr. & G. Rose (Eds.), *How did this happen? Terrorism and the new war* (pp. 123–128). New York: Public Affairs.
- Betts, R. K. (1980–81). Surprise despite warning: Why sudden attacks succeed. *Political Science Quarterly*, 95, 551–572.
- Betts, R. K. (1982). *Surprise attack: Lessons for defense planning*. Washington, DC: Brookings Institution.
- Betts, R. K. (1998, January/February). The new threat of mass destruction. *Foreign Affairs*, 77 (online), printout p. 7.
- Betts, R. K. (2001). Intelligence test: The limits of prevention. In J. F. Hodge, Jr. & G. Rose (Eds.), *How did this happen? Terrorism and the new war* (pp. 145–161). New York: Public Affairs.
- Bovens, M., & 't Hart, P. (1996). *Understanding policy fiascoes*. New Brunswick, NJ: Transaction.
- Bracken, P. (2001). Rethinking the unthinkable: New priorities for new national security. In S. Talbot & N. Chanda (Eds.), *The age of terror: America and the world after September 11* (pp. 171–191). New York: Basic Books.
- Brewer, M. B., & Kramer, R. M. (1985). The psychology of intergroup attitudes and behavior. *Annual Review of Psychology*, 36, 219–245.
- Brodin, K. (1978). Surprise attack: The case of Sweden. *Journal of Strategic Studies*, 1, 98–110.
- Bruner, J. S. (1957). On perceptual readiness. *Psychological Review*, 64, 123–152.
- Bruni, F. (2002). *Ambling into history: The unlikely odyssey of George W. Bush*. New York: HarperCollins.
- Buzan, B., Wæver, O., & De Wilde, J. (1998). *Security: A new framework for analysis*. Boulder, CO: Lynne Rienner.
- Carter, A. (2001–02). The architecture of government in the face of terrorism. *International Security*, 26, 5–23.

- Carter, A., Deutch, J., & Zelikow, P. (1998). Catastrophic terrorism. *Foreign Affairs*, 77, 80–94.
- Cohen, S. (2001). *States of denial: Knowing about atrocities and suffering*. Cambridge: Polity.
- Cordesman, A. H. (2002). *Terrorism, asymmetric warfare, and weapons of mass destruction: Defending the U.S. homeland*. Westport, CT: Praeger.
- Crawford, N. C. (2000). The passion of world politics: Propositions on emotion and emotional relationships. *International Security*, 24, 116–156.
- David, C. P. (1993). *Foreign policy failure in the White House*. Washington, DC: University Press of America.
- Deutch, J., Kanter, A., & Scowcroft, B. (2001). Strengthening the national security interagency process. In A. B. Carter & J. P. White (Eds.), *Keeping the edge: Managing defense for the future* (pp. 265–271). Cambridge, MA: MIT Press.
- Deutch, J., & Smith, J. H. (2002). Smarter intelligence. *Foreign Policy* (January/February), 64–69.
- DeYoung, K. (2001, 12 September). Terrorism warnings focused on threats overseas: On guard against cybercrime and weapons of mass destruction, U.S. is blindsided by attack at home. *Washington Post*, p. A19.
- Doran, M. S. (2001). Somebody else's civil war: Ideology, rage, and the assault on America. In J. F. Hodge, Jr. & G. Rose (Eds.), *How did this happen? Terrorism and the new war* (pp. 31–52). New York: Public Affairs.
- Easterbrook, G. (2001). The all-too-friendly skies: Security as an afterthought. In J. F. Hodge, Jr. & G. Rose (Eds.), *How did this happen? Terrorism and the new war* (pp. 164–181). New York: Public Affairs.
- Eckstein, H. (1975). Case study and theory in political science. In F. Greenstein & N. Polsky (Eds.), *Strategies of inquiry: Handbook of political science* (vol. 7, pp. 79–138). London: Addison-Wesley.
- Eggen, D. (2002, 2 January). Hijack plot suspicions raised with FBI in Aug.: Letter recounts school's warning on Moussaoui. *Washington Post*, p. A1.
- Eriksson, J. (2001). *Threat politics: New perspectives on security, risk and crisis management*. Burlington, VT: Ashgate.
- Falkenrath, R. A. (2001). Problems of preparedness: U.S. readiness for a domestic terrorist attack. *International Security*, 25, 147–186.
- Farnham, B. (1997). *FDR and the Munich crisis*. Princeton, NJ: Princeton University Press.
- Fearon, J. (1991). Counterfactuals and hypothesis testing in political science. *World Politics*, 43, 169–185.
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). New York: McGraw-Hill.
- Garrison, J. A. (2001). Framing foreign policy alternatives in the inner circle: President Carter, his advisors, and the struggle for the arms control agenda. *Political Psychology*, 22, 775–807.
- Gellman, B. (2001, 20 December). Rising threat, uneven response: Struggles inside the government defined campaign. *Washington Post*, p. A1.
- Gellman, B. (2002, 20 January). A strategy's cautious evolution: Before Sept. 11, the Bush anti-terror effort was mostly ambition. *Washington Post*, p. A1.
- George, A. (1979). Warning and response: Theory and practice. In Y. Evron (Ed.), *International violence: Terrorism, surprise, and control* (pp. 12–24). Jerusalem: Hebrew University, Leonard Davis Institute.
- George, A. L. (1980). *Presidential decisionmaking in foreign policy: The effective use of information and advice*. Boulder, CO: Westview.
- George, A. (1993). *Bridging the gap*. Washington, DC: U.S. Institute of Peace.
- George, A. L. (1997). From groupthink to contextual analysis of policymaking groups. In P. 't Hart, E. Stern, & B. Sundelius (Eds.), *Beyond groupthink* (pp. 35–54). Ann Arbor, MI: University of Michigan Press.
- George, A. L., & Stern, E. (2002). Harnessing conflict in foreign policymaking: From devit's to multiple advocacy. *Presidential Studies Quarterly*, 32(3): 484–508.
- Gerecht, R. M. (2001, July/August). The counterterrorist myth. *Atlantic Monthly*, pp. 38–42.
- Geva, N., & Mintz, A. (Eds.) (1997). *Decisionmaking on war and peace: The cognitive-rational debate*. Boulder, CO: Lynne Rienner.
- Gladwell, M. (2000). *The tipping point: How little things can make a big difference*. New York: Little, Brown.

- Gladwell, M. (2001, 1 October). Safety in the skies: How far can airline security go? *New Yorker*, p. 50.
- Gollwitzer, P., & Bargh, J. (Eds.) (1996). *The psychology of action: Linking cognition and motivation to behavior*. New York: Guilford.
- Gunaratna, R. (2001, October). Terror from the sky. *Jane's Intelligence Review*, pp. 6–9.
- Halperin, M. H. (1974). *Bureaucratic politics and foreign policy*. Washington, DC: Brookings Institution.
- Handel, M. I. (1976). *Perception, deception and surprise: The case of the Yom Kippur War* (Jerusalem Papers on Peace Problems, no. 19). Jerusalem: Hebrew University, Leonard Davis Institute.
- Handel, M. I. (1980). Avoiding surprise in the 1980's. In R. Godson (Ed.), *Intelligence requirements for the 1980's, vol. 2: Analysis and estimates* (pp. 85–111). Washington, DC: National Strategy Information Center.
- Hermann, M., & Hagan, J. (1998). International decision making: Leadership matters. *Foreign Policy* (Spring), 124–137.
- Hersh, S. M. (2001, 8 October). What went wrong: The C.I.A. and the failure of American intelligence. *New Yorker*, pp. 34–40.
- Higgins, E. T., & Bargh, J. (1987). Social cognition and social perception. *Annual Review of Psychology*, 38, 369–425.
- Hoffman, B. (1998). *Inside terrorism*. New York: Columbia University Press.
- Houghton, P. H. (2001). *U.S. foreign policy and the Iran hostage crisis*. New York: Cambridge University Press.
- Hunt, M. (1993). *The story of psychology*. New York: Doubleday/Anchor.
- Janis, I. L. (1972). *Victims of groupthink: A psychological study of foreign-policy decisions and fiascoes*. Boston: Houghton Mifflin.
- Janis, I. L. (1982). *Groupthink: psychological studies of policy decisions and fiascoes* (2nd ed.). Boston: Houghton Mifflin.
- Janis, I. L. (1989). *Crucial decisions: Leadership in policymaking and crisis management*. New York: Free Press.
- Janis, I. L., & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment*. New York: Free Press.
- Jervis, R. (1976). *Perceptions and misperceptions in international politics*. Princeton, NJ: Princeton University Press.
- Jones, G. V. (1983). Identifying basic categories. *Psychological Bulletin*, 94, 423–428.
- Kaarbo, J., & Gruenfeld, D. (1998). The social psychology of inter- and intragroup conflict in governmental politics. *Mershon International Studies Review*, 42, 226–233.
- Kam, E. (1988). *Surprise attack: The victim's perspective*. Cambridge, MA: Harvard University Press.
- Keeler, J. (1993). Opening the window for reform. *Comparative Political Studies*, 25, 433–486.
- Kegley, C. (1987). Decision regimes and the comparative study of foreign policy. In C. Herman, C. Kegley, & J. Rosenau (Eds.), *New directions in the study of foreign policy* (pp. 247–268). Boston: Allen & Unwin.
- Khong, Y. F. (1992). *Analogies at war*. Princeton, NJ: Princeton University Press.
- Kingdon, J. W. (1995). *Agendas, alternatives, and public policies* (2nd ed.). New York: Longman.
- Klein, J. (2001, 1 October). Closework: Why we couldn't see what was right in front of us. *New Yorker*, pp. 44–49.
- Knorr, K. (1979). Strategic intelligence: Problems and remedies. In L. Martin (Ed.), *Strategic thought in the nuclear age* (pp. 69–91). Baltimore: Johns Hopkins University Press.
- Kowert, P. (2002). *Groupthink or deadlock: When do leaders learn from their advisers?* Albany, NY: State University of New York Press.
- Lake, A. (2001). *Six nightmares*. London: Little, Brown.
- Larson, D. (1994). The role of beliefs, images, and schemas in foreign policy decision-making. *Political Psychology*, 15, 17–34.
- Lebow, R. N. (1981). *Between peace and war: The nature of international crisis*. Baltimore: Johns Hopkins University Press.
- Lebow, R. N. (2000). What's so different about a counterfactual? *World Politics*, 52, 550–585.
- Lebow, R. N., & Stein, J. G. (1994). *We all lost the cold war*. Princeton, NJ: Princeton University Press.

- Levite, A. J. (1987). *Intelligence and strategic surprise*. New York: Columbia University Press.
- Lindblom, C. (1990). *Inquiry and change*. New Haven, CT: Yale University Press.
- March, J. G., & Olsen, J. P. (1989). *Rediscovering institutions: The organizational basis of politics*. New York: Free Press.
- Markus, G. (2000). Emotions in politics. *Annual Review of Political Science*, 3, 221–250.
- McKeown, T. J. (1999). Case studies and the statistical worldview: Review of King, Keohane, and Verba's *Designing social inquiry: Scientific inference in qualitative research*. *International Organization*, 53, 161–190.
- Mele, A. (2001). *Self-deception unmasked*. Princeton, NJ: Princeton University Press.
- Meltsner, A. J. (1990). *Rules for rulers: The politics of advice*. Philadelphia: Temple University Press.
- Monroe, K. R., Hankin, J., & Van Vechten, R. B. (2000). The psychological foundations of identity politics. *Annual Review of Politics*, 3, 419–447.
- Nacos, B. (1996). *Terrorism and the media*. New York: Columbia University Press.
- New York Times* (2001, 30 December). Missed signals: Many say U.S. planned for terror but failed to take action, p. A1.
- Nisbett, R., & Ross, L. (1980). *Human inference: Strategies and shortcomings of human judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Nye, J. S., Jr. (2001). Government's challenge: Getting serious about terrorism. In J. F. Hodge, Jr. & G. Rose (Eds.), *How did this happen? Terrorism and the new war* (pp. 199–209). New York: Public Affairs.
- Paige, G. (1968). *The Korean decision*. New York: Free Press.
- Perrow, C. (1999). *Normal accidents: Living with high risk technologies*. Princeton, NJ: Princeton University Press.
- Pillar, P. R. (2001). *Terrorism and U.S. foreign policy*. Washington, DC: Brookings Institution.
- Powers, T. (2002, 17 January). The trouble with the CIA. *New York Review of Books*, pp. 28–32.
- Prados, J. (Ed.) (2002). *America confronts terrorism*. Chicago: Ivan R. Dee.
- Preston, T., & Hart, P. (1999). Understanding and evaluating bureaucratic politics: The nexus between political leaders and advisory systems. *Political Psychology*, 20, 49–98.
- Risen, J. (2002, 4 May). F.B.I. told of worry over flight lessons before Sept. 11. *New York Times* (online).
- Rosati, J. (1995). A cognitive approach to the study of foreign policy. In L. Neack, J. Hey, & P. J. Haney (Eds.), *Foreign policy analysis* (pp. 49–70). Englewood Cliffs, NJ: Prentice-Hall.
- Rose, R. (1994). *Inheritance in public policy: Change without choice in Britain*. New Haven, CT: Yale University Press.
- Sabatier, P. A. (Ed.) (1999). *Theories of policy process*. Boulder, CO: Westview.
- Sagan, S. (1993). *The limits of safety: Organizations, accidents, and nuclear weapons*. Princeton, NJ: Princeton University Press.
- Smith, H. (1988). *The power game: How Washington works*. New York: Ballantine.
- Snook, S. (2000). *Friendly fire: The accidental shootdown of U.S. Black Hawks over Iraq*. Princeton, NJ: Princeton University Press.
- Soltan, K., Uslaner, E., & Haufler, V. (1998). New institutionalism: Institutions and social order. In K. Soltan, E. Uslaner, & V. Haufler (Eds.), *Institutions and social order* (pp. 3–14). Ann Arbor, MI: University of Michigan Press.
- Sprinzak, E. (2001). The lone gunman. *Foreign Policy* (November–December), 72–73.
- Stein, J. G., & Welch, D. (1997). Rational and psychological approaches to the study of international conflict. In N. Geva & A. Mintz (Eds.), *Decision making on war and peace: The cognitive-rational debate* (pp. 51–80). Boulder, CO: Lynne Rienner.
- Steinbruner, J. (1974). *The cybernetic theory of decision*. Princeton, NJ: Princeton University Press.
- Steiner, P. (1989). In collusion with the nation: A case study of group dynamics at a strategic nuclear policymaking meeting. *Political Psychology*, 10, 647–673.
- Stern, E. (1997). Crisis and learning: A conceptual balance sheet. *Journal of Contingencies and Crisis Management*, 5, 69–86.
- Stern, E. (1999a). *Crisis decisionmaking: A cognitive institutional approach*. Stockholm: Stockholm University.

- Stern, E. (1999b). The case for comprehensive security. In D. H. Deudney & R. A. Matthew (Eds.), *Contested grounds: Security and conflict in the new environmental politics* (pp. 127–154). New York: State University of New York Press.
- Stern, E., & Sundelius, B. (2002). Crisis Management Europe: An integrated regional research and training program. *International Studies Perspectives*, 3, 71–88.
- Stern, E., & Verbeek, B. (Eds.) (1998). Whither the study of governmental politics in foreign policymaking: A symposium. *Mershon International Studies Review*, 42, 205–255.
- Stern, J. (1999). *The ultimate terrorists*. Cambridge, MA: Harvard University Press.
- St. John, P. (1991). *Air piracy, airport security, and international terrorism: Winning the war against hijackers*. New York: Quorum.
- Sundelius, B. (1989). Das Primat der Neutralitätspolitik: Building regimes at home. *Cooperation and Conflict*, 24, 163–178.
- Tetlock, P. E. (1985). Toward an intuitive politician model of attribution processes. In B. R. Schlenker (Ed.), *The self and social life* (pp. 203–234). New York: McGraw-Hill.
- Tetlock, P. E., & Belkin, A. (Eds.) (1996). *Counterfactual thought experiments in world politics: Logical, methodological, and psychological perspectives*. Princeton, NJ: Princeton University Press.
- ‘t Hart, P. (1994). *Groupthink in government*. Baltimore: Johns Hopkins University Press.
- ‘t Hart, P., Stern, E., & Sundelius, B. (Eds.) (1997). *Beyond groupthink: Political group dynamics and foreign policy-making*. Ann Arbor, MI: University of Michigan Press.
- True, J. L., Jones, B. D., & Baumgartner, F. R. (1999). Punctuated-equilibrium theory: Explaining stability and change in American policymaking. In P. A. Sabatier (Ed.), *Theories of policy process* (pp. 97–115). Boulder, CO: Westview.
- Vandenbroucke, L. S. (1984). Anatomy of a failure: The decision to land at the Bay of Pigs. *Political Science Quarterly*, 99, 471–491.
- Vandenbroucke, L. S. (1993). *Perilous options*. Oxford: Oxford University Press.
- Vertzberger, Y. (1990). *The world in their minds: Information processing, cognition, and perception in foreign policy decisionmaking*. Stanford, CA: Stanford University Press.
- Wallenius, C. (2001). *Human adaptation to danger*. Unpublished doctoral dissertation, Lund University.
- Walsh, E. (2001, 14 May). Annals of politics: Louis Freeh’s last case. *New Yorker*, p. 68.
- Warrick, J., & Stephens, J. (2001, 2 October). Before attack, U.S. expected different hit: Chemical, germ agents focus of preparations. *Washington Post*, p. A1.
- Wildavsky, A. (1988). *Searching for safety*. New Brunswick, NJ: Transaction.
- Wilkenfeld, J., & Brecher, M. (1988). *Crises in the twentieth century vol. II: Handbook of foreign policy crises*. Oxford: Pergamon.
- Wohlstetter, R. (1962). *Pearl Harbor: Warning and decision*. Stanford, CA: Stanford University Press.
- Woodward, B. & Eggen, D. (2002, 18 May), Aug. memo focused on attacks in U.S.: Lack of fresh information frustrated Bush. *Washington Post*, p. A1.
- Wright, L. (2002, 14 January). The counter-terrorist, John O’Neill was an FBI agent with an obsession: The growing threat of Al Qaeda. *New Yorker* (online).
- Zakaria, F. (2002, 15 January). The failures that led to Sept. 11. *Washington Post*, p. A19.

## Governing by Looking Back: Historical Analogies and Crisis Management

**Annika Brändström, Fredrik Bynander and Paul 't Hart**

**Source:** *Public Administration*, 82(1) (2004): 191–210.

### Introduction

A common misunderstanding about crises – understood here as epochs of profound uncertainty and urgent challenges to the problem-solving capacities of the socio-political order in which they occur – is that they are all unique. Of course at one level this is true. Each disaster has its own physical characteristics, each escalated conflict its own history, each corporate breakdown its own scenario. Yet if one goes beyond the specifics of time, place, method and scale, or if one looks not at the physical events but at the challenges to communities and policy-makers these events entail, crises lose their sense of uniqueness.

Moreover, crises are linked through time. When faced with the uncertainty and confusion that marks a crisis, people will search their memories and their knowledge base for situations that can at least give some clue as to what is going on. Policy-makers and organizations dealing with crisis draw upon some of these past experiences, however ‘unique’ the current predicament may seem, to find clues about what to do and what to avoid. In that sense, they govern by looking back.

The use of memory in governance and crisis management may happen in different ways and serve various purposes. Most scholars focus on two aspects. One concerns learning *in* crises – the use of historical analogies during crisis decision-making (May 1973; Hybel 1990; Breslauer and Tetlock 1991; Khong 1992; Bennett 1999; Houghton 2001). ‘Cognitive’ interpretations tell us that policy-makers draw upon the past to grasp their situations and discover and weigh their policy options. Policy-makers thus try to learn from the past, even if they do so badly (Neustadt and May 1986). ‘Political’ explanations hold that policy-makers use the past opportunistically, that is, to mobilize support for choices they have already made on other grounds (cf. March and Olsen 1975; Levitt and March 1988). Policy-makers invoke history to sell policies rather than to discover them.

The other issue discussed in the literature deals with learning *from* crises – the extent to which crises provide opportunities for policy-oriented learning (Sabatier and Jenkins-Smith 1993; Levy 1994; Stern 1997). Optimists portray crises as learning opportunities. Crises profoundly shake those who experience them first hand, and send warning signals to people and organizations in similar settings. In this view, crises have a self-denying propensity: their very unacceptability motivates actors to prevent their recurrence (Mannarelli, Roberts and Bea 1996). Ideally, organizations in high-risk environments learn from incidents and crises to develop a self-monitoring, resilient ‘safety culture’ (Pidgeon 1997). Crises can have a catalytic effect, making people concentrate their attention and redefine

the issues at hand (Blight 1990; Stern 1997). Pessimists are less sanguine about policy-makers' ability, and indeed their willingness, to critically evaluate their past performance during such intensely political episodes (Staw, Sandelands and Dutton 1981; Etheredge 1985; Sagan 1993). They will be motivated to exaggerate their successes, and thus 'over-learn' from them into the future (Rosenthal and 't Hart 1989), and to obfuscate or explain away their failures, and thus 'under-learn' from them (Bovens and 't Hart 1996; cf. Hacker 2001).

In this article we seek to develop a conceptual framework that extends existing approaches. It aims to provide a richer, subtler picture of the links between the past and present in crisis management practices. We first present a concise conceptual framework. We use this to present two explorative case studies of governmental crisis management where historical analogies were important yet problematic influences on policy-makers. It should be noted here that the two cases were selected purely for illustrative purposes: we knew from prior research that they provided rich evidence of decision-makers drawing on history in managing a current crisis. The comparison is mainly with a view to theoretical exploration, not empirical generalization. The cases are reported and accounted for more fully in: Bynander (1998a, b, 2002, 2003) and S. Larsson and Lundgren (2001, 2003). We subsequently compare the case findings to induce additional concepts and hypotheses about the roles of historical analogies in public policy-making.

### **Coping with Crisis by Searching the Past**

Crises conjure up memories and invite historical comparisons. Because of the high stakes and pressures involved, they are times that will be remembered (Caruth 1995). Crises are also characterized by pervasive uncertainty about what is going on and what is still to come. Often gaps in the knowledge and understanding that policy-makers and other crisis actors require in order to know what to do cannot be filled quickly enough by conventional intelligence gathering and expert advice. Policy-makers therefore use shortcuts in getting a grip on what is happening. Among these shortcuts are a resort to personal experience, educated guesses by key associates and advisers, readily available precedents embedded in institutional memory and official contingency planning (standard operating procedures – SOPs), and storylines developed in mass media accounts of the events. All of these mechanisms make reference to the past, whether the personal or the shared, the recent or the distant, the community's own or some other people's past.

The *past* here refers to the gamut of events that have occurred before the 'now' in which crisis actors find themselves. Understood in this way, the past is like a giant database. Parts of the past settle in *memory*, which we define as individual and collective recollections of the past. Memory needs to be distinguished from the notion of *history*, which we use to denote particular versions of the recorded past, that is, segments from the remembered past that have been melted into an authoritative story about the past (Butler 1989; Foote 1990). Moving cognitively from past to memory to history involves processes of reduction and interpretation, both semi-spontaneous and organized ones. As a consequence, only parts of the past are remembered and memory may be at odds with history (Smith 2001). For some parts of the past, a dominant storyline emerges and evolves over time. Others remain unsettled, continuously subject to historical revisions and controversies

(Schudson 1992) or are 'forgotten' by history-makers (that is, power-holders, professional historians, journalists, film makers; see also Middleton and Edwards 1990; Sturken 1997).

Most of the policy-making literature ignores the distinction between the past, memory and history, and threatens to overlook the important differences between them. Yet if we want to know if and how the past influences actors in a crisis we should look more carefully and ask which past, whose memories and what histories are involved. In our view an *historical analogy* is applied when a person or group draws upon parts of their personal and/ or collective memories, and/or parts of 'history', to deal with current situations and problems (cf. May 1973; Khong 1992). The best known among these are the so-called 'big' analogies or 'master frames' (Snow and Benford 1992): standardized evocations of global, epoch-making charismatic figures and critical episodes (for example, 'Munich').

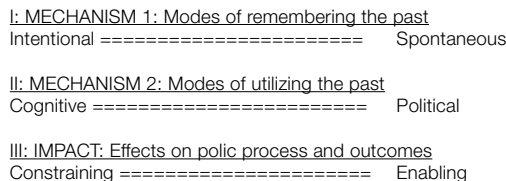
When tracing the retrieval and cognitive or political influence of an analogy, certain criteria must be set for analytical use. Whether 'used' as a political vehicle, or retrieved as a form of cognitive schema, the manifestation may be similar, and the possible modes of utilizing the past difficult to discriminate between. However, as Khong points out (1992, pp. 59–60) the comparison between private and public use (private referring to statements not intended for public consumption) can be used to shed light on this analytical dilemma. Detecting the use of a certain analogy in public can validate its significance to the political process at hand, thus showing that the analogy is 'active' on some level. The use of the same analogy in internal deliberations, diaries, or in personal reflections can, barring the limitations stipulated by source criticism, add evidence of the cognitive dimension. The combination of the two types of sources allows the researcher to compare the evidence of retrieval with the tasks that analogies hypothetically perform once active. By counterfactual reasoning (Tetlock and Lebow 2001, 831ff.), the fit between those tasks and policy behaviour prescribed by the analogy can be assessed and provide evidence not only regarding whether an analogy is active, but also whether it exercises influence beyond public advocacy of a general policy option (Khong 1992; see also Shimko 1995, p. 73; Hemmer 1999, 268ff.).

There is, however, something misleading in saying that policy-makers 'use' historical analogies. This suggests that doing so is a conscious, willful act. This can be but need not be the case (Butler 1989; Connerton 1989; Caruth 1995). We surmise that there are three key questions that need to be addressed when we want to understand the role of the past in crisis management, particularly the role of historical analogies. First, how do policy-makers remember the past, that is, how do they organize memory (Covington 1985) and 'make' history? A vital distinction to be made here is between intentional and spontaneous modes. In the intentional mode, policy-makers take explicit initiatives to search for and apply relevant experiences. They try to 'shape' the use of the past. In the spontaneous mode, the past is more likely to encroach on policy-makers. It is more likely to come in the form of their personal experiences or interpretations of history, or as a result of *ad-hoc* communications to them from people in their networks. Sometimes, it is a matter of books they happen to read, or the examples set by early career mentors (see Isaacson and Evan 1986, pp. 180–8, 391). Such spontaneous modes of retention are likely to be more unpredictable and less robust over time than deliberate and institutionalized ones (such as legal precedents or SOPs).



Secondly, when they do draw upon memory and history during a crisis, how and why do policy-makers do so? This is where the difference that was made earlier between cognitive and political modes of utilizing the past comes in. Some policy-makers will, in a crisis, use memory and history to make sense of the confusing events in which they find themselves. According to Khong, for example, policy-makers use analogies to perform various 'diagnostic tasks', such as helping to define the situation, assess the stakes involved, and predict the chances of success of various policy options (Khong 1992, pp. 7–10; cf. Houghton 2001). This closely resembles what proponents of the so-called naturalistic decision-making model describe as 'pattern recognition' (Flin 1996). However, policy-makers may also draw on images of the past not so much to enhance their own understanding of the crisis as to tell others what it is all about. Such 'political' use of memory and history is helpful, at least to the policy-makers, when it assists them in convincing actors and accountability fora whose support is essential, that their preferred policy option is (or was) effective and proper under the circumstances. It fails when the use of a particular representation of the past is widely challenged as being fallacious or manipulative.

Thirdly, what do these types of uses of the past 'do' to policy-makers and to the overall course of the crisis? Here one should distinguish between the 'enabling' and 'constraining' impacts of the past (cf. 'path dependency', Pierson 2001). The terms enabling and constraining are used here in a value-neutral way. Hence the past constrains when it narrows the definition of the crisis and the range of options policy-makers consider relevant in dealing with it; it enables when it broadens the cognitive and action repertoires of policy-makers. (Even retrospectively, it is often hard to assess the relative degree to which analogies to the past influence the behaviour of policy-makers, who have to take into consideration so many other factors when making and justifying their choices (see Houghton 2001). In this exploratory paper we assume that if we can find evidence of uses of the past in a particular case of crisis, such uses have also had a non-negligible impact upon the overall policy-making process. In future studies, this assumption would have to be tested critically.) Figure 1 brings the three questions together, and models the range of possible answers to them as three conceptually distinct continuums that can be used to 'place' the observed uses of the past by any policy-maker or group at any stage of any given case of crisis management. Taken together, they depict the mental-historical space within which actors can move when they deal with a crisis.



**Figure 1:** The historical space of crisis management

We shall illustrate and discuss each dimension of the historical space of crisis management drawing upon two case studies. They were selected chiefly on the basis of their illustrative value; we do not claim they are representative for all

crises, nor do we claim they exhaust the range of possible modes of remembrance and utilization of the past by public policy-makers. The cases are drawn from two much larger 'case banks' compiled by the two research groups the authors are members of. The case studies encompass detailed chronological reconstructions of the main events and decision-making sequences, as well as thematic analyses of specified aspects of crisis decision-making. They are based on a combination of policy documents, media coverage, interviews with policy-makers, and in some cases intensive 'witness symposiums' where key stakeholders are invited to share and compare their personal recollections in a group setting (see Stern and Sundelius 2002). A *caveat* is also in order here. In this article we only demonstrate how policy-makers reach back from one crisis to a past, morphologically similar crisis, to deal with a current one. In reality, policy-makers might draw on a range of different, that is, non crisis-like, parts of the historical space to inform or explain their behaviour when dealing with crises.

### **'Evil is Lurking': Sanctions against Austria**

The Crisis: Challenge, Response and Outcome

Following its success in the October 1999 parliamentary elections, the Freiheitliches Partei Österreich (FPÖ) was invited for coalition talks by the prospective Christian-democratic Chancellor. Led by the controversial Jörg Haider, the FPÖ was widely seen as a party of the extreme right. Haider's tough rhetoric on foreigners and immigration as well as his close ties to Austrian Nazi war veterans had already led the FPÖ to be banned from the association of liberal parties in Europe. The risk of such a party coming to national political power in a EU member state was perceived by many as an appalling prospect. It would call into question the democratic authenticity of the Union, at the very time when the EU was imposing stringent norms of democracy and respect for human rights in evaluating the membership applications of former Eastern bloc countries. In short, electoral developments in one member state were perceived by the others as a threat to the regional institution as a whole.

There was also a high degree of time pressure. The first to take action within the group of European leaders was the Belgian Prime Minister, Verhofstadt. In a fax he suggested that the President of the European Council (Portuguese Prime Minister Guterres) organize a joint statement of the other member states. Guterres forwarded the fax to all the other leaders, along with a question: what do we do? A small group of government leaders then drew up a proposal to threaten with sanctions and sent it around to the others.

The leaders of the 14 other member states (hereafter: the 14) decided to threaten Austria with political sanctions if the FPÖ were to participate in the new government. The action against Austria was motivated by their shared expectation that an Austrian government with the FPÖ in it was going to disregard Article 6.1 of the Amsterdam Treaty containing the founding principles of the EU (freedom, democracy, rule of law, respect for human rights and basic human privileges). Since the Treaty does not support actions against member states until violations of these principles actually occur, which had not been the case in Austria at the

time, the sanctions were formally to be a parallel set of bilateral sanctions of each member state against Austria.

Political consensus among the 14 to press ahead with the policy of deterrence was engineered over the course of a single, hectic weekend, and the final decision to go ahead with the plan was taken on Sunday 30 January. Some country leaders were given very little time to respond. Moreover, it was made clear by the main proponents of the plan (the Portuguese Presidency and the Belgian Government in particular) that 'yes' to the sanctions was really the only proper course of action. Evidently none of the 14 wanted to go against these claims, or risk getting depicted as being 'soft' on Haider: consensus emerged very quickly, as compared to other occasions of EU crisis management.

The sanctions threat failed to prevent FPÖ's participation in the new Austrian Government. In February 2000, a coalition between the Christian Democrats and FPÖ came to power. In response, the 14 effected their threat: Austria was ostracized from diplomatic and EU arenas. Seven months later, however, the sanctions were lifted after a report by three 'wise men' that had judged that the FPÖ and the new government were behaving responsibly and democratically.

#### Analogical Reasoning in the Sanctions Case

To a large extent, the conviction that Haider and the FPÖ had to be kept out of government and thus be prevented from entering the European governance network was inspired by one recurrent historical reference: Haider was constantly being compared with Adolf Hitler, and the FPÖ with the National Socialist party. Reportedly, the main reason why the European political reaction was so strong was that many had become convinced that Haider was 'following in the footsteps' of Hitler, thus projecting a troublesome future from the analogy with a catastrophic past (Hrbek 2003).

At the Holocaust conference in Stockholm in January 2000, Haider and the developments in Austria were mentioned on several occasions. Israeli Prime Minister Barak said that 'for every Jew in the world it is a highly disturbing signal...it touches everyone of us' (quoted in the *Guardian* Jan 27, 2000). Shimon Peres observed that as had Hitler, Haider was coming to power through democratic means. Letting Haider into the government would be a disastrous mistake (Hammargren 2000). A week later the Swedish foreign minister, the late Anna Lindh, stated, 'one week after the speeches at the Holocaust remembrance ceremony it is even harder to accept a xenophobic government in Europe again' (TT 2000). German Chancellor Schröder said that he had listened carefully to Israeli Prime Minister Barak's speech at the conference, and that this had persuaded him to push even harder for far-reaching sanctions against Austria. At other occasions, Barak and Peres, when asked about Haider, mentioned that Austria was also Hitler's birthplace: 'Hitler was from Austria and any man who causes so many doubts must also raise the alarm everywhere' (Peres quoted in the *Guardian*, 27 January 2000). Overall, the coincidence of the Holocaust conference and the FPÖ's possible participation in the Austrian coalition appears to have been an important factor in framing the latter in particular historical terms. It most likely boosted both the availability and the perceived salience of the Hitler analogy (see Houghton 2001). The motivation to espouse these actions towards Austria was

perhaps boosted by the domestic experiences of extreme right-wing parties of some of the European states. But this was not true for all the members of the 14, for instance Portugal with a crucial role in organizing the sanctions. Remarkably, neither before nor after the Austrian case have major political advances of right-wing populist parties (such as Berlusconi's rise to power in Italy in a coalition with neo-fascists; major local and regional election victories for the Front National in France and the Flemish Bloc party in Belgium) been defined as political crises and met with such a strong response (Berger 2001).

### **Mechanism 1**

#### Mode of Remembrance: Spontaneous and Evoked Analogies

In the case of the sanctions the past was remembered in a spontaneous rather than deliberate way. As far as we can establish, the personal memories and inferences of the leaders dominated the deliberation process, with little room for systematic staff work. No formal situation reports or evaluations of past uses of the sanctions instrument or plans were produced or utilized. A limited number of EU leaders with strong personal beliefs, rooted in forceful images of the past, pushed the policy forward. The others went along, with varying degrees of conviction. Authoritative outsiders such as Barak and Peres may have acted as moral entrepreneurs. The coincidental occasion of the Holocaust conference served as a backdrop to emphasize the gravity of the worst-case scenario (that is, a political situation in Austria where Haider would lead Austria towards an undemocratic and xenophobic future).

### **Mechanism 2**

#### Mode of Utilization: Cognitive and Political Framing

In the sanctions case, cognitive and political uses of the past were closely intertwined. In diagnostic terms, the prevalence of the Hitler analogy made it clear that there was a serious threat to Europe. This threat needed to be curtailed before it grew any stronger. Politically, the analogy lay at the heart of the pressure the supporters of the sanctions policy brought upon the less committed leaders to tow the line. Any lingering doubts from the other leaders were neutralized.

Clearly it was neither the cognitive nor political power of the analogy alone that clinched the 14's unanimity on the sanctions. The decision-making process was to some extent manipulated. When the other leaders were asked one by one to respond to the core group's proposal, they had to make their decision immediately. Moreover, they were all given the impression that the other states had already given their agreement, a classic manipulation ploy.

In the sanctions case, the Hitler analogy certainly influenced the way in which European leaders performed their 'diagnostic tasks'. It made them frame the issue as the overtly democratic rise to power of a fascist; it gave them a conviction that the stakes of stopping him were high; it told them that there was no room for

hesitation or weakness in tackling the problem; and it provided them with a moral underpinning for an unprecedented and legally questionable course of action.

What the Hitler analogy did not, and could not, do, however, was to give the European leaders an even-handed prediction of the likelihood of success of their preferred policy option. Since Hitler had never been met by firmness until the war broke out, the European leaders (sanctions are more effective than 'complacency' or 'appeasement') made a counterfactual inference. As it turned out, the sanctions were ineffective. They did not deter the Austrians, particularly the Christian-democratic leader Schüssel, from creating a coalition that included the FPÖ (albeit without Haider in a ministerial position).

This outcome may have been less surprising if the European leaders had looked at other parts of the past. In general, the record of sanctions as an instrument of international diplomacy is uneven at best (Baldwin 1985; Martin 1992). Specifically in the case of Austria and Haider, an obvious and critically important historical parallel did not surface in the leaders' deliberations much: the Kurt Waldheim affair. While running for the Austrian presidency in 1986, Waldheim, a former UN Secretary General (1972–81), was exposed as having lied about his role in the German army during WWII, particularly his possible involvement in brutal actions against civilians. At that time, the international community reacted strongly, much like it did in 1999. Formal protests against his candidacy were made, including threats to cut diplomatic contacts with Austria if Waldheim were elected. The diplomatic offensive did not deter Austrian voters: Waldheim got in with 54 per cent of the vote. For six years Waldheim remained *persona non grata* in most countries and Austria was partially isolated. There is no evidence that the failure of diplomatic threats and sanctions in influencing the political developments in Austria during the Waldheim episode was ever considered during the informal deliberations that produced the sanctions of the 14.

## Impact

### Enabling Joint Action

The impact of the remembered past on the behaviour of the European leaders in this case was mixed. The predominance of the Hitler analogy constrained their cognitive orientation on the situation facing them. Particularly, it crowded out other historical parallels and evidence that might have helped them gain a better understanding of the potential drawbacks of the sanctions they proposed to undertake. Politically and psychologically, the Hitler analogy played into the hands of the hardliners among the European leaders. It enabled them to cast the issue in a compelling moral frame. With the problem represented as the rise of evil in our midst, a tough response became inevitable. Consequently, leaders with doubts about the desirability or feasibility of sanctions were less likely to say so. It also crowded out the formal objection that the EU is not supposed to interfere in the domestic politics of its member states, particularly in a case such as this where no actual violations of human rights had actually occurred.

### **'They've Done it Again': Submarine Hunting in Sweden**

The Crisis: Challenge, Response, and Outcome

During the Cold War period a principal security concern to Sweden was the possible, and suspected, intrusion of Soviet submarines into Swedish territorial waters. During the early 1980s there were at least three well-publicized and politically charged incidents relating to this threat. In September 1980, Swedish navy picked up signs indicating the presence of submarines, and started a hunt during which it deployed a large number of explosives to force the subs to surface, without success (Bynander 2003, Ch. 5.1; SOU 2001, p. 85, 49ff.). In October 1981, a stranded Soviet submarine was discovered in the Swedish inner archipelago, outside of Karlskrona (Stem and Sundelius 1992). This triggered tense exchanges and bargaining between the nations about inspection rights and return of the vessel and these ensued for several days. These two incidents provided the backdrop for the third major submarine crisis, the so-called Hårsfjärden incident between September 30 and the end of October 1982. This was again a major, if fruitless, submarine chase, occurring in a blaze of publicity and political aggravation. The 1982 case, presented here, would establish a disturbing pattern for Swedish territorial defence that lasted for the rest of the decade. It provoked political controversy that continues to this day in Sweden.

The Hårsfjärden hunt was preceded by operation Notvarp ('the seining operation'), a secret military exercise to test the capabilities and requirements for effectively detecting and surfacing a submarine. It was the first operation of its kind, and it took place during a major American naval visit to Sweden as well as large-scale NATO exercises in the Baltic. Information about the seining operation, as disclosed in 1987, was no doubt important in setting the stage for the handling of the 1982 crisis (SOU 2001, pp. 85,356; Larsson 1987). With the 1981 crisis successfully handled and having simulated a major submarine 'catch' just days before the Hårsfjärden episode unfolded, the Swedish military and political leadership were quite confident. This was not to be. Nothing came to the surface, despite major efforts. Eventually, the authorities had to admit that the elusive submarine had in fact never been identified positively, and/or could have managed to slip away. Because of this, Swedish policy-makers suffered a major embarrassment.

The Chief of Staff of the armed forces at the time, Admiral Stefenson, recalled later that 'we thought it was like in Karlskrona, but it was the direct opposite' (Bynander 1998b, p. 67). This suggests that the 1981 crisis formed a pivotal point of reference for the decision-makers in the Hårsfjärden case. On the military side, largely the same people dealt with both crises. In the political arena, the 1982 episode occurred in the vacuum of a government turnover. When information was reported that a foreign submarine was trapped in Hårsfjärden, the policy-makers quickly agreed what was going on and how it should be handled. Military and political leaders both assumed that the information was accurate and determined that the intruder should and could be caught. During a retrospective symposium of the main actors held in 2002, erstwhile Minister of Foreign Affairs, Bodström, recalled, 'there was no doubt the government believed there were

submarines in Hårsfjärden. It was also reported that the exits of the bay had been closed to the extent that a submarine could not slip out' (Bynander 2002, p. 57, authors' translation).

The two goals Swedish policy-makers were following initially during the 1982 crisis were to detain the submarine and then to gain hard evidence of what it was doing in Swedish territorial waters (Bynander 1998b, p. 68). A contingency plan was made for the military to play for time after surfacing the submarine, providing the government with time to issue a detainment order that in fact had been prepared well in advance. Both these goals were rooted in experience. Since in 1981 the submarine had stranded and catching it was not an issue, the Supreme Commander had decided almost immediately that it should be detained rather than assisted. This sparked of a brinkmanship crisis of sorts between the Swedish and the Soviet Governments. Sweden had done well out of it since it could claim the moral high ground. There seemed to be no reason to doubt that this part of the scenario was worth repeating, yet it was preferred that the decision to do so was seen to be taken by accountable politicians rather than admirals. Public information policies had been an essential part of the 1981 operation. When Hårsfjärden took place a year later, with the Cold War climate colder rather than warmer, Swedish policy-makers were adamant that the public relations machinery had to do better than during the last real submarine chase (in 1980), when information policy had been incoherent. In 1980, the navy, the defence staff and the ministries had all supplied their own accounts of the events. In 1981, the lessons of that failure had been learned: information policy was centralized, partly to maximize the propaganda value of the crisis. This had been quite successful, and it was this model that the policy-makers replicated in 1982. In fact, the defence staff information office had been scouring significant portions of the Swedish coastline for suitable press centre sites in case other submarine hunts would occur (Bynander (ed.) 2002, p. 106).

#### Analogical Reasoning in the Hårsfjärden Case

The 1981 analogy was readily available in 1982, particularly among the military leaders. It proved to be irresistible yet misleading: because of the hold it exerted on them, key military and political leaders misdiagnosed the situation they were facing. In 1981, with a stranded Soviet submarine on shore, the defence staff had faced a clear and concrete challenge. The Hårsfjärden situation, in contrast, was both ambiguous and complex. First of all, there was no certainty that the signals that had been detected had actually been caused by a submarine, let alone a Soviet one. Secondly, the decision-makers underestimated the potential complications involved. Assuming there was indeed a Soviet submarine hiding out in the bay, a major question was which methods should be used to catch it. The key issue was whether or not to run the risk of sinking the submarine (thus killing Soviet navy personnel) by the use of depth charges and the more powerful mine barrages. The rules of engagement developed for this contingency had been sharpened recently. They had never been applied before. By relying on the 1981 analogy, decision-makers sidestepped this problem. They took catching and surfacing for granted and focused their attention on bargaining with the Soviets and on achieving a propaganda victory. The lesson from asymmetrical crises (as the 1981

case had been) was the need for the smaller state to gain a moral advantage in the bargaining process by getting the world on its side. In 1981 extensive Western press coverage along the lines of a David-Goliath scenario had forced the Soviets to assess their steps carefully.

The strong reliance on the 1981 scenario bred overconfidence, particularly among the military leadership. In terms of diagnosis, Swedish Navy leaders simply assumed the submarine could be caught and forced to the surface. In reality, neither was easy, put mildly. In terms of evaluating the appropriateness of policy options, the 1981 analogy led policy-makers to believe that it was neither necessary nor moral to sink the submarine. Yet in reality major firepower would be needed to surface a reluctant submarine, with considerable risk of harm to vessel and crew. This would drastically alter the moral equation, and thus undermine the essence of the Swedish policy.

Ironically, just as in the sanctions case presented earlier, there had been prior incidents that might have given the actors a more appropriate picture of the situation than the 1981 analogy did. The 1980 submarine chase stood out among these. It too had occurred fairly recently, and its morphology was much more similar to the current crisis than the 1981 situation was. The 1980 chase had been an eye opener for the Swedish political leadership and, to a certain extent, to the military leaders as well. In 1980, foreign submarines had remained on Swedish territory long after they had been spotted. This seemingly reckless behaviour of the intruders, assessed to be Soviet submarines, had confused the military leadership. The failure to catch the persistent intruders has solicited strong criticism from leading politicians, but it also bred rumours that the Supreme Commander had let the submarine slip away deliberately, upon orders from the Cabinet (Bynander 1998, p. 379). Supreme Commander Ljung stated it as follows in his diary at the time: 'The political involvement in these matters is to a certain extent annoying. I hardly think the Minister of Defence has considered the consequences of discovering a Soviet submarine that has been successfully neutralised in Swedish territorial waters' (Diary of Lennart Ljung, quoted in Bynander 1998, p. 372). This possible outcome was not considered at all in the Hårsfjärden case. More generally, the more recent and dramatic proportions of the events in 1981 appear to have diminished the relative availability and vividness of the 1980 submarine hunting episode, which – in retrospect – might have been the more relevant and representative source of analogical reasoning.

### **Mechanism 1**

#### Mode of Remembrance: Ad hoc and Institutionalized

In the Hårsfjärden case the mode of remembrance differed according to the level of action. At the operational level of military contingency planning, the experiences of the 1980 and 1981 incidents had been codified in reports and debriefings, and had led to organizational and policy changes. Organizationally, the 1980 episode triggered the formation of a permanent analysis unit consisting of naval experts. This unit became a crucial part of the navy's readiness. The unit embodied an attempt to develop both an ongoing and 'quick response' intelligence capacity; it played an important role in all the submarine incidents that were to follow



(Bynander 1998b, p. 2) Finally, personal and shared experiences of submarine hunting in 1980 and interacting with the Soviets in 1981 also filtered through in terms of the post-1981 scenarios used for submarine defence training, such as the Notvarp exercises.

At the strategic level, evaluations of the political handling of the 1980 and 1981 incidents had occurred, but these evaluations had been condensed into reports and lessons only to a limited extent. The choice of action by the Government in the U137 case (to consider immunity of U137 to be forfeited) had caused a heated debate among experts in international law, both within the country and abroad in the field of international law. The question was whether or not the Government had been too lenient or too tough on the stranded submarine (Theutenberg 1986). It became clear that all intrusions (that is, not accidental groundings) by foreign navy ships in Swedish territorial waters should be treated as hostile acts, in these cases immunity was not pertinent. Opinions on this matter shifted but in 1982 the new government had no intention of being soft on any intruders (Theutenberg 1986, pp. 475–80).

Above all, the previous incidents had been evoked in an *ad-hoc* fashion and fulfilled primarily cognitive function for the new political leadership. Prime Minister Palme stated at a press conference, 'it is possible for the Swedish Government to order the Navy to sink an intruding ship in Swedish waters' (Theutenberg 1986, p. 470). The former permanent secretary at the Ministry of Defence, Sven Hirdman, explained the broad consensus that existed on the detainment issue if a submarine was surfaced. Detainment was necessary because an intruding submarine '...should not just be rejected from Swedish territory but, in parallel with what happened at Gåsefjärden [i.e., in 1981, auth.], an investigation should be made as to how it got there' (Bynander 1998, p. 381). The hardened political attitude was a result of tougher rules of engagement that did not grant a caught stranded submarine immunity as they had done in the U137 case. The Notvarp 'seining operation' also reinforced the belief that a submarine could be caught, something which was presented to the government as a firm conviction that the exits of Hårsfjärden Bay could indeed be completely sealed off.

## Mechanism 2

### Mode of Utilization: Reaching for Repertoires

When it comes to the mode of utilization, the 1981 crisis analogy was a major factor in defining the 1982 situation as well as in portraying it to the media and the public. At the cognitive level it steered the decision-makers away from the problems of surfacing a submarine. Instead it focused them on acquiring a bargaining position in case Sweden had a Soviet submarine 'in hand'. The fact that both the 1980 and 1981 intruders had been identified as Soviet caused decision-makers to rely even more on the emerging post-1981 SOP's of 'handling' Soviet intrusions. First and foremost, therefore, the 1981 analogy provided the decision-makers with policy prescriptions: the detainment decision (in 1981 the stranded submarine had been detained immediately), the military build-up around Hårsfjärden, and the proactive management of press conferences. Since managing

the situation on the ground was left largely to the defence establishment there was little evidence of a search for alternative options by the political leadership.

Military leaders, Ljung and Stefenson in particular, as well as leading politicians, the future Prime Minister Carl Bildt among them, not only experienced the problem as yet another showdown with the Soviets in which Sweden had to act strongly, they also presented it in these terms to the Swedish public. Yet the analogy as such was hardly used primarily to muster needed political support. The public and the media were already on board and deeply engaged in following the actions of the navy.

### **Impact**

#### Constraining Actors into Repetition

Clearly, the impact of the remembered past in the Hårsfjärden case was one of closing the minds of the decision-makers rather than opening them. It provided a dominant and appealing scenario: repeating the moral victory over the Soviets in 1981. In obscuring other parts of the past (prior futile submarine chases), it prevented the policy-makers from considering alternative scenarios. This belief was also reinforced by the secret military exercise in “which a submarine was caught and surfaced just days before the incident. The preoccupation with detaining the submarine is a case in point. Simply scaring it off was not considered an option, even though that would have been much less fraught with operational and political risks. The military action repertoires were fixed, there was no alternative strategy to surfacing the submarine and providing public evidence that Soviet intrusions were still going on. The 1981 analogy also made policy-makers overlook the possibility that surfacing a submarine could imply making casualties. This would have made for a totally different scenario, especially with the press on massive alert. The dilemmas such a scenario entailed were never worked through, simply because they did not carry any weight among the people in charge at the time.

### **Towards a Theory of Historical Analogies in Crisis Management**

Parts of the remembered past may constitute a siren song for policy-makers, particularly though not exclusively in times of crisis. The allure of particular historical analogies may be irresistible, and condemn policy-makers to various forms of ‘fighting a former war’ instead of diagnosing and responding to current events on their own terms.

The analysis presented here reiterates this familiar observation, but also qualifies and broadens it. The two case studies show indeed how powerful historical analogies can be, but also lend themselves to a more differentiated account on how they impact the policy-making process. First of all, historical analogies may work as ‘filters’, that is, providing a readily available ‘script’ that decision-makers evoke to interpret reality. In both instances, decision-makers regarded the events primarily as ‘another case of’. We have seen that this had both enabling and constraining effects. On the enabling side, the more widely shared a particular

historical analogy is, the easier it becomes for policy-makers to reach consensus about the definition of the situation at hand.

Moreover, the analogies in these cases can also be thought of as 'teachers'. They did not just help decision-makers to define their situations; they also provided clear policy guidelines on how (not) to act. In the Haider case, the lesson was: don't let a potential dictator come to power; in the submarine case, it was: take control of the submarine and use this to embarrass the Soviets. Moreover, in the latter case, key components of the analogies were even institutionalized at the implementation level, that is, scripted into standard operating procedures. Thirdly, on the constraining side and in line with other research (May 1973; Khong 1992), the case studies suggest that the filtering power of historical analogies can be so strong that they become 'prisons'. Particularly in the context of critical (threatening, volatile, urgent) episodes, the reduction of uncertainty provided by diagnosing the situation in terms of a seemingly perfect historical parallel can be *too* successful. It freezes efforts to make sense of the situation into rigid adherence to a particular, yet untested, cognitive schema (cf. Staw, Sandelands and Dutton 1981). In the sanctions case, for example, some commentators made harsh judgements about the tunnel vision the European leaders had assumed by playing up the parallels to Hitler's Germany. The *Frankfurter Allgemeine* editorial (29 January 2000) charged that the government leaders were caught up in a 'Haider hysteria' (see also Sommer 2000).

Fourthly, we may infer from these examples that when particular analogies come to monopolize the discourse of policy-makers on current policy issues this turns other possible analogies into 'blind spots' or 'silences' (see also Trouillot 1995). Indeed, we have seen that in both cases one particular memory was so dominant at the crucial early stages of the critical episode that it caused other potentially relevant parts of the past to be forgotten or at least left unused as an aid to contemporary sense-making. In the sanctions case we have the Waldheim analogy; in the Swedish case we have the 1980 Utö submarine hunt.

Fifthly, both cases demonstrate that images of the past do fulfil the rhetorical and justificatory functions attributed to them in the literature. Unlike what has been suggested by authors such as Khong (1992), it is not an either-or question: cognitive and political functions of historical analogies may go hand in hand. In the sanctions case, some leaders were captivated by the Hitler analogy not just cognitively but also emotionally. At the same time, and partly because of it, they 'used' the analogy to persuade or put pressure on others to join the action against Haider. In the Hårsfjärden case, the 1981 analogy fulfilled primarily a cognitive function. It convinced political and military leaders about the nature of the challenge and suggested the policies to meet it. Yet to some extent it was also used as a weapon to strike at the Soviets – presumably the culprits of the repeated intrusions. Ironically, the Hårsfjärden incident itself later became an analogy, and as such served as ammunition in heated politico-military controversies about Swedish naval defence policy that continue even today (SOU 2001, p. 85; Bynander 2002).

Table 1 organizes these various observations on the forms and functions that historical analogies may take in policy-making and crisis management. In the figure we present six types of analogies, and characterize them in terms of the three dimensions initially presented in figure 1, above. It is not a formal

**Table 1:** Historical analogies in crisis management: Mechanisms and impact

<i>Analogy characterizations</i>	<i>Mechanisms and impact</i>	<i>Indicators</i>
1. Filter	<i>Mechanisms:</i> spontaneous; cognitive <i>Impact:</i> enabling, i.e. providing an historical 'schema' or 'script' that helps decision-makers	Elaboration of particular historical references in cause-effect utterances by policy-makers in the deliberation process
2. Teacher	<i>Mechanisms:</i> deliberate; cognitive or political (depending on arenas and audiences) <i>Impact:</i> enabling, i.e. providing policy guidelines	Elaboration of particular historical references in goals-means statements by policy-makers in the deliberation process and/or in SOP's
3. Prison	<i>Mechanisms:</i> spontaneous; cognitive and political <i>Impact:</i> constraining, i.e. a quasi-monopolistic frame that prematurely narrows sense-making and political space	Disproportionately frequent and/or highly expansive (i.e. overgeneralized, overstretched) reference of types 1 and 2
4. Blind spot	<i>Mechanisms:</i> spontaneous or deliberate; cognitive <i>Impact:</i> constraining: i.e. 'forgotten' analogies, overlooked by policy-makers	Conspicuous absence in policy-makers' deliberations and texts (this presumes the analyst 'knows' about possible alternative analogies)
5. Weapon	<i>Mechanisms:</i> deliberate; political <i>Impact:</i> enabling, i.e. tool for political persuasion, pressure and justification that actors may employ when dealing with others	Strategically invoked with susceptible audiences and avoided in other for a (or presented to other audiences when sanctioned)
6. Trauma	<i>Mechanisms:</i> spontaneous; cognitive/emotional <i>Impact:</i> constraining, i.e. references to extremely aggravating past episodes that constitute 'raw nerves' in collective memory; may well overshadow other considerations	Widespread use of highly emotional language and symbolic acts. Strong preoccupation with worst-case scenarios and moral issues

typology, since some of the analogies differ from others only in degree (prison, trauma) and not in kind.

The analysis presented in this paper has tried to enhance our understanding of how historical analogies work. The cases we have taken are cases where one particular analogy dominates a good part of the decision-making process. In other cases, such as the Iran hostage crisis, there is instead a 'barrage of historical analogies' vying for salience in the minds of decision-makers (Houghton 2001, p. 17). This leads to the question of why some issues and crises are fully framed in terms of historical analogies and others much less so. In addition one might ask why in any given case, some historical analogies come to the fore and others not.

The answers to these questions must be sought partly in the characteristics of the analogies themselves, partly among those of the decision-makers in question. Houghton suggests that analogies that are readily available (for example, because they refer to very recent and vivid events – even when these are highly infrequent and unlikely to recur) and seemingly representative (that is, morphologically 'fitting' the present situation – even when this ignores maxims of statistical probability) to the issue at hand are most likely to carry weight in the decision-making process. The vividness and emotional power of any sort of analogy that referred to the Nazi era was coincidentally revived by the Stockholm Holocaust conference

which all of the key players were attending at the time the issue arose. Finally, the Waldheim analogy was indeed more proximate than the Hitler analogy, but bear in mind that the Waldheim affair occurred before any of the late-1999 European leaders had been in office. So personal experience (in this case of using sanctions to deal with unwanted Austrian political leaders), the other factor singled out by Houghton as a crucial predictor of an analogy's potential power, could not compensate for the much greater vividness of the Hitler analogy in this case. In the Hårsfjärden case, on the contrary, many decision-makers had personal experience of both the 1980 and 1981 submarine hunts, yet the former was ignored and the latter overemphasized. Perhaps this was because the latter was more recent and more vivid (it became a real crisis; the 1980 hunt ended in nothing). But it may also have been more psychologically 'appealing' in that it referred to an episode that had been classified as a clear tactical victory of the Swedish David over the Soviet Goliath. Maybe decision-makers are more likely to evoke both the very pleasant (former victories) and the very unpleasant (defeats, traumas), and thereby ignore the murkier realities of 'muddling through'.

These speculations on the causes of the relative power of historical analogies are quite insufficient to resolve the issues raised here. Houghton's approach, to rely on the well-known cognitive heuristics of availability and representativeness to explain the currency of analogies, is not sufficiently precise. These two mechanisms both refer to what might be called the 'evocation' of an analogy in a particular situation but in and of themselves they do not explain why this happens. What can be done at present is to take the various factors as alternative hypotheses, currently with mixed support from a small and possibly skewed sample of cases, which are to be tested in further research:

1. The more *recent* the events to which a historical analogy refers, the higher the likelihood that this analogy will be evoked in contemporary policy making;
2. The more characteristics of a historical analogy *resemble* the features of a contemporary situation, the more likely its use;
3. The higher the proportion of policy-makers that have *personal experience* of the events referred to in a particular historical analogy, the more likely its use;
4. The greater the individual and mass *psychological impact* of the events referred to in a particular historical analogy, the more likely its use;
5. The more a particular historical analogy *fits the standard operating procedures and/or organizational interests* of the entity that a policy-maker belongs to, the more likely its use by that policy-maker.

Good governance should rest on carefully considered connections between past, present and future. Our cases show that productive learning from history does not come easily. It requires a careful calibration of the organization of collective memory, the composition of decision-making bodies, and the flow of analysis and advice from the bureaucracy to the political leaders. In the area of historical analogies it would seem pertinent therefore to conduct more elaborate comparative studies to establish the relative frequency of the various forms of analogical reasoning and the explanatory power of the various hypotheses discussed above.

### Acknowledgements

Thanks to Arjen Boin, Johan Eriksson, Eric Stern for comments. Thanks to Sara Larsson and Jenny Lundgren for their permission to draw heavily on their analysis of the Austrian case.

### References

- Baldwin, D. 1985. *Economic Statecraft*. Princeton, NJ: Princeton University Press.
- Bennett, A. 1999. *Condemned to Repetition? The Rise, Fall and Reprise of Soviet-Russian Military Interventionism, 1973–1996*. Cambridge, MA: MIT Press.
- Berger, W.A. 2001. 'Der Fall Berlusconi', *Die Zeit*, 20, 7.
- Blight, J. 1990. *The Shattered Crystal Ball: Fear and Learning in the Cuban Missile Crisis*. Lanham, MD: Rowman and Littlefield.
- Bobrow, D. 1989. Stories remembered and forgotten, *Journal of Conflict Resolution*, 33, 187–209.
- Bovens, M. and P. 't Hart. 1996. *Understanding Policy Fiascos*, New Brunswick, NJ: Transaction.
- Breslauer, G.W. and P.E. Tetlock (eds). 1991. *Learning in US and Soviet Foreign Policy*. Boulder, CO: Westview Press.
- Butler, T. (ed.). 1989. *Memory: History, Culture and the Mind*. Oxford: Blackwell.
- Bynander, F. 1998a. *Crisis Analogies: A Decision-making Analysis of the Swedish Submarine incident of 1982*. Stockholm: Swedish Institute of International Affairs, report No. 29.
- Bynander, F. 1998b. The 1982 Swedish Harsfjärden Submarine Incident: A Decision-making-Analysis', *Cooperation and Conflict*, 33, 367–407.
- Bynander, F. (ed.). 2002. *Ubåtsfridgan: Ett symposium*. Stockholm: The Swedish National Defence College.
- Bynander, F. 2003. *The Rise and Fall of the Submarine Threat: Threat Politics and Submarine Intrusions in Sweden 1980–2002*. Dissertation. Uppsala: Department of Government, Uppsala University.
- Caruth, K. (ed.). 1995. *Trauma: Explorations in Memory*. Cambridge: Cambridge University Press.
- Connerton, P. 1989. *How Societies Remember*. Cambridge: Cambridge University Press.
- Covington, C.R. 1985. 'The Development of Organizational Memory in Presidential Agencies', *Administration and Society*, 17, 171–96.
- Etheredge, L.S. 1985. *Can Governments Learn?* New York: Pergamon.
- Flin, R.K. 1996. *Sitting in the Hot Seat*. Chichester: John Wiley.
- Foote, K.E. 1990. To Remember and to Forget: Archives, Memory and Culture', *American Archivist*, 53, 378–92.
- Hacker, J.S. 2001. 'Learning from Defeat? Political Analysis and the Failure of Health Care Reform in the United States', *British Journal of Political Science*, 31, 61–94.
- Hammargren, B. 2000. Konferensen om förintelsen – om egen skuld teg de helst, *Svenska Dagbladet*, 28 January.
- Hemmer, C. 1999. 'Historical Analogies and the Definition of Interests: The Iranian Hostage Crisis and Ronald Reagan's Policy Toward the Hostages in Lebanon', *Political Psychology*, 20, 2, 267–89.
- Houghton, D.P. 2001. *U.S. Foreign Policy and the Iran Hostage Crisis*. Cambridge: Cambridge University Press.
- Hibek, R. 2003. 'Interview', in S. Larsson and J. Lundgren (ed.), *Deffortous sanktioner mot österrike (The Sanctions Against Austria)*. Stockholm: Swedish Defence College.
- Hybel, A.R. 1990. *How Leaders Reason: US Intervention in the Caribbean Basin and Latin America*. Oxford: Blackwell.
- Isaacson, W. and T. Evan. 1986. *The Wise Men: Six Friends and the World they Made*. New York: Touchstone.
- Khong, Y.F. 1992. *Analogies at War*, Princeton, NJ: Princeton University Press.
- Larsson, C. 1987. 'Den stora ubåtsfällan', *Ny Teknik*, No. 21.
- Larsson, S. and J. Lundgren. 2003. *Deffortous sanktioner mot österrike (The Sanctions Against Austria)*. Stockholm: The Swedish Defence College/Crismart.

- Levitt, B. and J.G. March. 1988. 'Organizational Learning', *Annual Review of Sociology*, 14, 311–28.
- Levy, J. 1994. 'Learning and Foreign Policy: Sweeping a Conceptual Minefield', *International Organization*, 48, 279–312.
- Mannarelli, T, K.H. Roberts and R. Bea. 1996. 'Learning how Organizations Mitigate Risk', *Journal of Contingencies and Crisis Management*, 4, 83–92.
- March, J.G., and J.P. Olsen 1975. 'The Uncertainty of the Past: Organizational Learning under Ambiguity', *European Journal of Political Research*, 3, 147–71.
- Martin, L. 1992. *Coercive Cooperation: Explaining Multilateral Economic Sanctions*. Princeton, NJ: Princeton University Press.
- May, E.R. 1973. *'Lessons' of the Past: The Use and Misuse of History in American Foreign Policy*. New York: Oxford University Press.
- Middleton, D. and D. Edwards (eds). 1990. *Collective Remembering*, London: Sage.
- Neustadt, R.E. and E.R. May. 1986. *Thinking in Time: The Uses of History in Policy Making*. New York: Free Press.
- Nora, P. 1989. 'Between memory and history: Les Lieux de Memoire', *Representations*, 26, 7–25.
- Pidgeon, N. 1997. The Limits to Safety? Culture, Politics, Learning and Man-made Disasters', *Journal of Contingencies and Crisis Management*, 5, 1–14.
- Pierson, P. 2001. 'Increasing Returns, Path Dependence and the Study of Politics', *American Political Science Review*, 94, 2, 251–67.
- Rose, R. 1993. *Lesson-drawing in Public Policy*. New York: Chatham House.
- Rosenthal, U. and P. 't Hart. 1989. 'The South Moluccan Hostage-takings', in U. Rosenthal, M.T. Charles and P. 't Hart (eds), *Coping with Crises: The Management of Disasters, Riots and Terrorism*, Springfield, IL: Charles Thomas.
- Sabatier, P. and H. Jenkins-Smith. (eds). 1993. *Policy Change and learning: The Advocacy Coalition Approach*, Boulder, CO: Westview Press.
- Sagan, S. 1993. *The Limits of Safety: Organixillions, Accidents, and Nuclear Weapons*. Princeton, NJ: Princeton University Press.
- Schudson, M. 1992. *Watergate in American Memory: How we Remember, Forget, and Reconstruct the Past*. New York: Basic Books.
- Shimko, K. 1995. 'Foreign Policy Metaphors: Falling "Dominoes" and "Drug Wars"', in L. Neack, L., J. Hey and P. Haney (eds), *Foreign Policy Analysis: Continuity and Change in Its Second Generation*. Englewood Cliffs, NJ: Prentice Hall.
- Smith, P. 2001. 'Memory without History: Who owns Guatemala's past?', *The Washington Quarterly*, 24, 59–72.
- Snow, D.A. and R.D. Benford. 1992. 'Master Frames and Cycles of Protest', in A.D. Morris and C. McClurg Mueller (eds), *Frontiers in Social Movement Theory*. New Haven, CT: Yale University Press, pp.133–55.
- Sommer, T. 2000. 'Contra-Bann über österreich', *Die Zeit*, 7, 15.
- Sorokin, P. 1942. *Man and Society in Calamity*. New York: E.P. Dutton.
- SOU. 2001. *Perspektiv pa ubdsfrdgan*. Statens offentliga utredningar, Vol. 85. Stockholm: Fritzes.
- Slaw, B., L. Sandelands and J. Dutton. 1981. 'Threat-rigidity Effects in Organisational Behavior', *Administrative Science Quarterly*, 26, 501–24.
- Stern, E. 1997. 'Crisis and Learning: A Conceptual Balance Sheet', *Journal of Contingencies and Crisis Management*, 5, 69–86.
- Stern, E. and B. Sundelius. 1992. 'Managing Asymmetrical Crisis: Sweden, the USSR, and U137', *International Studies Quarterly*, 36, 213–39.
- Stern, E. and B. Sundelius. 2002. 'Crisis Management Europe: an Integrated Regional Research and Training Program', *International Studies Perspectives*, 3, 71–88.
- Stone, D. 1997. *Policy Paradox: The Art of Political Decision-making*, New York: Norton.
- Sturken, M. 1997. *Tangled Memories: The Vietnam War, the AIDs Epidemic and the Politics of Remembering*. Berkeley, CA: University of California Press.
- Tetlock, P. and R.N. Lebow. 2001. 'Poking Counterfactual Holes in Covering Laws: Cognitive Styles and Historical Reasoning', *American Political Science Review*, 95, 4, 829–44.

- Theutenberg, B. J. 1986. *Folkrätt och säkerhetspolitik (International law and National society)*. Stockholm: Norstedts Förlag AB.
- Trouillot, M.-R. 1995. *Silencing the Past: Power and the Production of History*, Boston, MA: Beacon Press. TT (Swedish News Agency). 2000. Sverige stödjer uttalande. Brussels: TT, 31 January.
- Vaughan, D. 1996. *The Challenger Launch Decision*, Chicago, IL: University of Chicago Press.



## Toxic Fear: The Management of Uncertainty in the Wake of the Amsterdam Air Crash

**Arjen Boin, Menno van Duin and Liesbet Heyse**

**Source:** *Journal of Hazardous Materials*, 88 (2001): 213–234.

### 1. Introduction: From “Caring Government” to Governmental Failure

On Sunday, 4 October 1992, at 6.38 p.m., an Israeli cargo plane crashed in a suburban high-rise area of Amsterdam (The Netherlands). The El Al Boeing 747 freighter, in a desperate attempt to return to Schiphol airport after losing two of its engines, bored its way into two apartment blocks in Amsterdam’s Bijlmermeer area. The crash killed 43 people (including the plane’s crew) and destroyed 266 apartments. Immediately after the crash, the Amsterdam authorities initiated a massive emergency operation. The days and months following the disaster were characterized by “normal” disaster issues (providing shelter and relocation to immediate survivors; a frantic search for causes; discussions about airport safety; identifying the victims) as well as atypical problems (self-imposed pressure to determine the number and identity of victims; mass convergence of pseudo-victims; the emerging issue of illegal immigrants).

The official assessment of Amsterdam’s crisis management was quite positive [1]. The *communis opinio* held that the Amsterdam authorities, in particular Mayor Ed. van Thijn, had performed in a calm, effective yet committed manner. In addition to the “normal” managerial sides of the crisis response (the effectiveness of which was facilitated by Amsterdam’s crisis management infrastructure), Van Thijn had adopted a philosophy of “caring government”. This notion held that all victims, regardless of race and, particularly relevant in the multi-ethnic Bijlmermeer area, legal status, would be entitled to government assistance in refounding their lives. Even when the unintended consequences of this philosophy became painfully clear as many “pseudo victims” sought to take advantage of Amsterdam’s perceived generosity, Van Thijn held firmly to his position.

In spite of this successful performance, the Bijlmer air crash eventually developed into what is now widely considered an almost exemplary case of governmental negligence [2]. In 1999, a parliamentary inquiry into the aftermath of the disaster catalogued a wide variety of coordination failures, mostly at the national level, which had resulted in a sustained loss of legitimacy among the victims of the crash and, more in general, the population of the affected area [3]. The Bijlmer Air disaster demonstrated that even initial success is no guarantee for a smooth termination of crisis [4]. In some ways, the “disaster after the disaster” was much harder to deal with than the “classic” crisis challenges that emerged in the first hours and days after the El Al plane crashed.

In this article, we will show how the Bijlmer air disaster developed into a public health crisis. In addition, we will investigate the relation between long-term crisis management performance (“managing the aftermath”) and the growing unease among Bijlmer residents; more specifically, we consider the often-heard claim that governmental mismanagement led to public health problems. In the years following the crash, survivors in the area began to link a stream of health complaints to the cargo of the Israeli plane. The failure to establish beyond a shadow of a doubt what exactly had been in the doomed plane created fertile ground for rumors, the politicization and mediatization of victims, and increasing numbers of reported health complaints.

We argue that the administrative reflex of crisis termination, combined with a collective underestimation of the possible effects of “toxic fear”, resulted in a heightened sense of collective fear. We will begin in Section 2 with a detailed description of the Bijlmer air disaster and its aftermath. In Section 3, we will chart the health effects that surfaced in the Bijlmermeer. In Section 4, we will discuss the relation between the emergence and persistence of these health effects and the activities, or lack thereof, on the part of public authorities. We will conclude this article with a number of lessons that may be used by public authorities to prepare for similar disasters.

## **2. From Air Disaster to Political Crisis: A Chronology of Events**

### 2.1. From Disaster Management to Urban Crisis Management (October 1992)

The initial response to the air crash was quite effective [5]. Fire trucks, police cars, ambulances and other emergency services appeared quickly on the scene. The Amsterdam crisis center was quickly activated and took full charge within hours. A few “deficiencies” occurred, which would be defined as significant not until much later. For example, the cockpit voice recorder was never found. This mysterious and unexplainable loss – cockpit voice recorders are known to survive explosions and long-term exposure to sea water (among other things) – would later give rise to all sorts of rumors. One persistent rumor held that agents of Israel’s secret service (Mossad) had entered the premises dressed as emergency workers and had thus retrieved the cockpit voice recorder. Perhaps the most significant “error” pertained to sealing off the area; media and “disaster tourists” could easily enter the disaster grounds during those first hours.

In the days following the disaster, uncertainty about the number of deaths dominated the atmosphere in the crisis center. The first impression was that at least 250 people had died in the crash (this assessment was partially based on the number of affected apartments). Even though evidence of a much lower death toll soon became available, the general belief holding that hundreds had died persisted for days. The virtual absence of dead bodies – 48 hours after the crash only 12 bodies had been found – was explained by the heat of the ground fires: many bodies had been “cremated” according to this theory.

The recovery of the damaged buildings was then accelerated, in order to discover whether the “basement theory” held any truth. The subsequent loss of

accuracy in the identification process – identification procedures take time and require detailed inspection of the area surrounding the immediate vicinity of the body (parts) – was made up for by initiating a massive police investigation into the list of persons reported missing.

The specific characteristics of the Bijlmermeer area made it hard to reconstruct who lived where. The Bijlmermeer is a high-rise suburb that is connected to Amsterdam by a subway line. Built in the 1970s as an experiment in ideal living, it had effectively become a planning disaster. By the early 1990s, the “Bijlmer” (approximately 85,000 inhabitants) had become a slum area populated mostly by (first- and second-generations) immigrants – many of which supposedly held no legal status. Since it was known, or at least suspected, that many non-registered immigrants lived in the disaster area, little value was attached to the official lists of either the housing authority or Amsterdam’s population register.

It was unclear how many people were present in the apartment buildings at the time of the crash. The Amsterdam authorities tried to compose a reliable list of missing people. Everybody was asked to report missing people; the mayor promised that those with an “illegal” status would not experience negative repercussions. This resulted in a long list of missing persons: at one point, the list held nearly 1600 names. After police detectives had checked the list for redundancies and “fakes” – apparently, a number of persons were reported missing by people who were looking for their debtors, enemies etc. – the list was reduced to 300 people. This number was still much higher than the number of bodies found. The police then tried to narrow the list down by means of house-to-house inquiries and checked the records of the telephone company, the social services and the Amsterdam Housing authorities. On Friday, 9 October, *three* lists were made public: the first list revealed the number of identified victims at that time (9); the second list presented the number of people who were in the vicinity of the apartment buildings at the time of the disaster and who had probably died (48); the third list consisted of the number of people who were still missing and lived outside the disaster area (63).

A few weeks after the night of the crash, the air disaster had developed into a socio-political crisis. This shift in the nature of the crisis was the unintended result of Mayor Van Thijn’s public assurance that “illegal” immigrants should not suffer any other negative consequence as a result of the disaster if they came forward. They should have the same right to medical, social and material assistance that was also granted to all other victims of the crash. In fact, Van Thijn implicitly promised that they would be granted the status of legal resident. If they could prove that they had lived in the immediate vicinity of the disaster site (and thus qualified as a victim), Van Thijn would recommend them to the deputy minister of Justice, Mr. Kosto, for a residence permit. It is, of course, very hard for “illegals” to prove they lived somewhere, especially since they tend to avoid any contact with government authorities and bureaucratic agencies. Still, Van Thijn’s “caring government” philosophy promised a lenient approach; a few weeks later, hundreds and hundreds of immigrants lined the street of Amsterdam’s public register in the hope to make it on the so-called Kosto list. In addition, the Amsterdam authorities began to suspect that many “victims” who were enjoying free accommodation, cash loans and food had never set a foot in the Bijlmer area before the disaster.

## 2.2. Rumors of a Military Cargo (October and November 1992)

On 18 October 1992, a new dimension was added to the disaster. A resident of the Bijlmermeer area had found the charred remnants of the so-called airway bills, which had been in the crashed plane. This finding generated much media attention, mainly because one could read “military ordnance eqp” on the remains of the airway bills [6]. Attention was focused on the cargo of the plane again. In the immediate aftermath of the disaster, official readings referred to “flowers and per-fume” as main ingredients of the cargo. There was no reason to suspect otherwise, were it not for the nationality of the crashed plane. The media attention led to an investigation by the Dutch Aviation police service. The Economic Control Agency (ECD) also became involved. With assistance of the American Embassy (the El Al plane had loaded most of its cargo at New York’s JFK airport), the ECD managed to get a hold of 13 master and 15 house airway bills. Master airway bills provide general information about the cargo of the plane. The house airway bills provide detailed information on every item of the cargo. Even though these documents provided information about only a limited part of the cargo – in fact on only 5% of the cargo, as it later turned out – they did show that the El AL plane had indeed carried military equipment. The ECD could not, however, determine the exact nature of the cargo. No further investigations were undertaken at this point in time, as there appeared to be no violations of Dutch law [7].

## 2.3. Rumors of a Toxic Cargo: Examining the Presence of Uranium (1993–1994)

A few months after the crash, only “technical” issues remained (or so it seemed at the time). In February 1993, an Amsterdam newspaper reported that kerosene from the plane had severely polluted the disaster site [8]. The Amsterdam authorities thereupon decided to clean up the disaster site. Almost a year after the disaster, a national newspaper reported that the plane had been carrying toxic materials on its disastrous flight [9]. The Minister of Transport denied that the plane had carried any dangerous materials [10]. At least some Bijlmer residents were concerned about this issue and demanded access to the cargo documents. A member of the Bijlmermeer district council received an increasing number of telephone calls of Bijlmer citizens reporting respiratory problems. A parliamentary member of the ruling Social Democrats (PvdA) asked the Minister of Transport, Mrs. Maij-Weggen, to respond to these rumors. The minister published a cargo list, which revealed the presence of hydrocarbon; only tiny amounts of other chemicals were reported to be on board.

In October 1993, a Dutch nuclear energy research center (LAKA) added a new piece of disturbing news: the El Al Boeing had depleted uranium on board as a counter weight in the plane’s tail (other Boeing airplanes carry uranium as well). Several agencies started to investigate the exact contents of the plane. All investigations concluded that the quantity of dangerous toxic material in the plane could not have caused any public health problems. In October 1993, the Dutch energy research center (ECN) claimed that there was no reason to believe that uranium parts had been released during the inferno. At the same time, however, the Minister of Environmental Affairs reported that the tail of the plane had

contained 385 kg of depleted uranium, of which only 112 kg had been recovered up to that point.

In the following months, the newspapers were filled with articles discussing the possible consequences of uranium for the public health situation in the Bijlmer. Both the Minister of Transport and the research center ECN denied any possible public health dangers. An American expert from the Depleted Uranium Network stated the opposite: uranium should be considered very poisonous. Various other research institutes confirmed this. In response to this news, Bijlmermeer residents asked for an investigation into the presence of uranium at the disaster site, but the council of the Bijlmermeer district did not have the money to fund such an investigation, and declined. The Bijlmer residents were furious about this decision.

The mysterious disappearance of over 170 kg of uranium generated fresh questions. Yet another independent research agency took samples from the disaster site in December; no trace of depleted uranium was found [11]. Residents of the disaster area rejected the results of the investigation, questioning its methods and claiming that the soil samples had been taken from clean, untouched spots. They feared having inhaled burnt uranium particles. In January 1994, the Bijlmermeer district council asked the Civil Aviation Authority (RLD), in charge of the technical investigation of the plane, to check the plane wreckage once again. Upon inspection in the hangar at Schiphol airport, where the collected parts of the plane were studied, 48 kg of depleted uranium were found. An additional group of “worried citizens” was immediately “created”: those who had worked in the hangar and those who had helped to collect the wreckage.

#### 2.4. No Public Health Problem (1994–1995)

The Amsterdam city administration had developed an aftercare plan, which was aimed at all victims [12]. However, a growing number of victims and emergency workers reported a range of health problems (see Section 3 below). People became especially concerned when they heard about the depleted uranium. In March 1994, local members of the Green Party announced that, according to sources in New York, the plane had also been carrying ammunition. The Green Party also reported that a firefighter, who had fallen seriously ill after the Bijlmer air crash, had been instructed by his employer to refrain from commenting in public on his illness. In the summer of 1994, it was reported that the missing kilograms of uranium had found their way to a garbage dump in a town northwest of Amsterdam. Workers at the dump and local councilors demanded an investigation.

The Bijlmermeer district council acted upon these growing worries among its population by asking the local public health agency to investigate the relationship between reported health problems and depleted uranium. The director of this public health agency stated, before the investigation had actually begun, that he did not expect to find something of importance [13]. In April 1994, the director and one of his employees talked with five residents of the Bijlmermeer. The Bijlmer residents suffered from a variety of health problems, such as bronchial, intestinal and stomach problems, arm pains, and impotence. The director of the health agency concluded that such a wide variety of complaints could not have been caused by one toxic material (such as, for instance, uranium) [14]. In addition, he argued that this wide variety of complaints made it impossible to commission

more reliable research. The director had also approached general practitioners in Amsterdam, as well as the doctors of the Amsterdam police and fire service. None of these medical experts had patients whose health problems seemed to be related to the Bijlmer air disaster. In August 1994, the public health agency recommended that this matter did not need to be investigated any further [15].

The Bijlmer disaster then dropped from the public view for almost a year. There are several reasons why the Bijlmer became less newsworthy. One factor was the “competition” by other crises, which seemed much more pressing at the time to both politicians and media [2]. In August 1995, it was reported that the construction of new buildings could not be started on the disaster site before a thorough soil survey had been carried out. A month later, it was reported that no uranium had been found. However, the opposite was claimed by Omegan, yet another research institute, which had conducted its own soil survey. Although LAKA and Delft University expressed their doubts about the quality of this survey, bewildered Bijlmer residents again asked for an independent investigation into the matter.

#### 2.5. The Mystery of the Missing Airway Bills: The Search for Certainty (1996)

In 1996, the Bijlmer air disaster appeared well settled into collective memory; neither the national political parties nor the press paid much attention to the health issue. In May 1996, opposition MP Ms. Singh Varma (Green Party) asked the Minister of Health, Mrs. Borst, if she would be willing to launch an investigation into the lingering health problems in the Bijlmermeer. New and mysterious health problems had surfaced after the prominent news show NOVA had presented evidence that only a fraction of the cargo was known to the Dutch authorities. The National Aviation Authority (RLD) confirmed the news. The Minister of Health did not see any urgent reason to start a health investigation, but promised to unearth information about the, possibly poisonous, cargo. In May 1996, a few members of Parliament first began to openly discuss the possibility of a parliamentary inquiry into the Bijlmer disaster.

In the following weeks, the issue of the cargo gained much political and media attention. As more airway bills showed up, usually in the news show NOVA, it became increasingly unclear what the cargo of the plane had been. It also became clear that many airway bills were still missing. Mrs. Jorritsma, the Minister of Transport, came under fire in Parliament. She undertook to request additional information from the Israeli airline El Al in order to solve the mystery around the cargo. The available documents (not all documents were handed over) provided different information yet again. Still no definite answer could be given to the question as to whether the cargo of the plane had contained toxic or nuclear material.

#### 2.6. New Upheaval over Depleted Uranium: Parliament Steps in (1997)

Opposition MP Singh Varma approached the Minister of Health once again in February 1997. An expert of the Israeli Civil Aviation Authority had made an important statement on the Bijlmer air disaster during a hearing in the Israeli Parliament. The expert declared that highly toxic material had been released after

the uranium in the plane had evaporated in the crash; this statement seemed to resolve the mystery of the missing uranium. These materials, according to this expert, could cause cancer and other serious health problems [16]. The relationship with Israel suddenly (and briefly) became a topic of discussion.

The media continued to play an escalating role in the Bijlmer air disaster affair, this time by creating upheaval in September 1997. The newspaper *Trouw* reported that uranium evaporates at a much lower temperature than had been assumed by the Dutch authorities. It also became clear that the National Aviation Authorities had known about the danger of depleted uranium in Boeing planes since 1985. The RLD admitted that their American colleagues had sent them an announcement on this issue in which they were advised to apply strict safety measures whenever depleted uranium was released [17]. Parliament wished to hear from the Minister of Health why these safety measures had been applied in the Schiphol hangar where remains of the plane wreck were kept, while no such measures were implemented at the disaster site. The Minister promised to start an inventory of reported health problems. A day after this parliamentary debate, the Minister of Justice announced that she had asked for the reopening of the judicial investigation into the Bijlmer disaster, which had been terminated in October 1992.

The post-disaster crisis reached new heights when representatives of Schiphol airport reported to have found abnormal levels of radioactivity in the hangar of the El Al plane wreck. A few days later, members of Parliament inquired into the missing airway bills once again, after the news show NOVA had announced that the Dutch authorities had never known the identity of one third of the cargo. The Minister of Transport promised to collect all airway bills of the cargo and to send the information to Parliament. Three departments (and their ministers) were now tied to the Bijlmer air crash, i.e. the Ministry of Transport, the Ministry of Health, and the Ministry of Justice. The Bijlmer air disaster had become a national issue and a hot political potato.

### 2.7. Special Committees, Disturbing Research Results and New Information (1998)

In February 1998, a special committee – named after its chairman, Mr. Hoekstra, a former secretary-general of the Department of General Affairs – was called into life to investigate the procedures that were followed during the process of collecting the airway bills. In March 1998, public (and political) anxiety was fueled as a result of the published research results of a Swedish research agency. This agency had examined a few Bijlmer disaster victims after *Visie*, a rather vague Dutch organization, had apparently requested the agency to do so. The agency claimed to have found increased levels of uranium in the Bijlmer residents. A medical professor of Leiden University, who argued that an invalid research method had been used, immediately denounced this claim. But the scare was on.

In that same month, KLM airlines reported that many of its employees who had worked in the hangar of the El Al wreckage suffered from health problems very similar to the Gulf War syndrome. These problems included chronic fatigue, pain at the joints, and respiratory problems. The revelations were packaged in telling headlines: “Bijlmer does not trust the authorities anymore” [18]; “Fire brigade

and police are concerned about the consequences of the Bijlmer disaster” [19]; and “Slight panic about uranium” [20].

In April, the Dutch Parliament established “the working group air disaster Bijlmermeer”. This subcommittee was assigned to investigate the causes of the crash and the management of the crisis process. In Parliament, discussions on the necessity of a parliamentary inquiry continued with renewed vigor. It was decided that the newly elected Parliament – elections were due in May 1998 – would have to decide on this.

The stream of new information seemed to make such an inquiry inevitable. In April, two companies that were involved in cleaning up the disaster site announced that several of their employees were to be medically examined. In June, the Minister of Transport asked ECN to re-investigate the possibility that the uranium in the plane had evaporated. The medical examination of Schiphol workers revealed that 55 employees had serious health problems. In July 1998, the Hoekstra committee reported that it had been unable to collect all necessary information regarding the cargo. The exact details of 34 tonnes of cargo remained unknown. In August, the Civil Aviation Authority received more information from El Al about the contents of another 14 tonnes of the cargo. However, the mystery of the unknown cargo could not be solved for the remaining 20 tonnes of the cargo.

The promised inventory of health problems had not started yet. The Minister of Health had waited for the findings of the Hoekstra committee. Only after serious parliamentary pressure, did she agree to start the inventory [21]. In September 1998, energy research center ECN published the results of its investigation into the uranium issue: the evaporation of uranium immediately after the crash could not be ruled out. Only 2 weeks later, it became public knowledge that, in addition to uranium, the El Al plane had 240 kg [22] of ingredients for the toxic gas Sarin on board [23]. Governmental reassurances had failed yet another credibility test, creating further unrest among Bijlmer residents.

## 2.8. The Parliamentary Inquiry (1998–1999)

On 30 September 1998, Parliament launched a parliamentary inquiry into the causes and aftermath of the Bijlmer air disaster. On 27 January 1999, the inquiry committee (Meijer Commission) interviewed its first witness. The hearings soon generated a political crisis, as the stream of “normal” coordination errors and new revelations severely undermined governmental credibility (this time also outside Amsterdam). One of the witnesses, a general practitioner in the Bijlmer, reported an increase in health problems, such as miscarriages, bronchitis, thyroid gland problems and cancer. It was also revealed during the inquiry that El Al had informed the employees of Schiphol air traffic control the night of the crash about the toxic cargo of the Boeing, while at the same time asking them to keep this information secret. This revelation led to the suspension of various senior-level bureaucrats of the governmental organizations involved. Earlier statements claiming that the National Aviation Authorities had known about the nuclear material in the tail of the plane were confirmed. The inquiry committee also managed to find what nobody else had done before: they got a hold of all airway bills.

In April, the inquiry committee presented the conclusions and recommendations of the parliamentary investigation. The committee concluded that toxic material



had been released when the plane crashed in the Bijlmer area. It was suggested that some chronic health problems of a number of people were related to the crash [24]. The committee advised a serious investigation into possible health problems for residents and emergency workers, if only to quell social anxiety created in the past years. A wide-scale medical investigation should help to generate objective information and put the fears of toxic affliction to rest. In addition, detailed treatment plans for victims of the Bijlmer air crash were to be formulated and more information about health problems related to the disaster should be dispersed. For the future, the Ministry of Health was advised to train and inform general practitioners on the consequences of disasters; in the case of a new disaster, epidemiological research was to be initiated at an earlier stage. It was noted that the various governmental organizations, in particular the Ministry of Health, could have acted more swiftly in response to persistent signs of health problems [25].

### 2.9. After the Inquiry (1999–2000): Vindication of the Victims

The Ministry of Health immediately began to organize a health investigation after the Meijer Commission had published its findings and recommendations. The Ministry invited three hospitals to carry out this investigation, but none of these institutions was really interested. The academic hospital that had taken care of the 1998 health inventory immediately refused the invitation, claiming that further medical research was of no use. The other two hospitals expressed serious concerns about the scientific reliability of the research design. The Minister then agreed on a substantial revision of the research design, which would involve over 6000 people. The actual research program would not get started before January 2000, accompanied by substantial criticism on the part of various health experts. The group of 6000 people – 2400 residents, 3250 emergency workers and 385 hangar workers – was to participate in a general physical check-up and an epidemiological examination; they were also asked to fill in a questionnaire. A control group of 7500 people was arranged for as well. At the same time, the cabinet decided to create a fund for those Bijlmer victims who could not get reimbursed for financial or psycho-social problems.

## 3. Health Problems in the Bijlmer

The Bijlmer air crash caused a relatively low number of deaths (43) and injuries (26). The Amsterdam city council was aware from the beginning that many more people could suffer from the disaster in an emotional and psychological sense. Immediately after the crash, the mayor of Amsterdam therefore asked the local medical services (GG&GD) to formulate a plan for the long-term aftercare of survivors. The plan should aim at preventing psychological and mental damage from happening. The plan was based on two ideas. First, it was aimed at providing integrated care to the survivors, meaning the combination of material and psychological care. Second, existing networks within the city were to provide the services.

The aftercare program prescribed an information center of modest size for survivors with questions, a meeting point, a coordination center for the provision of mental aid, and the organization of activities for children and the elderly.

The information center was open for three weeks and received 644 questions in that period [26]. In the year following the crash, 700 people asked for help at the local psychiatric services (Riagg) of whom 80 people were still receiving treatment in October 1993.

In April 1993, a study was conducted among 136 survivors of the disaster. These people were interviewed in order to establish whether they suffered from post traumatic stress disorder (PTSD). PTSD is a mental disorder, which is characterized by a "feeling of loss of control over one's life that results after a trauma leads to an arousal state in which the person is constantly alert and on edge, as if the event might be repeated" [27]. A person was diagnosed with PTSD if s/he suffered from three groups of symptoms: the re-living of the event (intrusive thoughts; nightmares, flashbacks; emotionally upset), avoidance symptoms (avoidance of thoughts and feelings, of places and activities; psychogenic amnesia; loss of interest; detachment from others; restricted affect; foreshortened sense of future) and hyperactivity symptoms (sleep disturbances; irritability; difficulty concentrating; hyperaltness; increased startle; physical reactivity). A person diagnosed as having one reliving symptom, three avoidance symptoms and two hyperactivity symptoms, was labeled a PTSD patient. Partial PTSD was diagnosed when people "scored" one of the above symptoms [28].

This particular study found that a significant number of people suffered from PTSD symptoms such as sadness when remembering what happened (52%), extreme watchfulness (40%) and regularly returning memories of the disaster (39%). It was concluded that 26% of the group studied suffered from PTSD; 44% was diagnosed with partial PTSD [28]. The study was repeated a year later: 24% of the respondents still suffered from PTSD, whereas 32% suffered from partial PTSD [29]. In addition, 10% of the respondents had developed other disorders and stress reactions.

PTSD is a regular (if often unrecognized) result of tragic events, but it only affects a relatively limited number of survivors. The group of patients suffering from this disorder is unlikely to grow in the course of time; with proper treatment, the number should steadily decline over the years.

But in the years after the disaster, the media reported quite regularly about a growing number of survivors of the Bijlmer disaster who apparently suffered from mysterious health problems. One fireman, Carel Boer, became somewhat of a public figure as he claimed to have suffered psychological problems (respiratory and skin problems) for which he received treatment in a hospital. In May 1994, a representative of an association of survivors informed the press that survivors were suffering from unexplainable health problems, such as kidney problems. The Amsterdam health authorities paid no serious attention to these complaints, but national MP Ms. Singh Varma kept calling for a medical study as many people apparently called her and informed her about their health problems.

A general practitioner reported an increase of 20% in the number of abnormal pregnancies in his medical practice, which was close to the disaster site. He also observed an increase in cases of bronchitis, intestines cancer, thyroid gland problems and diabetes. In addition, it became known that two other firemen, who suffered from the same mysterious health problems, had died since the crash; a third had committed suicide, reportedly because his story had not been taken seriously by the Dutch authorities [30].

In 1998, the Amsterdam Medical Center started a study on behalf of the Ministry of Health. The inventory consisted of three phases: (1) interviews were conducted with 55 general practitioners in Amsterdam; (2) in June, a telephone center was opened for 2 months where people could report their health problems; and (3) the health problems reported were checked against the medical files of general practitioners. In total, 903 persons called the telephone center, of which 300 were emergency workers, mostly from the police and fire brigade [31]. A total of 3463 health complaints from 846 people were analyzed for the study [29]. Only 143 of these people had actually seen the disaster happen [31]. From these respondents, 1% still suffered from PTSD and 11% suffered from partial PTSD [31]. Each respondent reported an average of four health complaints. The people calling in predominantly mentioned the following complaints:

- general physical complaints (tiredness) – 77%;
- psychological complaints (fear, concentration disorders, depression) – 42%;
- respiratory problems – 33%;
- skin problems – 25%;
- problems with movement – 22%.

The researchers noticed that the five clusters of health problems mentioned above were very similar to the symptoms of the so-called Gulf War syndrome. Although the Gulf War resulted in a minimal loss of American soldiers, many soldiers reportedly came back with unexplainable physical complaints, similar to the symptoms of the five clusters [29]. In other words, people felt ill, but the medical specialists could not diagnose them with a (known) disease.

From the interviews with the general practitioners in the vicinity of the Bijlmer it was estimated that a total of 5500 people were somehow involved; 300 people had health problems (especially mental problems) that could be linked to the disaster. Another 400 patients claimed to have health problems related to the disaster, but the general practitioners could not find any proof [31]. The study showed that immediately after the disaster most health complaints were mental; when the uncertainty and corresponding unease about the cargo of the plane increased, the number of physical complaints increased as well [31]. People who were directly involved in the disaster suffered more from mental problems (PTSD-related symptoms), whereas those living in the wider vicinity of the disaster site suffered mostly from physical problems.

A special category of very serious health complaints came to the forefront as a direct result of this study. The Academic Medical Center found some very rare autoimmune diseases. The Center suggested that a combination of various health problems could mean that some victims suffered from an autoimmune disease [31]. This type of disease was taken into account in the subsequent study of medical files. Of all health problems reported to the Center, 13% appeared to have existed before the crash [32]. Eleven cases of autoimmune disease were discovered, although the authors of the report did not believe this number to be abnormal and therefore not directly related them to the air crash [33]. In the end, the medical researchers could not establish a link between the diverse health problems reported and the Bijlmer disaster. The university hospital implementing the research therefore recommended terminating further medical investigations.

The media continued to report on mysterious health problems. For example, there were reports on a high number of residents of the “Kruitberg”, one of the apartment buildings hit by the plane, who apparently suffered from thyroid gland problems [34]. Thirteen employees of two waste processing firms involved in the clean up of the disaster site claimed to have fallen ill [35]. In 1999, a newspaper reported high percentages of autoimmune diseases among emergency workers [36]. In January 2000, a large-scale medical investigation was started in response to the recommendations of the parliamentary committee. In the end, 8900 people registered for the investigation, which should be completed by March 2001.

#### **4. Uncertainty, Fear and Stress: Can Governmental Mismanagement Make Us Sick?**

We have documented a rise of reported health complaints in the course of the Bijlmer aftermath. It is fair to say that it is this long-term persistence in health complaints on the part of Bijlmer residents that played a significant part in the parliamentary decision process to initiate an inquiry. In this section, we will argue that government authorities, at both the local and the national level, consistently underestimated the importance of post-disaster care. This form of negligence was not intended, but resulted partially from ignorance with regard to disaster impacts on individual well being, partially from fumbling authorities fanning the fires of discontent. This policy fiasco can therefore be characterized in terms of prosaic failure [37, 38]: many factors interacted in unforeseen yet quite destructive ways. Let us reconstruct what is essentially a vicious circle of increasing distrust (on the part of citizens) and decreasing responsiveness (on the part of authorities).

##### 4.1. The Recognized Effects of Trauma

In the immediate wake of a disaster, the emergency response tends to focus on the wounded, the threatened and the dead. The affected community is characterized by “collective stress”: this situation occurs ‘when many members of a social system fail to receive expected conditions of life from the system’ [39]. In the traditional view of collective stress, public authorities are tasked to return the situation to normal (thus removing the antecedents of collective stress) [40]. The focus in traditional disaster research has predominantly been on group behavior in the immediate aftermath of disasters; the long-term consequences for individuals and families have remained somewhat under-researched.

It should come as no surprise, then, that public authorities are usually ill prepared for the psycho-sociological impact that disasters may have in the long run. We know now that the so-called PTSD normally affects at least some survivors of large-scale disasters. In other words, after the collective stress has disappeared a number of individuals may still be suffering from the impact of the disaster. Erikson [41] describes the symptoms, which he recorded in his study of several traumatized communities. The classical symptoms of trauma range from feelings of restlessness and agitation at one end of the emotional scale to feelings of numbness and bleakness on the other. Victims scan the surrounding world anxiously for signs of danger, breaking into explosive rages. Above all trauma involves a continual reliving of some wounding experience in daydreams and nightmares, flashbacks and hallucinations, and in a compulsive seeking out of similar circumstances.

These effects are real. Symptoms may include helplessness, increased heart rate, hyperventilation, nausea, extreme trembling, excessive sweating, blurry vision, diarrhea, incontinence, hot flashes, headaches, sleep disturbances, difficulties in concentration and outbursts of anger [42]. The effects are also hard to detect [43]. Symptoms are presented as physical rather than psychological distress. People seek “real” causes, as they do not wish to be placed in the “psychological category”. In addition, symptoms may not emerge immediately, but after many months.

Some groups are at higher risk for psychopathology: ‘the bereaved, the severely injured, people with prior mental illness, low socio-economic status, or multiple sources of stress, the elderly, children and adolescents, and those with few or no social support system’ [12, 44]. The population of the Bijlmermeer, with its vast majority of immigrants from all over the world (legal status or not) and its relatively high share of unemployed, single mothers and otherwise financially disadvantaged, was indeed the most vulnerable population group in Amsterdam.

Judging from the declining number of PTSD patients, the Amsterdam (health) authorities seem to have acted in a competent manner. But the effective treatment of PTSD-related afflictions may have concealed the growth of a second group of long-term disaster victims. The central challenge, according to psychiatrist Gersons, is to re-establish trust among the affected population [45]. If the victims suffer from a feeling of loss over their life, as Gersons and Carlier [12] assert, it is the government’s task to provide victims with a sense of renewed order. Local authorities may have facilitated the (eventual) return to normalcy for many PTSD patients, but it appears that many others did not benefit from this targeted approach.

#### 4.2. From Individual to Collective Trauma (and Back): The New Species of Trouble

Individuals who experience a disaster, may suffer from a mental disorder known as PTSD. A small group of people did develop this affliction; mostly people who lived in or near the disaster site. After years of treatment, the group gradually diminished. But something strange happened in Amsterdam. An increasing number of people who did not live in the immediate vicinity of the site developed strange, mostly physical symptoms that we have come to refer to in terms of Gulf War syndromes. These appear to be collective forms of stress, which are the result of uncertainty and fear as Erikson [46] explains in his book *A New Species of Trouble*. The resulting state of anxiety with regard to causes and consequences is a source of individual stress, which, in turn becomes manifest in the various symptoms described above.

Erikson [46] makes a difference between the impact of natural and man-made disasters. The ‘new species of trouble’, involving man-made disasters such as toxic-ruined societies, make up a special category: the community splits up into factions of those who were spared and those who were not, creating feelings of injury and vulnerability, especially when responsible organizations deny their responsibility [47]. In this perspective, it is not so much the disaster agent itself as the governmental response to the disaster that lies at the heart of the traumatized community.

It should be pointed out that it is the *normal* practices of government that cause the problems. The administrative reflex in the aftermath of crisis is to terminate the crisis as soon as possible and return society to normalcy [4, 48]. The sense

of threat diminishes over time, time pressure subsides; crisis managers, emergency workers and media representatives get tired – the “usual” business of government demands attention again. Even when crisis managers cannot get enough of the situation and victims are in need of more attention, routine processes or, in some cases, other crises divert attention from the crisis at hand. In short, the short term drives out important issues of the long term. The “disaster after the disaster” can, in fact, be more challenging than the precipitating event.

Governments everywhere are often under-prepared when it comes to long-term issues such as relocation [49], compensation [50], political accountability [37] or psychological aftercare. Experts are needed to define the issue, recognize the victims and offer assistance. But experts rarely agree on definitions, causes or solutions [51, 52]. For instance, some response organizations use the “debriefing” method as a means of dealing with traumatic experiences; other experts consider this method as counter effective (by reliving the traumatic experience, it is “engraved” in the brain or so this argument goes) [53]. Gersons and his colleagues advised the Amsterdam government to set up an information center for victims, but the local medical service [GG&GD] attached less importance to this suggestion. When professional services fail in their efforts, feelings of anger and distrust are fueled rather than dampened. The local psychiatric service [Riagg] reportedly tried to help victims, but failed – the beginning of a vicious circle of diminishing trust was thus created.

The spiral of distrust is fueled by rumors. The El Al plane proved an endless source of rumors. Any disaster will generate rumors, especially in the first hours after the onset. These rumors tend to follow the familiar pattern of disaster myths [54]. For instance, the first reports on the number of victims are usually exaggerations (“250 feared dead in Bijlmer plane crash”). Another myth pertains to the often-reported “looting in the streets” whereas, in most cases, looting does not occur. Rumors are, of course, a way of dealing with acute uncertainty [55]. As soon as the normal institutional structures are back in place to guide collective sensemaking, rumors disappear.

In the years following the Bijlmer crash, the rumors got wilder and wilder. The rumors circulating in the first days (the disco under the apartment buildings; the “illegals” shacking together by the dozens in one apartment; the many poor souls jumping to their death, their bodies evaporating in the intense ground fires) were typical attempts to explain the uncertainty with regard to the number of dead. But in the course of the disaster, we read about Israeli Mossad agents in moon suits stealing the cockpit voice recorder from the disaster site, cargo loads of ingredients for chemical warfare and, to recite another bizarre tale, the finding of human remains (arms and legs) on a garbage dump. In hindsight, these rumors can be seen as clear indicators (if not causal agents) of lingering uncertainty with regard to the cargo of the plane and the health effects.

It proved exceedingly difficult to reconstruct what had been in the plane. Routine procedures of extracting information proved ineffective. The available cargo documents – air bills and houseway bills – reflected only a tiny fraction of the cargo. The authorities did not understand the relevance of this information until much later. The international dimension of the cargo issue – loaded in New York in an Israeli plane – made matters extremely complicated. The less than forthcoming attitude of El Al was initially unquestioned by understanding Dutch

authorities (the Gulf War, which had generated massive sympathy for Israel, was still fresh in the memory); not until much later did Dutch authorities become annoyed with the evasive attitude of their Israeli counterparts. As long as the issue remained unsolved (until the publication of the findings of the Meijer Commission in 1999), new rumors continued to emerge and made the headlines.

The challenge awaiting crisis managers is further compounded by the role of the media. In recent years, the role and impact of media during crises has dramatically changed [40, 56]. The definition of seemingly objective features of a situation have become the prerogative of media reporters. Health authorities can conclude, on the basis of available evidence, that there is no scientifically supported relation between a disaster and subsequent health problems; but the people in question need to be convinced. When media define the situation as a crisis in public health, it has in fact *become* a public health crisis.

In their efforts to make sense of the situation, victims begin to organize themselves [44]. The conventional view is that disaster trauma ‘damages the texture of community’ [57]. But disaster traumas can also create smaller forms of social organization: “It can happen that otherwise unconnected persons who share a traumatic experience seek one another out and develop a form of fellowship on the strength of a common tie” [57]. Victims tend to organize in the wake of a disaster [58]. Their common ground is initially defined by shared experience, but is soon widened by judicial and financial concerns. While these organizations tend to dissolve in the longer term, they can become a force to be reckoned with by government. In other words, the actions (or inaction) of government can be incentives for a widening organization of victims.

If crisis authorities intend to deal with long-term effects of a disaster, they have quite a few challenges to consider. Even if crisis authorities would be aware of these challenges, it still would not make much difference. As soon as the crisis ends (and sooner or later it is formally terminated), the aftermath and its problems fall within the “routinized” domain of public healthcare. This flaw in the institutional structure can have serious consequences, as the Bijlmer aftermath has shown.

#### 4.3. The Vicious Circle

The public health crisis that developed in the Bijlmermeer over the years was the outcome of a slowly escalating vicious circle fueled by distrust and negligence. The Amsterdam authorities created expectations with their philosophy of “caring government”. The vulnerable population in the Bijlmermeer was explicitly promised that the survivors would not be left behind; the Bijlmer would itself become a target of government efforts to bring improvement to the area. Health authorities, together with local experts, set up an aftercare plan (with a strong emphasis on PTSD victims). At this point in time, relatively few complaints had been registered.

As more pressing matters pushed the Bijlmer disaster in the background, the victims became impatient with the slow handling of housing matters and financial compensation. The crisis center had been dissolved; the outstanding problems were delegated to the complex bureaucracies that normally deal with these matters. The bureaucratic standards of fairness predict that crisis victims will not receive special treatment (which they thought they were entitled to).

The subsequent handling on the part of local government of emerging health problems and the bits and pieces of information on possibly poisonous cargo helped to create a picture of “arrogant” government. In an economically and socially disadvantaged neighborhood, it does not take much to tap into the latent feeling of discontent. Whereas local government perceived the cleaning of the disaster site as a technical problem (handled by the very technical division for construction and housing), residents began to construe this as a signal of disinterest. Whereas Amsterdam authorities felt that they had created a psycho-social network for Bijlmer victims (which in fact they had), the latter demanded concrete interventions that would address their *physical* complaints.

The interaction between rumors and symbolic incidents that seemed to confirm these rumors, further undermined the trust in governmental empathy. While governmental policies and actions with regard to the Bijlmer were founded on the conviction that public health had not been threatened during or after the disaster, evidence to the contrary emerged. The media were quick to report on new indicators of military cargo, uranium and ingredients for chemical warfare. The victims, in turn, began to make use of their organizational networks: working the media and “recruiting” new victims into their organization. As long as victims can present the media with faces and human-interest stories, the crisis has not passed [59].

The case of the victims is sometimes served by so-called “crisis entrepreneurs”. These are public figures that use their position and influence to bring the cause to the attention of the general public and the political arena. During the Bijlmer crisis, the social-democratic MP Mr. Van Gijzel earned himself the nickname “Bijlmer boy” as a result of his relentless pursuit of rumors and complaints. It was at least partially due to his efforts that the Bijlmer disaster remained an item on the political agenda and, eventually, even came to dominate the agenda.

The vicious circle was maintained, paradoxically perhaps, by the attention that national politicians finally began to pay to problems in the Bijlmermeer. By making local problems a topic of parliamentary discussion, the responsibility for solving the problem was squarely placed at the national level. Not only were expectations raised, but also no administrative infrastructure existed at the national level to deal with the long-term aftermath of a local disaster (a central finding of the parliamentary inquiry). The more ministers and their departments got involved through questions, unkept promises and revelations, the more complex did the coordination problem become. As a result, the Amsterdam authorities were effectively relieved of their responsibilities and quietly disappeared out of public view.

The Bijlmer air crash thus became a “long shadow crisis” [4]. In an effort to explain the scope and duration of this crisis, we have to make a distinction between first-order or “root” causes (why the plane crashed) and second-order causalities (how government made things worse) [60, 61]. The apparent success of the initial emergency response seemed to allow for a rapid return to normalization. This case shows, however, that things will never be the same after a disaster. If public authorities are not aware of the vulnerable texture created by the disaster, their “routine” approach to a traumatized community may give rise to a host of unintended and undesirable consequences.



## 5. Conclusions: Lessons and Recommendations

### 5.1. The Fear of the Unknown

There is some debate between sociologists and psychologists on what really matters in the aftermath of disasters. Not surprisingly, psychologists focus primarily on psychological problems that victims have to deal with. Traumas are normal experiences after an abnormal situation. Some people, however, will be affected by this traumatic experience for years and years on end, heavily influencing their day to day life. This is referred to as a syndrome or a disorder. Much attention must be paid, psychologists rightly argue, to the sometimes-problematic coping mechanisms of individuals. Sociologists tend to focus on other issues such as material aftercare, the speed and quality of rehousing and the overall recovery of the social texture of the stricken area.

It is now quite clear that certain man-made or technological disasters have different, some say more severe, consequences for the various categories of affected people than natural disasters may have. The fear of the unknown and the possible toxic substances that are (probably) involved form the basis for these severe consequences. The fact that the most dangerous substances (radiation) cannot be seen or otherwise detected causes major depressive effects for those involved [46]. The potential health hazards of these substances are oftentimes unknown (but feared always). The feared exposure to toxins and the long-term health threat (carcinogenic consequences) are most important differences between a natural disaster and a technological disaster [62]. Natural disasters usually do not result in massive long-term health problems for survivors.

Disasters involving toxic substances therefore pose hard questions to crisis managers, for whom it often is very difficult to find answers. Who are the victims (can we prove who has been exposed to the toxins)? What was or still is the extent of the exposure? What are the consequences of these exposures both in the short and long run? What measures can be taken to diminish the possible consequences?

People that were exposed to disasters like Bhopal, Chernobyl or Seveso, but also the victims of much smaller accidents (gas-leaks, oil-spills, ground contamination), share an unfortunate uncertainty: the potential for developing some sort of chronic disease. It is therefore one of the main tasks for the authorities to limit the time that people are exposed and the intensity of the exposure as much as possible. This can be implemented by such measures as permanent relocation (Chernobyl), decontamination programs and protecting rescue workers. But authorities are often reticent to take such drastic measures in the absence of absolute proof.

Long-term psycho-social impacts of a disaster are not only affected by victim characteristics but also by the patterns of aid distribution and the access to that aid. These interdependencies between material and immaterial aspects will be even greater as toxins are involved. Uncertainty, cover-up stories and lack of adequate information about the degree and kinds of exposure will strongly influence the fear afterwards and, as a consequence, the level of psychological stress. It is plausible that psychological stress influences the physical condition. This explains the rising level of health complaints in the years after the Bijlmer air crash.

A disaster can thus become front-page news for years and years on end. This in itself increases the tension among victims. New information is discovered;

dissatisfied people initiate actions; problems arise with the handling of the contaminated ground. Uncertainty makes things worse for all those concerned. The impossibility to give (and get) sound and clear answers to the probing questions becomes more of a problem than the consequences of the exposure itself.

### 5.2. Dealing with Uncertainty: The Importance of Information

If uncertainty and fear constitute the source of long-term health problems, it is the task of government to reassure and inform the affected citizens. A key factor then becomes the provision and communication of “good” information. This information has to be disseminated, both within and between the organizations involved as well as towards the various categories of victims, the broader public and the mass media. Correct and sufficient information thus becomes a most valuable “commodity” in resolving (or preventing) the “disaster after the disaster”. Different steps can be taken to ensure a steady flow of reliable information.

After a disastrous situation has occurred, authorities should initiate a well-staffed information unit that can function for quite some time (years on end if necessary). This unit can be the intermediary organization – the linking pin – between different groups of victims and the many organizations working on all aspects of material and immaterial aftercare. People need a place to go to with all their questions. The unit can monitor questions, topics and major problems that victims confront them with. Peaks and patterns in “question behavior” draw attention to more structural weaknesses or latent problems in the relief work. The information unit thus effectively becomes an early warning instrument. An effective information unit can also become the organization that initiates “outreach programs”, which are proactive approaches to certain categories of victims. As the victims become known in the unit, their level of involvement (death of family members, extensive property loss, prolonged disruption of life) and, possibly, their prior psycho-social status can be used to identify high-risk survivors [62].

The Dutch have recently had the (unfortunate) opportunity to put this lesson into practice. In the week after a major explosion in a fireworks storage in the eastern town of Enschede (13 May 2000), an information and action center (IAC) was installed. The Ministry of Health was the key stimulator of this IAC, following up on an important recommendation of the parliamentary inquiry into the Bijlmer air disaster. This IAC will be in function for at least 5 years.

In addition, research has been initiated in order to determine possible exposure of inhabitants to fireworks chemicals. A population research was carried out within 6 weeks after the explosion. In the weeks prior to this investigation, more and more people called attention to the possibility that different types of toxins could have been released in the explosion. Everyone who suspected or feared exposure was invited to participate in the population research. Several blood samples were taken and persons were asked to complete an extensive questionnaire (50 pages) about their activities in the first hours and days after the disaster, and about their personal, physical and mental condition before and after the explosion. The blood samples will be kept for an indefinite period of time. Should new problems arise and new rumors spread about mysterious health problems, the stored samples can be compared against new samples.

The local government of Enschede did not support the idea of this research, but the Ministry of Health carried it out anyway. Local authorities argued that no toxins were involved. They feared that the population research might unintentionally cause problems. Ultimately, about 4000 people showed up for the research and the initial results were not alarming. The potential benefits, however, are two-fold: “First, it will ensure that new data collection during the unfolding of the disaster will tap the concerns of the community and thus will more precisely measure the mental health among the survivors; and second, it will provide a background of trust between the community and mental health professionals that might facilitate the successful implementation of intervention activities” [63].

The Amsterdam experience predicts that an open attitude, well-structured information and well-organized communication can diminish the problems that may occur during the aftermath of a disaster. During the Bijlmer aftermath, local and especially national authorities apparently expected that rumors and stories about possible hazards would eventually die down and disappear. This did not happen. The administrative neglect of admittedly weak and distorted signals, combined with the growing suspicion among survivors that they were not being taken seriously, fueled feelings of impotence and lack of control amongst them. If crisis authorities take the pains to set up firm structures for long-term aftercare, the process of refounding community will be greatly facilitated.

### 5.3. Facilitating Self-Help Organizations

In the aftermath of disasters, various types of self-help organizations can spring into existence. For instance, shortly after the disaster with the *Herald of Free Enterprise* (1987) survivors created the Herald Family Association. The primary goal of this association was to help its members cope up with the disaster [64]. But it also aimed to improve the safety of other so-called “ro-ro” ferries and to raise the issue of corporate responsibility in all its forms. Authorities, corporations and other relief organizations are often less than enthusiastic about the activities of these self-help organizations.

It is true that a collectively organized interest group can be quite difficult to deal with for authorities. These organizations have easy access to media attention and are known to monopolize the moral high ground. Nevertheless, a cooperative attitude towards these groups is likely to have more advantages than disadvantages in the long run. In fact, we suggest that authorities should stimulate if not facilitate the forming of self-help organizations. These organizations can help diminish the collective stress after the disaster and help individuals cope up with their traumas. In addition, close contact with these groups makes it easier to monitor emerging and persistent problems; self-help organizations may function as one of the best early warning instruments.

### 5.4. Dealing with Uncertainty: Investigations, Evaluations and the Litigation Process

A very important aspect of uncertainty has to do with the causes of the disaster. Survivors are very interested in all stories, rumors and facts about the accident or disaster that they have endured. Newspapers and television programs are closely watched when “their” disaster is in the news. Official investigations into the causes

of the disaster are intensely monitored. All involved want to know what happened and why it had to happen that way. Many want to be heard by the investigators; they feel entitled to a hearing of their views.

The effective management of the disaster aftermath requires a strategy with regard to the causes of a disaster. Problems arise when different reports and evaluations communicate opposite opinions and conclusions. As there are many interests at stake in the analysis of disaster causes (the “guilty” party can expect huge bills, years of litigation and criminal prosecution), conflicting conclusions are likely to emerge.

Moreover, the complexity of technological or man-made disasters virtually ensures that a “simple” and widely agreed upon explanation of causes and responsibilities will not arise. Disasters are nearly always the unique product of interacting failures that find their roots in individual error, organizational pathologies and unforgiving environments [65]. Operators broke seemingly insignificant rules or procedures; inspections were rarely held; certain warnings were denied or forgotten; the rescue operations were not as good as they could have been and the public warnings turned out to be quite ineffective. These features are rather typical for technological disasters.

This creates quite a challenge for crisis managers. Victims and survivors are keen to learn the complete story of causes and backgrounds; they must know whether their families have been exposed to dangerous substances. But there are individuals and organizations that may have much to lose; transparency and integrity may require self-incriminating practices. Indeed, some involved parties may cover up, stonewall or blame others. This type of practices increases uncertainty and helps to generate rumors. The end result is that victims become even more frustrated in their attempts to understand what has happened to them.

Officials and authorities should try to initiate and stimulate an independent and integrated investigation, which focuses not only on the causes, but also on the state of preparedness and the quality of the response. The investigation should not be aimed at allocating blame, but it should facilitate learning processes. This may require institutional change in countries where no independent evaluative bodies exist. An independent, authoritative body of expertise can become the anchor point in the confusing aftermath of a disaster.

In conclusion, it can be said that disasters involving toxic substances are very complex in nature. Complex problems defy simple solutions. One should be aware that no matter what authorities do, their actions will always be criticized [66]. But the Bijlmer case shows us that doing nothing is not an option. Inaction on the part of authorities leads to sustained uncertainty, which, in turn, feeds a sickening fear among survivors with regard to their health and the health of their families and loved ones. The first step for crisis managers, therefore, is to keep the longer term in mind while dealing with immediate and pressing problems. Only if crisis managers become aware of the potential problems that may arise during the aftermath, can the disaster after the disaster be averted.

### **Acknowledgements**

The authors wish to thank Paul ‘t Hart for his constructive comments on an earlier version of this article.

## References

1. U. Rosenthal, M. Van Duin, P. 't Hart, A. Boin, M. Kroon, M. Otten, W. Overdijk, *De Bijlmerramp: Rampbestrijding en Crisismanagement in Amsterdam*, Crisis Onderzoek Team, Leiden/Rotterdam, 1993.
2. U. Rosenthal, A. Boin, C. Bos, Shifting identities: the reconstructive mode of the Bijlmer plane crash, in: U. Rosenthal, A. Boin, L. Comfort (Eds.), *Managing Crises: Threats, Dilemmas, Opportunities*, Charles C. Thomas, Springfield, 2001.
3. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999.
4. P. 't Hart, A. Boin, From crisis to normalcy: the long shadow of post-crisis politics, in: U. Rosenthal, A. Boin, L. Comfort (Eds.), *Managing Crises: Threats, Dilemmas, Opportunities*, Thomas, Springfield, 2001.
5. U. Rosenthal, P. 't Hart, M. Van Duin, A. Boin, M. Kroon, M. Otten, W. Overdijk, *Complexity in Urban Crisis Management: Amsterdam's Response to the Bijlmer Air Disaster*, James & James Science Publishers, London, 1994.
6. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 232.
7. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 234.
8. *Het Parool*, 27 February 1993.
9. *Trouw*, 16 September 1993.
10. *Haagsche Courant*, 17 September 1993.
11. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 108.
12. B. Gersons, I. Carlier, Plane crash intervention: a preliminary report from the Bijlmermeer, Amsterdam, *Clinical Insights* 14 (1993) 109–116.
13. *Haarlems Dagblad*, 25 January 1994.
14. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 300.
15. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 301.
16. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 302.
17. *Trouw*, 12 September 1997.
18. *Algemeen Dagblad*, 31 March 1998.
19. *De Limburger*, 31 March 1998.
20. *Trouw*, 31 March 1998.
21. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 234.
22. *NRC*, 30 September 1998.
23. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 246.
24. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 337.
25. Meijer Commission, *Een Beladen Vlucht, Parlementaire Enquête Vliegcrash Bijlmermeer*, 1999, p. 339.
26. Stuurgroep Nazorg Bijlmermeer, *Rapportage Stuurgroep Nazorg Bijlmermeer*, 1993.
27. B. Gersons, I. Carlier, Plane crash intervention: a preliminary report from the Bijlmermeer, Amsterdam, *Clinical Insights* 14 (1993) 111.
28. I. Carlier, B. Gersons, *De Korte-Termijn Gevolgen van de Bijlmerramp*, *De Psycholoog* (1995) 172–176.
29. B. Gersons, I. Carlier, J. Ijzermans, *Terugblikkend in de Spiegel der Emoties: De Nasleep van de Bijlmervliegcrash*, *Maandblad Geestelijke Volksgezondheid*, submitted for publication.
30. *De Limburger*, 12 October 1996.

31. G. Ijzermans, J. Van der Zee, *Gezondheidsklachten en de Vliegkamp Bijlmermeer, Een Inventariserend Onderzoek*, Academisch Medisch Centrum and Nederlands Instituut voor Onderzoek van de Gezondheidszorg, Amsterdam, 1999.
32. G. Ijzermans, J. Van der Zee, *Gezondheidsklachten en de Vliegkamp Bijlmermeer, Een Inventariserend Onderzoek*, Academisch Medisch Centrum and Nederlands Instituut voor Onderzoek van de Gezondheidszorg, Amsterdam, 1999, p. 137.
33. G. Ijzermans, J. Van der Zee, *Gezondheidsklachten en de Vliegkamp Bijlmermeer, Een Inventariserend Onderzoek*, Academisch Medisch Centrum and Nederlands Instituut voor Onderzoek van de Gezondheidszorg, Amsterdam, 1999, p. 141.
34. *Het Parool*, 2 October 1998.
35. *Haagsche Courant*, 24 December 1998.
36. *Het Algemeen Dagblad*, 24 January 1999.
37. M. Bovens, P. 't Hart, *Understanding Policy Fiascoes*, Transaction Books, New Brunswick, 1996.
38. C. Perrow, L. Clarke, Prosaic organizational failure, in: H.K. Anheier (Ed.), *When Things Go Wrong, Organizational Failures and Breakdowns*, Sage, Thousand Oaks, 1999, pp. 341–360.
39. A. Barton, *Communities in Disaster*, Double Day, Garden City, 1969.
40. U. Rosenthal, Future disasters, future definitions, in: E.L. Quarantelli (Ed.), *What Is A Disaster? Perspectives on the Question*, Routledge, London, 1998, pp. 146–160.
41. K. Erikson, *A New Species of Trouble: Explorations in Disaster, Trauma and Community*, W.W. Norton & Company, New York, 1994, p. 228.
42. C. Wilkinson, E. Vera, Clinical responses to disaster: assessment, management and treatment, in: R. Gist, B. Lubin (Eds.), *Psychological Aspects of Disaster*, Wiley, New York, 1989, pp. 421–439.
43. A. McFarlane, The ash Wednesday bushfires in South Australia: implications for planning for future post-disaster services, *Med. J. Aust.* 141 (1984) 286–291.
44. R. Reich, *Toxic Politics, Responding to Chemical Disasters*, Cornell University Press, Ithaca/London, 1991.
45. Comments taken from an internal seminar with Professor Gersons at the Leiden University Crisis Research Center, Spring 2000.
46. K. Erikson, *A New Species of Trouble: Explorations in Disaster, Trauma and Community*, W.W. Norton & Company, New York, 1994.
47. K. Erikson, *A New Species of Trouble: Explorations in Disaster, Trauma and Community*, W.W. Norton & Company, New York, 1994, pp. 236–238.
48. U. Rosenthal, M. Charles, P. 't Hart (Eds.), *Coping with Crisis: The Management of Disasters, Riots and Terrorism*, Charles C. Thomas, Springfield, 1989.
49. M. Comerio, *Disaster Hits Home*, University of California Press, Berkeley, 1999.
50. H. Kunreuther, R. Roth (Eds.), *Paying the Price: The Status and Role of Insurance Against Natural Disasters in the United States*, Joseph Henry Press, Washington, DC, 1998.
51. U. Rosenthal, P. 't Hart, Experts and decision makers in crisis situations, *Knowledge* 12 (1991) 350–372.
52. J. Grönvall, Mad cow disease, the role of experts and European crisis management, in: U. Rosenthal, A. Boin, L. Comfort (Eds.), *Managing Crises: Threats, Dilemmas, Opportunities*, Thomas, Springfield, 2001.
53. I. Carlier, R. Lamberts, A. Van Uchelen, B. Gersons, Disaster-related post-traumatic stress in police officers: a field study of the impact of debriefing, *Stress Med.* 14 (1998) 143–148.
54. T. Drabek, *Human System Responses to Disasters: An Inventory of Sociological Findings*, Springer, New York, 1986.
55. T. Shibutani, *Improvised News: A Sociological Study of Rumor*, The Bobbs-Merill Company, New York, 1966.
56. U. Rosenthal, A. Boin, L. Comfort (Eds.), *Managing Crises: Threats, Dilemmas, Opportunities*, Thomas, Springfield, 2001.
57. K. Erikson, *A New Species of Trouble: Explorations in Disaster, Trauma and Community*, W.W. Norton & Company, New York, 1994, p. 232.
58. P. Hodgkinson, M. Stewart, *Coping with Catastrophe: A Handbook of Disaster Management*, Routledge, London, 1991.

59. A. Boin, B. Jacobs, The Stephen Lawrence case: the metropolitan police in crisis, in: U. Rosenthal, A. Boin, L. Comfort (Eds.), *Managing Crises: Threats, Dilemmas, Opportunities*, Thomas, Springfield, 2001.
60. M. Van Duin, *Van Rampen Leren*, Haagse Drukkerij en Uitgeversmaatschappij, Den Haag, 1992.
61. A. Boin, M. Van Duin, Prison riots as organizational failures, a managerial perspective, *Prison J.* 75 (1995) 357–380.
62. E. Bromet, The nature and effects of technological failures, in: R. Gist, B. Lubin (Eds.), *Psychological Aspects of Disaster*, Wiley, New York, 1989, pp. 120–140.
63. E. Bromet, The nature and effects of technological failures, in: R. Gist, B. Lubin (Eds.), *Psychological Aspects of Disaster*, Wiley, New York, 1989, p. 123.
64. P. Spooner, Corporate responsibility in an age of deregulation, in: D. Parker, J. Handmer (Eds.), *Hazard Management and Emergency Planning: Perspectives on Britain*, James & James, London, 1992, pp. 95–109.
65. B. Turner, N. Pidgeon, *Man-Made Disasters*, Butterworth-Heinemann, London, 1997.
66. A. Davidson, *In the Wake of the Exxon Valdez: The Devastating Impact of the Alaska Oil Spill*, Sierra Book Club, San Francisco, 1990.

## Some Consequences of Crisis Which Limit the Viability of Organizations

**Charles F. Hermann**

**Source:** *Administrative Science Quarterly*, 8 (1963): 61–82.

The initial interest in examining crises resulted from the observation of recurrent crises in contemporary international relations. It became apparent, however, that in its reaction to external crises a foreign office or other agency (i.e., an international organization) operating in the international arena shared certain characteristics with the generic class of formal or complex organizations.<sup>1</sup> In a crisis an organization may initiate far-reaching consequences both for its environment and for the organization itself. The internal effects of a crisis on an organization are diverse and, on occasion, contradictory. Richard C. Snyder<sup>2</sup> has outlined two polar effects that an external crisis can bring about in an organization: The crisis may be associated with the closer integration of the organization, the appropriate innovations for meeting the crisis, and the clarification of relevant values, or at the other extreme, it can lead to behavior which is destructive to the organization and seriously limits its viability.

A thorough exploration of organizational crises should account for the mechanisms in both polar types. The present inquiry, however, is confined to a fragment of the total response patterns, considering only a small, manageable number of variables associated with processes which are dysfunctional to the organization's goals and the satisfactions of its personnel.

To explore how certain responses may hinder an organization's viability, the paper will offer a series of interrelated propositions, or a model. As a demonstration that the propositions occur in the "real" world, some empirical evidence from organization literature will be offered. Both the political and non-political case studies, as well as the occasional experimental findings cited, should be considered as illustrative materials rather than as conclusive evidence. Treatment of the propositions to ensure the comparability of the relevant aspects of each case and the exclusion of plausible alternative hypotheses must await more systematic research. This paper attempts to serve as a guide for such an endeavor. A brief discussion of the definition of crisis will be followed by propositions and illustrative data and by possible operational indices of the variables involved.

### **The Concept of Crisis**

Studying crisis phenomena provides an opportunity to examine an instrument of both organization and societal change, highlights some of the essential features of organizational and decisional processes, and differentiates them from less vital factors under the extreme conditions associated with a crisis. Crises seem to



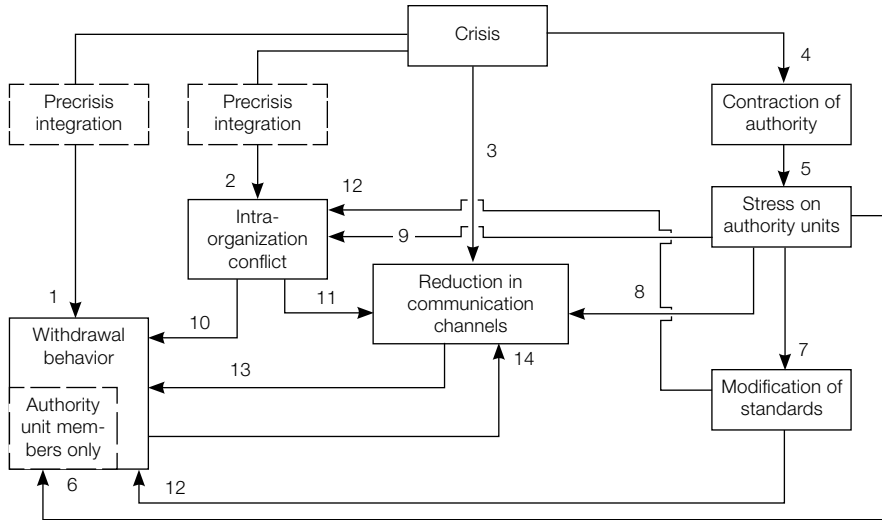
appear frequently enough to permit systematic study and are of such a nature that they not only *permit* but also *warrant* investigation. As noted, crises are devices of change – change that may be associated with extreme behavior. Referring to the inordinate nature of crises in international politics, Charles McClelland has suggested that they “are perceived vividly as the avenues that are most likely to lead into extensive or general nuclear war.”<sup>3</sup>

In spite of the potential value of studying crises, little distinction has been made between the concept of crisis and a number of seemingly related terms (e.g., tension, stress, anxiety, disaster, and panic). Crisis has been separated from some of these other concepts by the concept of stimulus and response.<sup>4</sup> In this conceptualization a crisis is conceived as a stimulus to which certain kinds of behavior – like anxiety or panic – are possible responses. Some of the distinctions appear to be, in part, the usage of different disciplines. Psychologists are inclined to employ concepts such as anxiety, threat, or stress,<sup>5</sup> sociologists and political scientists use such terms as panic and crisis.<sup>6</sup> An interdisciplinary group has focused on the concept of disaster.<sup>7</sup> Recently some efforts have been made to describe crisis in terms of an occasion for decision.<sup>8</sup>

No attempt is made here to link the term with all possible related terms, but a working definition of crisis will be formulated along three dimensions. An organizational crisis (1) threatens high-priority values of the organization, (2) presents a restricted amount of time in which a response can be made, and (3) is unexpected or unanticipated by the organization. Both the involvement of major organizational values and short decision time have been indicated as aspects of crisis in several definitions of the concept.<sup>9</sup> Fewer definitions have incorporated the element of surprise or the unanticipated quality of a crisis situation. The notion of programmed versus unprogrammed activity may be a component of the lack-of-anticipation dimension, but as a foreign policy planner has observed, it is not possible to have a program for every contingency, since “the number of theoretically possible crises in the years ahead is virtually infinite.”<sup>10</sup> The lack of a programmed response, however, does not necessarily imply that the contingency has not been at least recognized. As used here, “unanticipated” implies not only the lack of a program, but lack of prior recognition of the possibility of the event occurring. An assertion of the importance of this dimension is made by Richard LaPiere who states that only when phenomena are unpredictable can they be defined as crises.<sup>11</sup>

It is possible that the three dimensions can be varied to yield different types of crises. In surveying the literature on the apparently related concept of disaster, Guetzkow<sup>12</sup> has concluded that the variables frequently are identical with those used in general psychology and sociology. The distinctive quality is that the values assumed by variables in disaster research often fall outside the limits of variable intensity incurred in other studies. Lanzetta’s study of stress variation in experimental groups<sup>13</sup> may be indicative of the kind of exploration that could be done with the dimensions of a crisis. For the exploratory purposes of this paper, however, no effort will be made to compare the extent to which each dimension is present in the various materials used in supporting the propositions.

The relationship between the proposed working definition of crisis and seven other variables will be outlined in the following pages. An over-all view of the linkages among these variables is diagramed in Figure 1. The propositions



**Figure 1:** Summary diagram of relationships between crisis and selected organization variables (the numbers correspond to numbered propositions in text)

suggested by the lines on the diagram can be broken into three subareas: (1) direct consequences of crisis stimuli, (2) stress on authority units and its transfer, and (3) organizational response to transfer.

**Consequences of Crisis Stimuli**

In the present model four variables are represented as being directly dependent upon the occurrence of a crisis stimulus.<sup>14</sup> They are represented in four propositions, which are stated and illustrated in the discussion which follows.

**Proposition 1.** As precrisis organizational integration decreases, a crisis will increase the tendency of members of an organization (both individuals and sub-organizational units) to exercise withdrawal behavior. The withdrawal variable in this proposition is the terminal dependent variable considered in this model, but the major portion of the system suggests a series of intervening mechanisms. In effect, the first proposition is a short-circuiting of the model. As employed here, “withdrawal behavior” refers to more than the physical activity of “leaving the field.” Operational measures of withdrawal might include the reduction in rates of production, increased absenteeism and employee turnover, increased sub-unit failure to meet deadlines, and various attitude measures of dissatisfaction. It is hypothesized that the short cut represented by Proposition 1 is more likely to occur if organizational integration is low prior to the crisis. Integration (represented by the broken-line box in Figure 1) is used here as the sum of all forces operating to keep units in the organization performing their tasks for the attainment of organization goals.<sup>15</sup> There is a close relationship between integration and withdrawal behavior, which might be defined as the negative aspect of integration. Thus, high precrisis organizational integration could be characterized as having low tendencies toward withdrawal behavior.

A. W. Gouldner found evidence of the withdrawal mechanism operating in a plant where a crisis occurred in the form of technological innovations and where the integration between employees and management had been previously strained.<sup>16</sup> A Senate investigation discovered a crisis in the United States Patent Office resulting in part from increases in the complexity of search procedures and from a large backlog of applications. The subcommittee report on the situation observed that “the turnover of trained personnel becomes more acute each month.”<sup>17</sup> Indications of similar behavior are reported in a small-group study in which the group leaders withdrew under extreme stress<sup>18</sup> and in a proposition based on a survey of disaster studies.<sup>19</sup> Despite the tendency of the illustrations to suggest a direct linkage between crisis and withdrawal, it is possible that this is a spurious effect of a more complex relationship which the research efforts did not uncover.

**Proposition 2.** As precrisis organizational integration decreases, a crisis will tend to intensify any conflicts existing prior to the crisis. As in Proposition 1, it seems important to identify one intervening variable – the level of precrisis organizational integration. Following the nationalization of British hospitals, top administrators gained increased authority over doctors. This change in their authority relationship led to conflict.<sup>20</sup> Summarizing his survey, N. J. Demerath states “pre-disaster dissatisfactions . . . are heightened or triggered in the disaster situation.”<sup>21</sup> In a small-group experiment, groups participated in a game in which time restrictions were imposed.<sup>22</sup> A crisis was induced in one-half the groups by unannounced changes in the scoring rules midway through the game, thus making successful solution of the problem (high scores) unattainable. Under such circumstances, group conflict increased. One demonstration of this change was the difference between the control and crisis groups on verbal antagonism (significant at .0002 level). Another investigator, using sociometric measurements, found that the stability of group affective linkages decreased under stress, and also found other indicators of group conflict.<sup>23</sup>

**Proposition 3.** With the introduction of a crisis, the total number of communication channels used for the collection and distribution of information will be reduced. This proposition suggests the relationship of communication channels to crisis. The aspect of communication used in this proposition deals with the network that connects the information transmitter and receiver. Essentially, a communication channel is a routinized means of exchanging information, ranging from a frequent pattern of face-to-face contacts to the employment of some mechanized transmission system (e.g., written orders, telephone, commercial mass media).

In the study of communication networks in military organizations it has been discovered that in combat there is a tendency for communication “to decrease and break down.”<sup>24</sup> This phenomenon appeared to occur at a number of different levels from organization to individual. A psychologist working in another governmental department found that there was a reduction in the number of people consulted in a problem-solving task when time pressures increased.<sup>25</sup> Based on data from a series of interviews, a chi-square test indicated that this relationship (time pressure and reduction in consultation) was significant at the .02 level. If the number of personnel consulted can be taken as an index of the communication channels involved, then this might be cited as partial support for Proposition 3. If public information about the U-2 aircraft brought down inside the Soviet Union

in 1960 was accurate, the United States government was confronted with a crisis in which some evidence of closure of communication channels appeared. A selected group drawn from the National Security Council is reported to have met with the President, and a decision reached that the prearranged story should be invoked with all statements issued by the Department of State. A critical delay in relating this decision to the White House press secretary, however, resulted in an announcement that bulletins would be released by the State Department and the National Aeronautics and Space Administration (NASA). Communication channels between the White House and NASA, and between NASA and the State Department are also reported to have been defective.<sup>26</sup>

Before exploring the next proposition, the reduction in communication channels in an organizational crisis must be reconciled with apparently contradictory reports of information overload in a crisis.<sup>27</sup> The proposition in this paper involves the number of communication *channels* employed, resulting in a decrease in the total distribution and collection of information in the organization. But in those channels that remain, the information load (quantity of binary units) may well reach overload proportions.

**Proposition 4.** In response to a crisis stimulus, there is a tendency toward contraction of authority in the organization. In terms of the remainder of the model the most important direct dependent variable of a crisis stimulus may be the contraction of authority. Authority is conceived as legitimate power, or the power of individuals and groups, the acceptance of which is recognized as obligatory by the rest of the organization. The power of an individual or larger organizational unit, *A*, is stated as the ability of *A* to get some other unit or individual, *B*, to act when-instructed to do so by *A*. "Contraction," is intended here to represent one of several alternatives: (1) the shifting of authority activities to higher levels in a hierarchical structure, (2) a reduction in the number of persons or units participating in the exercise of authority without reference to a hierarchy, and (3) an increase in the number of occasions for the exercise of authority, although the actual number of authority units remains constant.

Contraction of authority is illustrated in the hypothesis formulated by Snyder and Paige based on their study of the decisions of the United States to take military action in Korea: "When crucial choices are forced on an organization from the environment, the decisional subsystem will be characterized by smaller decisional units."<sup>28</sup>

In the analysis of what might be described as a crisis-oriented organization, Janowitz found that as a military situation takes on aspects of a crisis "the more feasible it becomes for officer personnel to claim that new problems are outside their jurisdiction and require directives from higher authorities."<sup>29</sup> Considering only the dimension of high-priority values, Dean Pruitt has revealed that the increase in danger of a problem to United States objectives correlated with both an increase in the coordination required for the problem and in the level of approval (rank of signer) required.<sup>30</sup> These correlations are statistically significant at less than the .05 level. In the United States Patent Office several factors are creating a contraction of authority. As previously noted, there has been some turnover among the personnel with the authority to decide patent applications. At the same time, the number of applications filed and the slowdown resulting from the increasing "complexity of disclosures and the growing burden of search load"<sup>31</sup> has produced a

large backlog of applications. Two types of contraction of authority are operating: a reduction in the number of persons in positions of authority and, simultaneously, an increase in the number of occasions for authority decisions.

### **Stress on Authority Units and its Transfer**

Richard Meier has suggested that “much of the stress is transmitted to component groups and individuals” and “to its clients in the milieu” by the executive leadership of an organization when it is placed under acute stress.<sup>32</sup> The increase in the stress on authority units and the attempts to transfer some of this stress to other parts of the organization are the subject of several propositions which are illustrated in the discussion which follows.

**Proposition 5.** As contraction of authority increases, the stress upon existing authority units increases. The increase in stress on authority units as a result of the contraction of authority is the mechanism in the system which brings about attempts to transmit the stress to other units in the organization. The proposition suggested here is that when authority is contracted, the stress felt by authority units is intensified beyond that induced in other organizational units. Richard Meier’s comment that a crisis occurs when stress “reaches a peak at the executive level”<sup>33</sup> is relevant here.

The association of crisis with such terms as stress has been noted. One author has observed that “high stress . . . is almost universally characteristic of international crisis situations.”<sup>34</sup> In the present context stress will be differentiated as a characteristic of the organization’s response to a crisis. Although it frequently may involve affective components of the organization’s personnel, a wide range of possible indicators of stress can be listed. It might be identified by overtime work, an increase in the number of errors made in routine tasks, greater tendencies toward problem-solving rigidity, reduction in the time spent on long-range projects, and increased scores on such psychometric instruments as the Manifest Anxiety Scale<sup>35</sup> as compared with scores in less stressful periods.

Several examples of this proposition can be cited. In a case study of a wildcat strike, decisions made by top management are reported to have displayed evidence of problem-solving rigidity.<sup>36</sup> Thus, as management-employee relations deteriorated and the problem was sent to higher authorities for resolution (contraction of authority), there were signs of stress on authority units; that is, some failure by management to explore possible alternative courses of action. The U-2 incident involved an effort to contract authority with respect to the agency responsible for releasing statements on the missing aircraft. Some indicators of subsequent stress have already been noted in terms of the communication-clearance problem and others are mentioned by David Wise and T. B. Ross.<sup>37</sup> Although it falls outside the range of formal organizations, an interesting analogy can be drawn from the activities of an anthropologist who became involved in Polynesian society. The small island society was experiencing a combination of natural disasters and difficulties in its governmental operation. When the existence of the people was threatened, the anthropologist catapulted to a position of authority after the natural leadership had contracted. He recalls:

The immediate situation and succession of crises had been so overwhelming that I had not even thought of the obvious long-term solution, migration, as a

practical possibility. It was not until several days after the crisis . . . that it really occurred to me.<sup>38</sup>

In this incident, stress is evident in the loss of attention to long-range solutions and to some extent in problem-solving rigidity.

**Proposition 6.** As authority unit stress increases, the tendency of authority units to withdraw from organizational tasks increases. If the occurrence of a crisis can lead directly to withdrawal behavior, it seems reasonable that further stress beyond that of the initial crisis stimulus will also lead to withdrawal. This proposition, however, is confined to the withdrawal patterns of members of authority units. On the basis of observations in communications-oriented institutions, one investigator suggests that when leaders believe that a crisis has become intolerable, they may permit “a takeover, bankruptcy or mass resignation.”<sup>39</sup> A number of examples of stress can be found in the appropriate authority units of major European foreign offices in the crisis preceding the outbreak of World War I. There were also signs of withdrawal behavior as evidenced by a report from one source that German Chancellor Bethmann-Hollweg offered his resignation to the Kaiser a few days prior to the outbreak of the war.<sup>40</sup> A recent attempt to simulate critical aspects of the outbreak of World War I also resulted in a resignation attempt by one of the principal participants.<sup>41</sup> Summarizing findings on groups under stress, drawn from small-group research, E. P. Torrance states that when stress reaches a certain intensity “the leader feels so threatened that he either takes away all power from others or abdicates his own power role.”<sup>42</sup>

**Proposition 7.** Under increasing stress, an authority unit is more likely to institute modifications in organization standards. Organization standards represent criteria (usually determined by management or their representatives, e.g., efficiency experts) for the measurement of performance and production rates within the organization. As used here, organization standards may involve the objectives or goals (as defined by the organization’s authority units) for which the organization exists. This variable is the only one in the present miniature system which can readily be identified as a major crisis-solving device. It is included here because of some negative effects that may be associated with its use.

In his discussion of the American Red Cross, D. L. Sills notes that the crisis of declining membership after the end of World War I “was surmounted by adopting a new program – the preservation and improvement of public health.”<sup>43</sup> Thus, new standards were introduced. When faced with the post-war business slump and increased competition, the management of one company made technological changes to increase production rates.<sup>44</sup> Richard Meier reports on the modification of standards made in a major library, whose administrators were faced with increasing stress.<sup>45</sup> Certain standards of performance were relaxed or countermanded, e.g., the time required to fill a request for a book from the stacks, or the speed with which overdue notices were dispatched. Several political scientists, using a content analysis of diplomatic documents, have uncovered an apparent change in requirements (or standards) for war held by Germany and Austria-Hungary.<sup>46</sup> There is evidence that, prior to the crisis in the summer of 1914, those governments strongly wished to avoid war until their military capabilities placed them in a more favorable position with respect to their potential enemies. As the stress upon the official decision makers increased – reflected in the increased amount of affect in their statements – the objective of avoiding immediate hostilities was abandoned. Some consequences of modifications in organization standards will be deferred to a later proposition.

**Proposition 8.** The increase in stress on authority units will reduce the number of communication channels used for the distribution and collection of information. Another dependent variable of stress on authority units is the reduction in the number of communication channels used by the unit. If the assumption is made that any search activity frequently involves the use of communication channels, then the proposition by March and Simon, with its accompanying evidence, becomes pertinent: “Search becomes less fruitful as stress and time pressure are pushed to the limit.”<sup>47</sup> Persons responsible for proposing a solution to a problem also tend to consult others less frequently when time pressures became great, as noted by Dean Pruitt.<sup>48</sup> A recent volume on the opening campaigns of World War I indicates that in the first month of the war, General Joseph Joffre and the French General Staff, under the stress of the German attack, are reported to have adhered rigidly to a designated offensive strategy.<sup>49</sup> In that action they neglected certain field commanders (as well as part of the civilian government) as channels of communication – channels which were attempting to warn of needed defensive moves to prevent a German envelopment. A comment based on the study of disaster materials also might be linked to Proposition 8: “One way a feedback control system can react more rapidly is to cut down the signal range. Both individuals and community systems revert, in sudden disaster, to a restricted set of referents.”<sup>50</sup> Like the disaster materials, the small-group studies are not directly applicable to an organizational model; but, if the findings are recognized as only suggestive, then the probability that a communication breakdown between a leader and members of his group increases under severe stress is worth consideration.<sup>51</sup>

**Proposition 9.** Increased stress on authority units will increase the probability of conflicts between the authority units and other units in the organization. This proposition, concerned with efforts to transfer stress in a crisis, relates stress in authority units to intraorganization conflict. For the present exploratory purposes, reference will be made only to two manifestations of conflict – factionalism and role conflicts. Factionalism results when a course of action is favored by one or more members of a unit more or less consistently and opposed by one or more other groups within the unit. Operational measures might be recorded by means of action preferences of various subunits as registered in interviews or questionnaires. Role conflict is the conflict between two or more patterns of behavior expected from a single position in an organization. One means of determining role conflicts is by use of the S technique in factor analysis.<sup>52</sup>

Both role conflicts and factionalism were reported in the wildcat strike study. Union leaders found themselves caught between their role of representing all union grievances and their identification with management and its problems. As a result “union leadership at the Oscar Center plant was divided into two, not completely stable cliques.”<sup>53</sup> Another study indicates that a government laboratory experienced a redefinition of goals in order to obtain financial support (the stress situation). “A number of factional splits appeared, the most striking of which was that between the ‘old guard’ and the new leaders supporting the development.”<sup>54</sup>

R. H. McCleery presents a case study of an attempt by prison management to change their institution’s policy from a custodial to a treatment orientation.<sup>55</sup> Although the stress upon the authority unit or management in this case is not clearly documented, it seems to be present along with the given disorders and difficulties which followed the policy change and eventually led to an investigation by the

state legislature. What is clearly presented is the role conflicts that confronted both the staff and prisoners. A final example of stress on authority units creating intraorganization conflict is drawn from international relations. The Japanese cabinet faced a severe stress situation in deciding on the response to the Potsdam Declaration – the Allied request for unconditional surrender. The subsequent conflict was such that the cabinet agreement was reportedly violated by one of the factions.<sup>56</sup>

Contradicting the evidence cited are the small-group experiments of J. T. Lanzetta: “It was found that as stress increased there was a decrease in behaviors associated with internal friction in the group; a decrease in number of disagreements, arguments, aggression, deflations and other negative social-emotional behaviors.”<sup>57</sup> A possible explanation for this contrary evidence can be drawn from Torrance’s work on leadership and stress.<sup>58</sup> He reports one kind of behavior under mild stress and another under more intense stress. Thus, assuming a curvilinear relationship, leadership may delegate authority under mild stress but centralize it under acute stress or establish strong communication links under moderate stress which break down as stress increases. If this explanation is correct, it is important for the accuracy of the present proposition to establish that the added stress to authority units under crisis is beyond the apparent threshold for acute stress.

Alternatively, the contradiction may stem from a difference between small groups, which are not embedded in organizations, and organizations. The conflicts in organizations might be accounted for by an intervening variable, such as pre-crisis factionalism between organizational units or the extent of independence of units within the organization. Neither of these intervening variables would be applicable to an isolated face-to-face group. But, in an organizational context, stress on authority units might produce intraorganizational conflict, depending on whether the larger organization splintered – as a result of factionalism or sub-organization independence – into sections with strong in-group and out-group perceptions. A possible illustration of this alternative is displayed in the study of prison officials discussed at the beginning of Proposition 10.

### **Organizational Response to Transfer of Stress**

In this final section some propositions will be advanced to suggest how an organization’s response to attempts by an authority unit to transfer consequences of its stress can weaken organizational viability.

**Proposition 10.** As intraorganization conflict increases, there is a greater tendency for organization members to withdraw from organization tasks and activities. This proposition suggests that conflict leads to an increasing tendency toward withdrawal. In a study of prison officials, conflict led to the general atomization of the prison staff. There was a general “decline of the old informal groups among the staff” and the treatment-oriented guards, in particular, “responded to this new minority position by becoming more cohesive and remaining apart from the other officials.”<sup>59</sup> With reference to similar behavior in the military establishment, Morris Janowitz concludes: “A small, homogeneous, isolated professional group is less likely to be subjected to role conflicts,”<sup>60</sup> which indicates that one reason for withdrawal is to escape role conflicts. In the wildcat strike



case study the top union leadership escaped their role conflict by abdicating their authority, and the union members attempted a withdrawal in the form of a strike.<sup>61</sup> Attention might be directed to several non-organizational examples. One interesting parallel to this proposition is Alexander Mintz's theory of non-adaptive group behavior.<sup>62</sup> Using an experimental group, he demonstrated that when the reward for co-operative behavior became uncertain in a threatening situation, competitive behavior occurred, each person attempting to withdraw and act independently of the group. In a Polynesian society, conflict over scarce resources resulted in a similar withdrawal pattern: "Tikopia society as a result of the crisis, was atomizing into smaller and smaller kin groups."<sup>63</sup>

**Proposition 11.** As intraorganization conflict increases, the number of communication channels used for the collection and distribution of information in the organization decreases. Two of the examples cited above can also be applied to illustrate briefly the possible operation of this proposition, relating conflict to a reduction in the number of communication channels. Studying the developments leading to the strike, A. W. Gouldner observed a breakdown in the informal channels of upward communication: "The tensions that had developed after the first succession, and the impersonal demotion of the old supervisors after the second succession, had destroyed the workers' desires to be friendly with their supervisors."<sup>64</sup> A second illustration is offered by Grusky,<sup>65</sup> who found a reduction in communication between prison management factions, particularly between the supervisor and the treatment-oriented guards.

**Proposition 12.** Modification of organization standards *may* tend to increase intraorganization conflict and withdrawal behavior. This proposition cautiously links modifications in organization standards with two dependent variables – intraorganization conflict and withdrawal behavior. Withdrawal mechanisms are apparent in an examination of modifications introduced in a library's standards: "Morale . . . drops precipitately when standards are compromised. Absenteeism, sickness rate, and labor turnover (all of them partial indicators of the state of morale) may be expected to show sizeable increases."<sup>66</sup> In Gouldner's case study there is evidence that both withdrawal and eventually conflict followed modification of production standards. Regarding withdrawal, the author observes that workers "tended to remove themselves either from emotional participation or even physical participation in the plant."<sup>67</sup> The ultimate expression of conflict in that study was the wildcat strike, but, even before it occurred, indicators appeared in the reorganization of primary groups and the denial of legitimate authority to management. If modifications of standards lead to dissatisfaction, then a psychological explanation can be offered. "Aggression, withdrawal, and regression are certainly observable reactions to dissatisfaction that lead to frustration."<sup>68</sup>

Despite the evidence in support of the proposition, however, contrary findings were also discovered. When a study of changes in prison standards was quantified, short-run effects were found that tended to support the present proposition. Long-run effects, on the other hand, ran counter to it.<sup>69</sup> Also the change in Red Cross goals, cited earlier, was held to have provided a solution to the crisis.<sup>70</sup> These contradict the hypothesis offered in the proposed model. Will changes in standards contribute to crisis solutions or increased withdrawal and conflict tendencies? From the evidence given, modifications in organization standards may lead to withdrawal and conflict immediately after they are introduced, or when they are accompanied by certain side effects, or perhaps, when they are of a

certain substantive nature. This suggests that the illustrative material reported in this paper is not sufficient to indicate the conditions for differentiating between alternative outcomes. Although there is evidence to warrant inclusion of the proposition in the model, the conditions for its operation remain open and uncertain for the present.

**Proposition 13.** A reduction in the number of communication channels connecting a unit to the remainder of the organization, increases the unit's withdrawal behavior. This proposition and a complementary feedback proposition – withdrawal reduces information – constitute the final propositions of the system.

A study of a military organization reveals that when communication channels are weakened in combat, field units feel that higher authority is not only "remote and distant" but "acting capriciously and arbitrarily."<sup>71</sup> Rejection of legitimate authority might well be interpreted as an indication of withdrawal behavior. In a similar type of finding, industrial workers were reported to have increasingly hostile attitudes toward authority as they failed to receive information in response to their grievances.<sup>72</sup>

**Proposition 14.** Withdrawal behavior by a unit of an organization reduces the number of communication channels connecting it with the remainder of the organization. The final proposition reverses the relationship between the variables incorporated in the preceding proposition. Common sense suggests that when a unit elects to withdraw from an organizational environment the probability of a reduction in communication channels linking that unit with the organization is increased. It has been noted, for example, that when the employees in the wildcat strike study began to withdraw from their supervisors, there was a reduction in upward communication.<sup>73</sup> An interesting incident from the early days of World War I is also pertinent. The commander of the French Fifth Army in the Battle of Charleroi became concerned about his exposed right flank and ordered the withdrawal of his forces from the engagement, thus terminating the French hopes of bringing the war to a quick conclusion. It is reported that the commander took the action without communicating to his military superiors, because he anticipated their disapproval.<sup>74</sup> Indirect evidence is found for the proposition in a study of small-group communication. When there were good feelings and satisfaction among the group participants (nonwithdrawal behavior), then communication between them was facilitated.<sup>75</sup>

The final proposition suggests the possible role of feedback in the model. If the feedback to authority units, which are responsible for selecting and initiating a response to meet a crisis, are weakened by withdrawal behavior, conflict, or some other behavior, then greater difficulty may be experienced in resolving a crisis. It is interesting to observe that the military organization – which must be constantly prepared to deal with crises – has elaborate procedures for maintaining feedback to authority units: "The informal and unofficial channels of communication are so important that they become institutionalized in the oral 'briefing'."<sup>76</sup> What can happen if feedback systems fail is demonstrated in the study of prison management. "The lack of direct communication channels from the inmates to the guards to the supervisor ... resulted in a lack of immediate knowledge by the chief policy maker of the impact of his decisions."<sup>77</sup>

By definition crises are situations unanticipated by the organization. In an unfamiliar situation some degree of trial and error is present in seeking a response. When, for lack of feedback, an authority unit fails to discover that an error has been made,

the organization's viability may be seriously challenged. The model presented here indicates how an organization may be critically affected by changes brought about by a crisis, which may increase the possibility of error and block feedback.

### Acknowledgements

The author wishes to acknowledge his appreciation to the members of the International Relations Program at Northwestern University for their comments on an earlier draft of this paper, particularly the senior members: Professors Richard Snyder, Harold Guetzkow, James Robinson, Chadwick Alger, and Lee Anderson. Professor James W. Gladden of the University of Kentucky also gave the author the benefit of his insights.

### Notes

1. The term "crisis" is not uncommon in organization literature. At least six selections in a recent reader used crisis. See Amital Etzioni, *Complex Organizations* (New York, 1961), pp. 154, 182, 192, 203, 359, 399. There is, however, a dearth of material using crisis as a theoretical variable in the study of organizations.
2. "The Korean Decision (1950) and the Analysis of Crisis Decision-Making," paper presented at the Conference on Decision-Making in Crises, Stanford University, January 12–13, 1962.
3. Decisional Opportunity and Political Controversy: The Quemoy Case, *Journal of Conflict Resolution*, 6 (1962), 211. For an author who defines political and economic crises as extreme turning points, see Kenneth E. Boulding, *Conflict and Defense* (New York, 1962), pp. 250–251.
4. For example, see P. B. Foreman, Panic Theory, *Sociology and Social Research*, 37 (1953), 300; and R. T. LaPiere, *Collective Behavior* (New York, 1938), pp. 437 ff.
5. See R. S. Lazarus, J. Deese, and S. F. Osler, The Effects of Psychological Stress upon Skilled Performance, *Psychological Bulletin*, 49 (1952), 293–317; F. E. Horvath, "Psychological Stress: A Review of Definitions and Experimental Research" in L. von Bertalanffy and A. Rapoport, eds., *General Systems Yearbook* (Society for General Systems Research; IV, Ann Arbor, 1959), pp. 203–230; and also J. T. Lanzetta, G. R. Wendt, P. Langham, and D. Haefner, The Effects of an Anxiety-Reducing Medication on Group Behavior under Threat, *Journal of Abnormal and Social Psychology*, 52 (1956), 103–108.
6. Sociological examples might include Foreman, *op. cit.*; R. I. Kutak, Sociology of Crises: The Louisville Flood of 1937, *Social Forces*, 17 (1938), 66–72; E. L. Quarantelli, The Nature and Conditions of Panic, *American Journal of Sociology*, 60 (1954), 267–275. The long-standing use of crisis by political scientists is reflected in E. H. Carr, *The Twenty Years' Crisis, 1919–1939* (New York, 1939); and in the recent interaction approach found in C. A. McClelland, The Acute International Crisis, *World Politics*, 14 (1961), 182–204.
7. See Instituut voor Sociaal Onderzoek van het Nederlandse Volk, *Studies in Holland Flood Disaster 1953*, I–IV (Washington, D.C., 1955); and G. W. Baker and D. W. Chapman, eds., *Man and Society in Disaster* (New York, 1962).
8. H. B. Williams, Some Functions of Communication in Crisis Behavior, *Human Organization*, 16 (1957), 15–19; T. W. Milburn, "Design for the Study of Deterrence," unpublished paper, Program of Graduate Training and Research in International Relations, Northwestern University (Summer, 1961); J. A. Robinson, "The Concept of Crisis in Decision-Making," in National Institute of Social and Behavioral Science, *Series Studies in Social and Economic Sciences* (Symposia Studies Series No. 11; Washington, D.C., 1962); and Snyder, *op. cit.*
9. High-priority values are mentioned by Lasswell, "Style in the Language of Politics," in H. D. Lasswell, N. Leites, et al., *Language of Politics* (New York, 1949), p. 23; and Williams, *op. cit.*, p. 15. A. R. Ferguson refers to an "action which will be costly" to a group, but confines crisis to a situation in which the group can act to reduce its net losses. See his *Tactics in a Local Crisis* (Memorandum RM-3034-ISA, Rand Corporation; Santa Monica, Calif., September, 1962), p. 4. Limitation on time available for response is suggested by R. L. Hamblin, Group

- Integration during a Crisis, *Human Relations*, 11 (1958), 67. Both dimensions are cited by Milburn, *op. cit.*, p. 5; Robinson, *op. cit.*, p. 6; and Snyder, *op. cit.*, pp. 6, 11.
10. G. A. Morgan, Planning in Foreign Affairs: The State of the Art, *Foreign Affairs*, 39 (1961), 278. For a detailed consideration of the distinction between programmed and unprogrammed, see H. A. Simon, "The Role of Expectations in an Adaptive or Behavioristic Model," in M. J. Bowman, ed., *Expectations, Uncertainty and Business Behavior* (New York, 1958), pp. 49–58.
  11. *Op. cit.*, pp. 438–439; on this dimension see also, Kutak, *op. cit.*, p. 66.
  12. H. Guetzkow, "Joining Field and Laboratory Work in Disaster Research," in Baker and Chapman, *op. cit.*, p. 339.
  13. J. T. Lanzetta, Group Behavior under Stress, *Human Relations*, 8 (1955), 32–33.
  14. The use of "crisis stimulus" in this paper does not refer to a means of distinguishing crisis from possibly related terms. "Crisis stimulus" and "crisis response" or reaction will be used to separate aspects of the same concept.
  15. "Organizational integration" may be somewhat comparable to what Peter M. Blau and W. Richard Scott have called "group solidarity" – a concept broader than the notion of cohesion. See their *Formal Organizations* (San Francisco, 1962), pp. 108–109. Their term was avoided in this presentation to emphasize the applicability of the term used to an entire organization and not only to small groups.
  16. *Wildcat Strike* (Yellow Springs, Ohio, 1954), p. 82.
  17. Report to United States Senate Committee on the Judiciary by its Subcommittee on Patents, Trademarks, and Copyrights, *Patents, Trademarks, and Copyrights* (87th Congress, 1st sess, as extended, pursuant to Senate Resolution 55 [Washington, D.C., May 9, 1962]), p. 2.
  18. E. P. Torrance, "A Theory of Leadership and Interpersonal Behavior under Stress," in L. Petrucco and B. M. Bass, eds., *Leadership and Interpersonal Behavior* (New York, 1961), p. 108.
  19. N. J. Demerath, Some General Propositions: An Interpretative Summary, *Human Organization*, 16 (1957), 29.
  20. See C. Sofer, Reactions to Administrative Change, *Human Relations*, 8 (1955), 313. Whether this nationalization constitutes a crisis in accordance with the proposed working definition is open to question. High-priority values were involved and the time for response was comparatively short, but was it unanticipated? It might be argued that the details for executing the new regulations were unanticipated by the hospitals, therefore consistent with the definition.
  21. *Op. cit.*, p. 29.
  22. Hamblin, *op. cit.*, p. 72.
  23. Torrance, *op. cit.*, p. 107.
  24. M. Janowitz, *Sociology and the Military Establishment* (New York, 1959), p. 76.
  25. D. G. Pruitt, "Problem Solving in the Department of State" (unpublished MS, Northwestern University, Evanston, Ill., 1961), p. 60.
  26. See D. Wise and T. B. Ross, *The U-2 Affair* (New York, 1962), pp. 78–87; and W. H. Blanchard, National Myth, National Character, and National Policy: A Psychological Study of the U-2 Incident, *Journal of Conflict Resolution*, 6 (1962), 143–148. Attention should be directed to the fact that a programmed response had been prepared for the contingency that a U-2 might be lost in the USSR. Some debate occurred, however, on whether the "cover story" should be used. The other dimensions of the crisis definition appear to have been present.
  27. For references to communication overload in a crisis, see Williams, *op. cit.*, p. 17; and R. L. Meier, *Social Change in Communications-oriented Institutions* (Mental Health Research Institute, University of Michigan, Report No. 10; Ann Arbor, 1961).
  28. R. C. Snyder and G. D. Paige, The United States Decision to Resist Aggression in Korea: The Application of an Analytical Scheme, *Administrative Science Quarterly*, 3 (1958), 362. Also reprinted in R. C. Snyder, H. W. Bruck, and B. Sapin, eds., *Foreign Policy Decision-Making* (New York, 1962), 206–249.
  29. *Op. cit.*, p. 88.
  30. *Op. cit.*, pp. 43, 124.
  31. Report to United States Senate Committee on the Judiciary, *op. cit.*, p. 2.
  32. *Op. cit.*, pp. i–ii.
  33. *Ibid.*

34. R. C. North, Decision-Making in Crisis: An Introduction, *Journal of Conflict Resolution*, 6 (1962), 197.
35. J. A. Taylor, A Personality Scale of Manifest Anxiety, *Journal of Abnormal and Social Psychology*, 48 (1953), 285–290.
36. Gouldner, *op. cit.*, p. 85.
37. *Op. cit.*, see particularly chs. vi, vii, viii.
38. J. Spillius, Natural Disaster and Political Crisis in a Polynesian Society, *Human Relations*, 10 (1957), 18.
39. Meier, *op. cit.*, p. 43.
40. L. Albertini, *The Origins of the War of 1914* (New York, 1953), II, 437.
41. G. F. and M. G. Hermann, *The Potential Use of Historical Data for Validation Studies of the Inter-Nation Simulation: The Outbreak of World War I as an Illustration* (Report under Contract N123 (60530) 25875 A to United States Naval Ordnance Test Station, China Lake, Calif., 1962).
42. *Op. cit.*, p. 108. R. L. Hamblin also has completed some laboratory experiments in this area, revealing a change in leadership imposed by group members when a solution is not found; see his Leadership and Crises, *Sociometry*, 21 (1958), 322–335.
43. “The Succession of Goals,” in Etzioni, ed., *op. cit.*, p. 154.
44. Gouldner, *op. cit.*, p. 67 ff.
45. *Op. cit.*, p. 41.
46. D. A. Zinnes, R. C. North, and H. E. Koch, Jr., “Capability, Threat and the Outbreak of War,” in J. N. Rosenau, ed., *International Politics and Foreign Policy* (New York, 1961), pp. 469–482.
47. J. G. Marsh and H. A. Simon, *Organizations* (New York, 1958), p. 116.
48. *Op. cit.*, p. 60.
49. B. W. Tuchman, *The Guns of August* (New York, 1962), pp. 209–211.
50. Williams, *op. cit.*, p. 19.
51. Torrance, *op. cit.*, p. 113.
52. This device is advanced by R. B. Cattell, who defines role for purposes of factor analysis as “a pattern of responses to different occasions which is modal among individual patterns; i.e., it is a cluster or factor among people in responses to social occasions.” See his Three Basic Factor-Analytic Research Designs – Their Interrelations and Derivations, *Psychological Bulletin*, 49 (1952), 499–520.
53. Gouldner, *op. cit.*, pp. 95, 102.
54. P. Brown and C. Shepherd, “Factionalism and Organizational Changes in a Research Laboratory,” in R. T. Livingston and S. H. Nilberg, eds., *Human Relations in Industrial Research Management* (“New York, 1957), p. 268.
55. Policy Change in Prison Management,” in Etzioni, ed., *op. cit.*, pp. 376–400.
56. See K. Kawai, Mokusatsu: Japan’s Response to the Potsdam Declaration, *Pacific Historical Review*, 19 (1950), 409–414; and R. C. Batchelder, *The Irreversible Decision 1939–1950* (Boston, 1962), pp. 91–97.
57. *Op. cit.*, p. 46.
58. *Op. cit.*, pp. 108, 113.
59. O. Grusky, Role Conflict in Organization: A Study of Prison Camp Officials, *Administrative Science Quarterly*, 3 (1959), 465.
60. *Op. cit.*, p. 89.
61. Gouldner, *op. cit.*
62. Non-adaptive Group Behavior, *Journal of Abnormal and Social Psychology*, 46 (1951), 150–159.
63. Spillius, *op. cit.*, p. 16.
64. *Op. cit.*, p. 83.
65. *Op. cit.*, p. 466.
66. Meier, *op. cit.*, p. 41.
67. *Op. cit.*, p. 77, also see pp. 79, 83.
68. March and Simon, *op. cit.*, p. 50.
69. A. H. Barton and B. Anderson, “Change in an Organizational System: Formalization of a Qualitative Study,” in Etzioni, ed., *op. cit.*, 400–418.
70. Sills, *op. cit.*, p. 154.

71. Janowitz, *op. cit.*, p. 77.
72. Gouldner, *op. cit.*, p. 93.
73. *Ibid.*, p. 74.
74. Tuchman, *op. cit.*, p. 253.
75. C. Shepherd and I. R. Weschler, The Relation between Three Inter-Personal Variables and Communication Effectiveness: A Pilot Study, *Sociometry*, 18 (1955), 108.
76. Janowitz, *op. cit.*, p. 85.
77. Grusky, *op. cit.*, p. 465.

## Crisis Decision Making: The Centralization Thesis Revisited

**Paul 't Hart, Uriel Rosenthal and Alexander Kouzmin**

**Source:** *Administration & Society*, 25(1) (1993): 12–44.

**D**ominant conceptions of order in local, regional, national, and international communities continue to be challenged by a variety of critical events. Acute adversity takes many different forms: natural disasters, large-scale accidents, epidemics, environmental threats, severe economic fluctuations and financial breakdowns, acute fiscal stress, pervasive labor unrest, urban disorder, acts of terrorism, and international confrontations. Each of these categories of events serves to disrupt key aspects of prevailing patterns of social, organizational, and political interaction. In doing so, they also influence the operation of government. Comparative research on organizational and governmental responses to acute adversity has made it clear that there are many similarities in the attendant coping patterns of policymakers.

It is not altogether surprising that there are predictable patterns of governmental crisis response. The various categories of acute adversity appear to share certain key characteristics. They all fit in with the notion of crisis; they give rise to perceptions of severe threat, high uncertainty, and time pressure (Rosenthal, 't Hart, & Charles, 1989, p. 9). At the same time, one of the more enduring ideas about governmental response to crisis is the expectation that government decision making becomes highly centralized. This expectation of centralization has, indeed, become a cornerstone of theories of, and administrative frameworks for, crisis management. However, recent empirical studies suggest that the notion of centralized crisis management needs to be qualified and this essay aims at revisiting the centralization thesis in crisis decision making.

In the first section, the original idea of centralized crisis responses will be addressed. It will be shown that the centralization thesis actually bears on three different patterns of adaptation to critical conditions. The second section involves a reappraisal of the validity of the centralization thesis; it will be partly based on the much neglected distinction between strategic and operational crisis decision making. The final section points out the contingent nature of structures of crisis management and advocates a more sophisticated understanding of key variables; an understanding that can help with predicting the emergent patterns of governmental response to crisis. This is a first step toward a more sophisticated, contingent, and empirically grounded theory of crisis management structuring.

### **Crisis Decision Making: The Centralization Thesis**

Within the confines of daily organizational decisions, bureaucracy continues to play an important role in public administration. Certainly, informal structures and

administrative discretion are part of “the process of government,” but the internal organization of public administration is best described as a bureaucracy.

The three features of crises: severe threat, time pressure, and high uncertainty do not fit into this pattern. No serious threat can ever be dealt with in a routinized manner (Inbar, 1979). Perceived pressure to make prompt decisions (Haas, Kates, & Bowden, 1977) makes adherence to the bureaucratic prescriptions of multilayered and highly differentiated patterns of decision making nonfeasible. The requirements of urgent decision making and immediate response are at odds with formal, time-consuming policy procedures (Bronner, 1982). High uncertainty is difficult to reconcile with the bureaucratic predictions of predictability (Cohen, 1979; Perrow, 1967; Ross, 1976, pp. 96–112; Slovic, Fischhoff, & Lichtenstein, 1982).

In crisis situations, therefore, the very patterns of bureaucratic organization and communication are challenged profoundly (Blau & Scott, 1963). Crisis decision making appears to ask for ad hoc adaptation of the bureaucratic structure and culture. A notable example of such adaptation would be the centralization of decision making. In this context, the notion of centralized decision making happens to relate to three different, but interrelated, phenomena. First, it may refer to the concentration of power in the hands of a limited number of executives. Second, it may involve the concentration of decisional power with the central government vis-à-vis state, regional, or local agencies. Third, it may pertain to the tendency, under critical circumstances, to look for strong leadership and embrace one or another form of crisis government.

#### The Small Group

Since Hermann's (1963) classic analysis of the impact of crises on organizations, centralization of decision making has stood out to be the most widely reported and most strongly supported structural feature of bureaucratic adaptation to crises. Following Paige (1968) and Holsti (1972), a large number of analysts of international crises have reported that critical decisions tend to be made by small numbers of chief executive officials and their most intimate advisers (Burke & Greenstein, 1989). Similar observations emerge from the examination of corporate crises (Lagadec, 1990; Meyers, 1987; Smart & Stanbury, 1978).

The dominant decision structure, therefore, is said to be the small group (Hermann & Hermann, 1982). The decision process, however, is reported to be highly informal. Adomeit (1982) notes that under time pressure, “the principal players in the team will confer only with the most skillful, most trusted and most powerful co-players. Criticism, dissent and mutual recrimination, literally, must wait until the crisis is over” (p. 39). As a result, analysts have turned toward group dynamics to explain the course and outcomes of crisis decision making within political and military elites (Maoz, 1990a).<sup>1</sup>

The analysis of crisis-induced group decision making has generated a number of serious questions regarding the quality of crisis decision making. A first concern is with the physical and mental condition of top decision makers represented in crisis groups. The intense, and occasionally protracted, pressures under which they operate (Holsti & George, 1975; Hopple, 1980; Wiegele, 1973) should not be easily dismissed. Knowledge about typical stress-coping patterns and problems is essential in understanding crisis decision making. A second, but related, set of questions centers on the size, composition, and performance of the decision group



(Hermann, 1978; Hermann & Hermann, 1982). Group dynamics and political manipulation may, for example, increase the danger of systematic exclusion of important stakeholders from the locus of policy-making (Maoz, 1990b; 't Hart, 1990). A particularly insidious danger facing crisis decision groups is presented by stress-induced destructive group dynamics, manifested most clearly in the group-think phenomenon of collective problem avoidance in order to maintain group consensus (Janis, 1972, 1982; Hirokawa, Gouran, & Martz, 1988; 't Hart, 1990). A third set of issues bears on the possibility of data input overload on small crisis response units. Most crisis events generate explosions of data and communications. Reports from the scene are often sketchy, ambivalent and need to be verified. Rumors emerge and may serve to mislead crisis management activities. The mass media and the public clamor for information. In this hectic information context, small groups of key decision makers need adequate staffing and a clear information-processing and monitoring strategy; one that is often absent (Deutsch, 1982; Smart & Vertinsky, 1977).

Taken together, notions of centralization of small group decision making draw attention to the problem of leadership. This then invites close study of the personality and interpersonal style of senior decision makers in relation to one another and their immediate environment, key policy advisers, and operational chiefs (Betts, 1977; De Rivera, 1968; Rosenthal & 't Hart, 1989). A broader approach centers on the development of alternative ways of organizing and managing the group process in order to achieve high-quality advice and deliberation in the face of persistent crisis-related pressures (Burke & Greenstein, 1989; George, 1980; Pika, 1988).

### Central Government

The concentration of powers and activities in the hands of central government vis-à-vis other territorial administrative units has been well noted in disaster studies (Drabek, 1986). Although considerable variations are noted across disasters of differing origins and scale, as well as cross-cultural variations in the extent of community-driven, versus state-driven, disaster subcultures (Rosenthal, 1990b; Roth, 1970), many studies of disaster management report this "upward" shift in authority. This may come about in an ad hoc fashion, but the process may be much more formal as well (Dynes, 1970). In the United States, for instance, a formalized system for central government intervention operates: Once the president officially declares a certain area a disaster area, the Federal Emergency Management Agency (FEMA) becomes active in coordinating the disaster response (Petak, 1985; Waugh, 1989).

Indeed, in some administrative systems, the need for concerted and hierarchically coordinated administrative action forms an integral part of the official legal-administrative definition of disaster. Centralization of crisis-related responses then becomes a truism (Rosenthal, 1988). It is interesting to note, however, that during disaster events that do not seem to fit the legal definition, central government may be overly reluctant to assume responsibility, even though there are clearly nationwide concerns and implications at stake. The problem of finding an appropriate "structural mix" in administrative responses to complex crisis events was especially pronounced during the Chernobyl disaster. Many governments

in Western Europe were caught off guard and acted in great confusion (Czada, 1990; Sipponen, 1987).

It should also be stressed that administrative centralization entails important consequences. As has been noted in a comparative study of domestic crisis management in the Netherlands, for example, along with requested or nonrequested external assistance and additional resources comes political centralization and central government interference (Rosenthal, 1984). This may affect, even upset, the relations between the different levels of government long after the crisis itself has abated.

This second manifestation of centralization raises the issue of the relative advantages and disadvantages of subnational- versus national-based modes of crisis response. These may differ considerably in terms of effectiveness, efficiency, acceptability, and public accountability as manifested, for example, by the controversies surrounding many of the U.S. inner-city and campus riots of the 1960s (Kerner, 1968; Lipsky & Olson, 1977; Scranton, 1971) and the UK inner-city riots of the 1980s (Benyon, 1984; Benyon & Solomos, 1987; Jacobs, 1986; Kettle & Hodges, 1982). Considerable tensions may arise between subnational- and national-level definitions of crises. These may also reflect substantial differences of opinion and interest as to the required mode of policy response (Rosenthal & Hart, 1989; Waugh, 1989).

#### Crisis Government

The perceived need for governmental adaptation to the exigencies of a critical situation may also be found in the context of crisis government (Bracher, 1968). This form of centralization may vary from the opportunistic seizure of decisional power by a plebiscitarian leader to normative and judicial doctrines of emergency government enshrined in national constitutions.

Crises, whether exogenous, self-imposed or, even, "willful" may bring about a widely felt need for strong leadership and a show of decisional resolve (Wolfenstein, 1967). Members of representative bodies are supposed to not interfere with critical proceedings at the apex of government. Secrecy and closed policy-making tend to stretch the democratic zones of indifference. Crises may call for emergency legislation and bylaws and may put democratic authenticity to the test (Linz & Stepan, 1978). Military tensions and terrorism may also give rise to a formidable extension of power to a small number of already powerful incumbents (Bracher, 1968; Wilkinson, 1985).

Critical conditions may, indeed, invite various forms of so-called "constitutional dictatorship." Thus, in case of a threatening war, a rebellion, or a shortage of crucial raw resources, the urge to restore "normal times" may assume dramatic proportions and increase public pressure to do away with apparent complexities of checks and balances and fragmented government (Rossiter, 1948). This has been manifested recently in the Soviet Union, where increasing domestic turmoil and economic decline have prompted a return to authoritarian centralization. Similarly, peaks of violence in crisis-ridden communities such as Northern Ireland tend to provoke centralized emergency regimes for public-order maintenance (Walsh, 1983). The same goes for protracted social conflict in otherwise stable democratic

societies, a good example being the miner's strike in Great Britain (Fine & Millar, 1985). Ultimately, at the central level of government, a shift from a predominantly civilian-led toward a predominantly military-led crisis response often occurs.

As the level of crisis intensity increases, both the expected and actually enacted degree of direct parliamentary scrutiny of crisis response operations appear to decrease (Rosenthal, 1984). Representative bodies are expected to rally behind the executive. In crisis government doctrines it is assumed that, as long as tensions are high, parliament should maintain a low profile – at least provide for a bipartisan stance. Parliamentary and judicial activism in monitoring executive actions during crises may be regarded by some as the essence of Montesquieuan “tri-powerism,” yet the dominant opinion among analysts and politicians alike seems to be that it may serve to distract responsible authorities and undercut the legitimacy needed to implement often far-reaching crisis policies. Apparently, the risk of executive despotism is traded off against the opposite risk of executive disempowerment and inaction in the face of crisis that is said to follow overzealous parliamentary and judicial scrutiny.

At the operational level, the organization, command, and control of crisis-relevant agencies such as the police, the fire brigade, the emergency medical services, and the armed forces tend to reflect a similar tendency toward centralization. This involves direct operational leadership on the part of top-level officers. For example, for large-scale police operations in the domain of special events management or public-order maintenance, many police forces tend to work on the basis of the military model, a strictly pyramidal command structure with unity of command as the guiding principle. A hierarchy of information and communication coincides with this functional hierarchy. Lower-level operatives are briefed on a very limited “need to know” basis and are often oblivious to the wider context and significance of their actions. All this is done to preserve top-level control over operations.

From this brief overview of crisis research and prevalent practices of crisis government emerges a distinct empirical pattern. Confronted with crisis events, public policy makers and government agencies tend to take proactive stances aimed at speedy interventions to contain short-term threats. They rely on administrative and organizational centralization as the dominant mode of structuring their responses. In addition, this response pattern is enshrined in legal doctrines concerning emergency powers as well as in the operational logistics of crisis agencies such as emergency services, police, and the armed forces.

### **Crisis Intervention: An Empirical Reassessment**

#### Multiple Perspectives on Crisis Management

Studies of international crises have played an important role in shaping the agenda for the first wave of crisis research. In these types of crises, the focus of attention has been largely on the U.S. president and his key political and military advisers. Equally, the influential case of international tensions leading up to World War I has focused on continental European monarchs and their entourage and here the

centralization thesis also has much credibility. Broadening the scope of analysis to the conduct of international crises at the operational level (Belden, 1977; Howe, 1971; Lebow, 1987), the rudiments of a more complex picture emerge. Further, by adding to this more complex picture the results of research on the wider variety of types of crises that exist, a wealth of “disconfirming” data becomes available. In particular, crisis management in domestic settings is often more complex in the sense that the central government will not be automatically looked on to take action, and legal relationships lack the clear hierarchy otherwise involved when handling major international events. Save for truly exceptional historic events where extraordinary powers tend to be invoked, domestic crisis management is often the subject of complex intergovernmental coordination (Waugh, 1989).

Data of various kinds of crises other than international brinkmanship and confrontation will be drawn on in order to illustrate important empirical alternatives to centralization. This is done as well as making the often neglected distinction between strategic and operational levels of crisis response. There are two ways to distinguish between strategic and operational levels. One is to look at the hierarchical and geographic position of decision makers. In this view, strategic refers to top-level, often political, decision makers and senior policy advisers, whereas the operational level encompasses line managers and field agencies concerned with first-line operations and policy implementation. There are marked differences in perspective between these two levels of action. Their physical and social distance to the actual events is different. Actors at the two levels hold differing degrees of knowledge about the operational and sociopolitical environments. Although “local presence” may be the key to operational effectiveness, successful crisis management at the strategic level requires a keen understanding of public and political perceptions of the situation.

But, as this discussion of alternative crisis response structures will indicate, there is something to be said for an alternative, functional approach to dissecting strategic and operational responses. This would, in any given crisis, require the analyst to classify choices and decision makers on the basis of their actual importance in shaping the course of events and the general thrust of official crisis responses. In this sense, then, strategic decision making refers to choices, or lack of them, that set the crucial parameters for intervention, whereas operational decisions focus on technical issues and details of implementation. This functional perspective opens up the possibility that major strategic decisions on how to handle a crisis are, in fact, made at lower levels of the governmental hierarchy.

For example, the initial, on-the-spot, improvised reactions of a large number of masters of merchant ships and other vessels following the March 10, 1987 grounding of the *Herald of Free Enterprise* ferry, off the coast of Zeebrugge, Belgium, set the stage for a disaster operation where “sea” and “land” operations would remain fairly distinct, rescue at sea being coordinated by the master of the biggest vessel and, at the same time, defying governmental coordination attempts. As a consequence, all that remained for the hastily assembled policy center of high-level politicians and administrators to do was to monitor information flows, manage the press, and keep under control the “mass assault” by volunteers coming to Zeebrugge to help, mostly in operational tasks (Pijenburg & van Duin, 1990, pp. 330–331).

The concepts of operational and strategic crisis decision making, their concomitant differences in perceptions, interests, organizational structuring and policy orientations, and the attendant effects of distance and time deserve a more prominent role on the agenda of crisis research. The built-in administrative tension between these two levels is a key factor in shaping the nature and degree of centralization in crisis decision making.

### **The Centralization Thesis Qualified: Seven Response Patterns**

#### Informal Decentralization

The National Aeronautic and Space Agency's (NASA) Apollo 13 flight almost ended in a disaster. A cumulative chain of mechanical problems led to an explosion on board of the ship. This affected vital life-support systems, as well as the electrical power necessary to control the spacecraft's altitude that left it vulnerable to sunburn. In his analysis of this event, Perrow (1984) noted that there developed a gap in perceptions between NASA's flight managers, who wanted the mission to continue and try to achieve the goal of a lunar landing, and astronauts on board the flight who felt the actual jolt of the explosion and were, therefore, more acutely aware of the damage done and the threat to the mission that this explosion constituted. The crisis was finally managed by a gradual relinquishing of ground control in favor of an increased role for the operators (the astronauts) themselves in bringing the ship back to earth. What, in fact, happened was a form of informal decentralization of decision making, enabling a more equitable, synergistic interaction between controllers and operators. The strictly planned and centralized "routine" flight management was thus transformed into a synthetic (Thompson, 1967), negotiated blend of strategic and operational initiatives and cooperation. Although probably highly unstructured and cost-ineffective, this lateral decision structure was vital in mobilizing the maximum amount of creativity and experimentation necessary to manage the baffling and time-pressured problems following the explosion.

Two factors generally contribute to informal decentralization. First of all, time pressure at the operational level appears to be an important determinant of informal decentralization. A clear example of this pattern can be found in the calling up of mobile police units in Dutch management of disorders. In the early 1980s, Amsterdam, Nijmegen, and several other Dutch cities and localities (nuclear plants, military bases) saw numerous demonstrations and riots, often unannounced or of unanticipated magnitude and intensity (Rosenthal & 't Hart, 1989). This posed serious operational problems for the Dutch police, consisting of 148 mostly small or medium-sized local forces and one national force. In many cases, urgent extra local reinforcements were required to cope with potential disorders. Formally, this would require an elaborate procedure involving a deposition of an official request, via the local mayor, to the provincial governor and ultimate decision after consultation with the Home Office. This procedure proved unworkable and gave rise to shortcuts in which local police commanders would call for reinforcements via their own channels, with post hoc formal permission provided at a later stage.

Second, overload at the central level of government invites informal decentralization. A marked example of this occurred during the simultaneous South-Moluccan hostage takings of a train in Wijster and the Indonesian consulate in Amsterdam in December 1975. The train incident had been underway for 2 days and two hostages had already been executed, when sympathizing South-Moluccan youths seized control of the Amsterdam-based consulate. This placed tremendous pressure on the ministerial crisis center. Hence the mayor of Amsterdam, a former minister of justice with a background in the Dutch East Indies, was granted a prominent role in managing the seizure crisis despite strictly centralist, formal blueprints emphasizing a national approach to terrorism and one led by judicial authorities rather than by locally based, public order-oriented mayors (Rosenthal & 't Hart, 1989).

Another example of informal decentralization can be found in an international crisis. In the U.S. handling of the Yom Kippur War, in particular the emerging crisis following the Israeli encirclement of the Egyptian first army, which then triggered Soviet threats to intervene to save its ally's army from annihilation or surrender, a key role seems to have been played by National Security Adviser Kissinger rather than President Nixon. The main reason was that, at the time, Nixon was fully preoccupied with managing another crisis: the continuing stream of revelations in the Watergate scandal. As these directly affected his political future, he focused on them and left much of the Yom Kippur War to Kissinger, so much so that Nixon quickly adopted Kissinger's hint to call a DefCon 3 nuclear alert as a deterrent signal to the Soviets (Dowty, 1984; Quandt, 1977).

#### Formal Decentralization

There are also examples of more preplanned, formalized decentralization of authority over crisis operations. These may come about through learning processes following crisis experiences (Etheredge, 1981, 1985; Neustadt & May, 1986). Formalized decentralization may also occur by way of anticipation of extreme vulnerabilities associated with centralization of authority. Centralization and tight coupling of operations can be a potential liability in crisis prevention and management (Kouzmin & Jarman, 1990; Lagadec, 1982; Perrow, 1984; Turner, 1978; Wildavsky, 1988). In highly centralized systems, disruption to one part of the system, let alone the system's core, can have a cumulative effect, triggering chains of component failures that are hard to stop or reverse.

The most conspicuous example of an application of this kind of vulnerability analysis to administrative or political situations of extreme vulnerability has been in the field of nuclear warfare. The key factor, again, is extreme time pressure. With developments in missile technology outpacing antimissile technology, there were increased fears among military strategists and policymakers in the United States that the Soviet Union might attempt to develop a strategy of nuclear preemption and decapitation: trying by a first strike, aimed at the core of the U.S. command and control machinery, to eliminate the ability to effect a nuclear response following Soviet attacks. This would be possible given the alleged high speed and accuracy of modern Soviet submarine-launched ballistic missiles (SLBMs) and intercontinental ballistic missiles (ICBMs).

In response to this threat, the United States adopted a two-pronged strategy: striving for a high degree of redundancy in nuclear devices and delivery systems

to the extent of mobilizing missile sites, as in the MX proposal launched under President Carter, and decentralizing the authority to launch a nuclear counter-attack (Bracken, 1983). In effect, this has led to situations in which U.S. presidents, since Eisenhower, have authorized a number of operational military commanders, mainly in nuclear submarines and at strategic air command, to launch a counterattack following a debilitating strike at Washington. It has not been disclosed how many commanders have actually been given delegated launch authority, nor have the specific conditions under which they were to assume authority been made public (Ford, 1985).

The third and perhaps most radical break with the idea of centralized crisis management comes from studies involving bureaucratic politics (Allison, 1971; Gray & Jenkins, 1985; Halperin, 1974; Hillsman, 1986; Wildavsky, 1984). The relevance of the bureaucratic politics model can be extended to include crisis management (Rosenthal, 't Hart, & Kouzmin, 1991). It would be naive to think that under crisis conditions all pre-existing bureaucratic tensions wither away and make way for mechanistic, rationalistic (Kouzmin, 1980, pp. 57–58) modes of centralized and tightly coordinated policymaking and implementation. On the contrary, bureau-political tensions often intensify.

For many crisis-relevant agencies, actual crisis episodes constitute crucial test cases for their rationale, legitimacy, and continuing existence. Looking ineffective or proving to be incompetent during an emergency may mean the end for agencies such as civil defense organizations, special police units, and medical emergency teams. Such agencies will, consequently, be bent on asserting themselves to the maximum extent, with or without the cooperation of other agencies in the crisis network.

Second, strategic decision makers in bureaucratic agencies may anticipate, quite coolly, the reallocation of personnel and budgetary resources in the aftermath of crisis. This may put a premium on the aftermath of the operational crisis period, when contending agencies engage in a battle for the dominant definition of the situation and any evaluations of their relative performance. The outcome of this competitive “impression management” may be crucial to postcrisis interorganizational relations (Jarman & Kouzmin, 1990).

Third, bureau-politics may simply result from a crisis-induced encounter between authorities and agencies that are not well versed in working together; interorganizational coordination is often the problem rather than the solution in crisis operations (Kouzmin & Jarman, 1989; Quarantelli, 1988).

Examples of bureau-politics in crisis management are well documented. They involve bitter clashes about search-and-rescue procedures between various national teams called in to help following the San Salvador earthquake (Comfort, 1989), destructive competition between the armed services in the planning of the Iran rescue mission (Gabriel, 1985), postcrisis rivalry and blaming between police and local administrative bodies following the Brixton riots in the UK (Jacobs, 1989), civil-military tensions during the Korean crisis (Lebow, 1981) and during the critical months preceding the German invasion of the Netherlands ('t Hart, 1990), and central-state-local sensitivities and conflicts in major U.S. disasters (Waugh, 1989).

Bureau-politics implies that in managing crises, there is rarely a sole effective center of power and decision making. Instead, what government actually does to

manage the situation is the sum of dispersed activities as well as the result of often complex and time-consuming interorganizational bargaining. This does not imply that decision centers formally envisaged in crisis management blueprints and legal designs do not come into being. They generally do. Rather than being tightly knit units, they are often no more than a meeting place for various stakeholders, each promoting different approaches and priorities with regard to what should be done. In the least, consensus and single-minded action on certain issues coincides with disagreement and bargaining within one and the same policy center. In addition, there may be wide gaps between decisions reached at crisis centers and the actual conduct of crisis operations within and between different organizations and agencies represented in the policy center.

Bureau-politics may serve to hinder or enhance the quality of crisis operations. It requires a contingent analysis to discover under which circumstances these patterns occur. There is, however, no reason to maintain negative preconceptions about bureau-political processes. Finally, the bureau-political perspective alerts the analyst to the fact that attempts to centralize decision making may meet wide and effective opposition at field levels. It is one thing to observe centralized structures being put into place, but it requires careful analysis to assess the actual structure of the crisis management process in operation.

#### Non-Decision Making

In concentrating on “key decisions,” crisis analysts tend to forget that crisis responses may be negative as well: Nondecisions may determine the course of events just as much as positive policy choices. Three separate forms of non-decision making emerge: first, decisions that are not taken; second, decisions not to make; and, finally, decisions not to act on (Wolfenstein, 1967).

#### Decisions Not Taken

Clear manifestations of these forms of non-decision making can be found in the Heysel Stadium disaster of 1985. The disaster occurred when fighting broke out between rival groups of British and Italian soccer fans before the start of the 1985 European Soccer Cup final between the Juventus Torino and Liverpool Football clubs. British hooligans attacked the Italian crowd in the adjacent section of the stands, triggering a massive crowd panic among the Italians locked up in their section and resulting in 39 dead and 450 wounded spectators. Subsequent research (’t Hart & Pijnenburg, 1989) indicates that the underlying causes of the disaster lay in a web of failures and critical oversights during the prematch public-order and safety preparations by Belgian authorities, the Belgian soccer unions, and rival police agencies in the Brussels area.

When the disaster unfolded, an acute crisis episode presented itself. Several crucial nondecisions shaped the crisis response. Decisions not taken focused on matters of monitoring outgoing information in the wake of the disaster. No consistent strategies were devised to manage the flood of telephone calls received at the stadium from anxious friends and relatives of spectators in the Italian section who had witnessed the events live on television, along with millions of viewers all over the world. In addition, no coordinated effort was made to decide on strategies



for handling the press. An informal group of authorities, assembled in the stadium's VIP-lounge, never considered the idea of terminating television coverage of the match. Afterwards, severe criticism was voiced concerning the continuation of the broadcast of the match. The match had been allowed to proceed simply to provide time for the mass mobilization of police forces from all over Belgium and specifically in order to contain the crowd on leaving the stadium. Yet the broadcast did not serve that purpose. To many, it was simply taken as a cynical manifestation of an apparent attitude among the authorities that "the show must go on."

Another form of failure to decide occurs when key actors misperceive threats posed by events in their environment. This often occurs when decision makers are in a state of "unconflicted adherence" (Janis & Mann, 1977). This failure to recognize a developing crisis is especially marked and has been noted to affect political-military intelligence (Betts, 1977) such as the American failure to prepare for the Japanese attack on Pearl Harbor (Janis, 1972; Wohlstetter, 1962) and the Israeli failure to predict the Arab attack on the 1973 Yom Kippur Day (Handel, 1976).

#### Decisions Not to Make

The second type of nondecision is illustrated clearly by the dilemma faced by the Belgian minister of Internal Affairs, during the Heizel crisis, as to whether the match should have continued or not. The minister, at his Brussels apartment when the disaster occurred, decided not to go to the stadium and to leave decisions about the issue to authorities present at the stadium. He decided not to interfere, yet assured local officials that he would bear the responsibility for whatever decision emerged. Having assessed that they were in a better position to judge what should be done, the minister deliberately and explicitly chose not to involve himself. Again, this stance was severely criticized in both the press and parliament. Criticism focused on the alleged indifference of the minister, which was reinforced by his "cool" performance in a television interview at his apartment just hours after the tragedy. In fact, these criticisms reflect just how strong, broadly based, is the normative doctrine of intervention. Critics seemed disinterested in the functionality or dysfunctionality of the minister's nondecision, their indignation indicating how important symbolic action can be in mobilizing mass support or criticism in crisis management situations.

The second pattern of non-decision making differs from others in that it is, in essence, a metalevel response (Dror, 1968): It impacts on the organization and process of crisis management rather than on crisis events as such. It serves to restructure tasks and responsibilities. This subtle quality of decisions not to make can easily get lost in the turbulence surrounding crisis events, as it did in the Heizel football stadium case. Yet it may be of crucial importance. Deliberate restraint on the part of top-level policymakers to step in may make a significant difference at the operational level of crisis management. It may amount to chaos, but it may also mean a refreshing absence of political interference in operational affairs so often detested by military commanders. A notorious example concerns the bitter encounter at sea between Secretary McNamara and his Navy commanders over the precise location and tactics of the American naval blockade of Cuba during the 1962 missile crisis (Allison, 1971).

## Decisions Not to Act On

The third type of nondecision can again be illustrated by the Heysel stadium case. Judicial authorities were summoned to the stadium immediately after the disaster. Given the violence-related trigger of the tragedy, a judicial strategy of identifying and arresting those responsible could have been an integral part of the official response. On arrival at the stadium, the public prosecutor and the Belgian minister of justice conferred with police commanders. The immediate issue was whether or not to attempt to make on-the-spot arrests. Given the lack of police manpower at that time and given the operational complications of apprehending individuals in an aggressive crowd, they reluctantly decided on a policy of containment rather than prosecution. This decision not to act on was, again, the center of public controversy in the days after the disaster and set the stage for a long, complex, costly, and only partially successful attempt to prosecute the main culprits. This was eventually done using videotape evidence of events and involving intensive, but not always smooth, Belgian-British police cooperation.

In the above example, judicial inaction was a function of the perceived risks associated with proactive prosecution. Hence inaction was more or less forced on the reluctant judicial authorities by the pressure of circumstances. In other situations, however, the very definition of the situation as a crisis, requiring a proactive response, may become the focus of debate. During the initial phases of the 1962 Cuban Missile crisis, President Kennedy and Secretary of Defense McNamara had differing views as to the crisis quotient of the Soviet move to build missile sites in Cuba. Kennedy and other members of the Executive Committee argued that the missile sites presented a significant strategic threat to the United States and hence justified a quick response. McNamara, however, produced his now famous observation that it did not matter terribly much whether the United States was hit by a Soviet missile launched from Moscow or from Cuba. Had McNamara's interpretation prevailed in this argument, the United States might have embarked on a strategy of calculated inaction (Allison, 1971; "White House Tapes," 1985). As the crisis proceeded, this difference vanished and a strongly convergent view of the threat and the limited amount of time available for response developed ("October 22," 1987–1988). Hence the reasons for inaction during crises may not only be "circumstantial"; they may also flow from deliberate calculation.

Similar debates about the nature and extent of threat and the consequent necessity for quick and forceful responses developed in many Western nations following the Iraqi invasion of Kuwait in August 1990. It is obvious that these debates are strongly premised on differing perceptions of the situation. These perceptions, however, were not only a function of individual decision maker's cognitive abilities, motivational drives, and general stress tolerance; they were as much a product of an individual's organizational and political background, position, and interests (Cohen, 1979; Lebow, 1987; Lentner, 1972). Paraphrasing Allison (1971), one might observe that what you perceive depends on where you sit organizationally and where you stand politically. It brings home the point that there is no such thing as self-evident crisis management, guided by common principles of action and efficiency. The perceptions of threat, time pressure, as well as the desirability of action versus inaction are subjective constructions,

the outcomes of debate rather than self-evident premises. It follows that nonaction is not, as many traditional crisis doctrines have it, a bad thing and does not reflect response deficiencies on the part of governmental policymakers and organizations. It may be, but it certainly need not be. In fact, nonaction may be the product of rational calculation, guided by different perceptual and strategic premises.

### Paralysis

Paralysis refers to situations in which policymakers and other crisis agents are overwhelmed by the pressure of events to such an extent that they are incapable of taking action; the course of events takes its turn by default. Physiological and psychological effects of high stress, particularly when stress continues over a sustained period of time, may amount to behavioral disorders promoting passivity (Hopple, 1980, 1982; Wiegele, 1973). In the face of increasing youth activism and political agitation in Amsterdam in the mid-1960s, the mayor of Amsterdam, Van Hall, fell prey to this syndrome. Notes indicating the mob was turning its aggression toward a right wing newspaper were brought to the mayor. The increasingly urgent calls for help from the newspaper's editor were too much for the mayor: He simply neglected the notes, failed to take action, and even failed to report their content to advisers gathered in his room. In the end, only external intervention broke this self-maintained trance. By then, the greatest danger had dissipated; the mob of angry construction workers had gone for lunch.

Personalized paralysis is identified in the disaster literature as "administrative regression": the tendency for some, although on the whole not very many, authorities and civil servants to leave their posts and focus on their personal safety or that of their families (Drabek, 1986; Rosenthal, 1984).

Finally, paralysis may result from deficiencies in organizational design (Haas, Kates, & Bowden, 1977). Many crisis agencies operate on strictly centralized, hierarchical principles. It is generally assumed among practitioners in these agencies that centralization promotes organizational effectiveness. In reality, it can prove to be a mixed blessing, as manifested by police operations during the Heizer tragedy. In the critical 25 minutes during which the confrontation between rival fans escalated, several constables and lower-level officers of the Belgian Gendarmerie (National Police) assigned to that section of the stadium observed critical incidents suggesting the grave nature of the situation developing between the Y and Z sections of the stadium. Despite their observations, no decisive action was taken. First, they had no specific orders to do so, as their operational instructions had been quite vague about possible contingencies. Second, the officers were unable to contact the commander heading gendarmerie forces in that section of the stadium. Third, the gendarmerie chain of command did not allow officers to establish direct contact with higher levels of command for instructions. Hence the opportunity for timely intervention was foregone and disaster could no longer be avoided.

### Situational Dominance

Under certain circumstances, centralization doctrines give way when faced with extraordinary pressures. Ironically, this kind of functional adaptation occurs in part because of a lack of precrisis planning that would otherwise have imposed centralized response reflexes on operatives. Faced with extreme threats and time

pressures, operational-level actors may feel obliged to bypass formal rules of consultation and command and simply effect direct responses to a given situation. Empirical examples of such emergency-driven self-assertion by operational actors abound. They can be found in almost every crisis, yet many crisis analysts, obsessed with the whereabouts of strategic top-level actors, have not bothered to look for them, nor have they realized their crucial significance in determining the course of events. For example, the shooting down of the American U2 spy plane during the height of the Cuban missile crisis, as well as the downing of the Korean airliner in 1983 by Soviet defense forces were seen to have resulted from time-driven improvisations on the part of local operational commanders; both had a great impact on the broader strategic U.S.-Soviet tensions at the time (Blight, Nye, & Welch, 1988; Settle, 1989).

A clear example of a situationally driven direct response can be found in the case of the Summerland Leisure Centre fire, at the Isle of Man, on August 2, 1973, which left 50 people dead. As noted by Turner and Toft (1989),

In the Summerland case, it is clear that decision making in relation to the crisis should have been centralized before the event. In the face of this lack of preparedness, it is not surprising to discover that, once the crisis began, actions were almost wholly *decentralized*. In the limited time available, no centralization could occur, especially since the crisis itself progressively removed the arrangements which could have made it possible to centralize, (p. 195)

A problematic form of operational-level, situation-bound responses is encountered in the context of managing high-risk facilities such as nuclear and petrochemical plants. In the cases of Three Mile Island (Perrow, 1984) and the Bhopal chemical disaster (Shrivastava, 1987), for example, operator improvisation in the face of escalating problems in the operation of the system occurred. In each of these cases, such improvisation did not contribute to mitigation of the impending disaster.

Equally problematic occasions of situational dominance tend to occur during urban disorders and civil disturbances. Under pressure of unexpected outbursts or unprecedented intensity of mob violence, police command and communication structures tend to break down, giving way to improvisation at lower levels. This may amount to "police rioting" in the form of excessive use of force, as in many U.S. riots in the 1960s (Stark, 1972), or to unauthorized withdrawal by embattled police lines during the Brixton and other British inner-city riots in the summer of 1981 (Jacobs, 1989; Scarman, 1981) and in Amsterdam during the inauguration day riots in April 1980 (Rosenthal, 1989). Situational dominance may, however, also amount to swift and effective action or adequate restraint on the part of lower-level operators such as firemen, police officers, rescue workers, and engineers. One dramatic example of this appears to be the initial 1989 opening of the Berlin Wall by East German border guards overwhelmed by crowd pressure following an impromptu TV announcement of the liberalization of emigration laws.

#### Strategic Evasion

Perceptions of crises and the attendant need for intervention are, in part, shaped by organizational filters and political interests. Under certain circumstances, potential crisis actors may seek to dissociate themselves as much as possible from

the course of events. Confronted with the overwhelming pressures of crisis, decision makers may question whether they and their organizations are able to cope effectively. In some cases, they may feel the chances for success are slight. This will prompt attempts on their part to escape individual responsibility for actions with potentially far-reaching consequences as these may reflect badly on them in any postcrisis evaluation (t Hart, 1990). One such form of dissociation is strategic evasion: continuing to insist that the main responsibility for managing a certain crisis lies with other agencies.

A clear example can be found in the area of industrial disputes. Actors and agencies responsible for the underlying disagreements may seek to redefine the issue (Tversky & Kahneman, 1982, pp. 163–178) as primarily one of law and order. In doing so, the burden of responsibility is lifted from their own shoulders onto those of other departments, central government, or police and judicial agencies. This strategy has the added advantage of marginalizing the contending party. Examples of such attempts to evade policy responsibility, resulting in ostentatious nonaction, can be found in the Thatcher government policies with regard to the 1984–1985 miners' strike (Fine & Millar, 1985) and the attitude of the Dutch minister for traffic and waterways during the peak moments of a fierce confrontation with Dutch river freighters over the minister's alleged attempts to pressure this declining industry into termination (COT, 1989).

### **Crisis Decision Making: Toward a Contingent Mode**

If anything, the argument so far should have made it clear that it is important to regard specific forms of crisis intervention as episodes needing to be explained and analyzed, rather than presumed as given or an inevitable pattern to be analyzed only in terms of centralist and concerted responses. To what extent any of the seven alternatives to centralized decision making emerge during a particular crisis will depend on a number of factors such as the strategic versus operational level of response, the extent of time pressure, personal characteristics of key actors, organizational structures and practices, as well as simple infrastructural constraints such as the availability of effective communication facilities.

The question then becomes whether one can single out key variables shaping crisis responses and whether one can develop a preliminary model of crisis decision making patterns (Axlerod, 1976; Hermann & Hermann, 1982). Such a model should emphasize the effects of three variables implicit in this presentation of alternative response patterns to crisis events: the degree of perceived time pressure, operational versus strategic levels of decision, and the precrisis decision structure. Time pressure stands out as the independent variable and levels of decision and the precrisis decision structure mediate its impact on the resultant pattern of crisis response.

#### Time Pressure

Decision makers, groups, and organizations involved in crisis management differ in the degree of time pressure perceived in crisis situations. It is hypothesized here that crisis response structures and dominant response modes emerge, in part, as a function of these perceptions of available response time. When the degree of

perceived time pressure is high, structures that appear to enable rapid responses are adopted. This usually entails a larger role for ad hoc improvisation (Thompson, 1967). When the degree of perceived time pressure is low, more formal, preplanned contingent response modes emerge. Examples that immediately come to mind are the Heizer stadium police responses, Summerland fire responses, and Cuban missile crisis decision making compared to the more protracted and operationally “routinized” crises such as the Northern Ireland conflict, hostage takings, and quasi-permanent international crises, as evidenced in postwar Berlin where local U.S. military authorities were granted wide discretion in coping with continuous tensions (Slusser, 1981).

#### Level of Decision

Time pressures are experienced differently at strategic and operational levels and constrain crisis-management responses, therefore, in different ways. At the operational level, time pressures are generally more directly and unequivocally visible, requiring, or appearing to require, almost instant responses. At the strategic level, perceptions of time are mitigated by a concern for the broader, longer-term ramifications of events. It is only when direct short-circuiting with operational actors occurs that strategic decision makers are exposed to similar non-negotiable situational dominance. Examples of this occurred during the riots in Amsterdam, in 1966 and 1980, when escalation and loss of control at the operational level triggered a combination of improvisation and short-circuiting, both confronting senior officials with awkward operational decisions.

#### Pre-crisis Structure

The second mediating variable consists of the responding system’s pre-crisis organizational structure. A rough distinction is made between mechanistic and pragmatic response structures. Mechanistic structures tend to involve routine-oriented bureaucratic hierarchy and formal chains of command and communication. Pragmatic structures are usually associated with some form of matrix or project organization (Davis & Lawrence, 1977; Knight, 1976). Organizations whose pre-crisis structure resembles the pragmatic type will experience less difficulty in adapting to crisis events. In particular, improvised and decentralized responses to crisis-induced time pressures will be regarded as less problematic, and will, therefore, come about more quickly and effectively than in centralized organizations (Cameron, Sutton, & Whetten, 1988; DeGreene, 1982). An example of this seems to have been the decentralization of flight control in NASA’s Apollo 13 episode.

The variables can be combined to produce hypotheses for further testing in empirical research. For example, some hypotheses concerning *high time pressure* could read as follows:

Hypothesis 1: If, in a crisis, the degree of perceived time pressure is high and the pre-crisis system authority structure mechanistic, strategic crisis management will be characterized by attempts to further *centralize* crisis responses.

Hypothesis 2: If, in a crisis, the degree of perceived time pressure is high and the precrisis system authority structure pragmatic, strategic crisis management will be characterized by either *informal decentralization* or *strategic evasion*.

Hypothesis 3: If, in a crisis, the degree of perceived time pressure is high and the precrisis system authority structure mechanistic, operational crisis management will be characterized by *paralysis*.

Hypothesis 4: If, in a crisis, the degree of perceived time pressure is high and the precrisis system authority structure pragmatic, operational crisis management will be characterized by *situational dominance*.

Similar testable hypotheses could be formulated for relatively *low time pressure* in “creeping” crises, long-term variants of compulsive emergencies (Rosenthal et al., 1989, pp. 27–28):

Hypothesis 5: If, in a crisis, the degree of perceived time pressure is low and the precrisis decision structure is mechanistic, strategic decision making will be characterized by *centralization* and interagency *bureau-politics*.

Hypothesis 6: If, in a crisis, the degree of perceived time pressure is low and the precrisis decision structure is pragmatic, strategic decision making will be characterized by *formal decentralization and bureau-politics*.

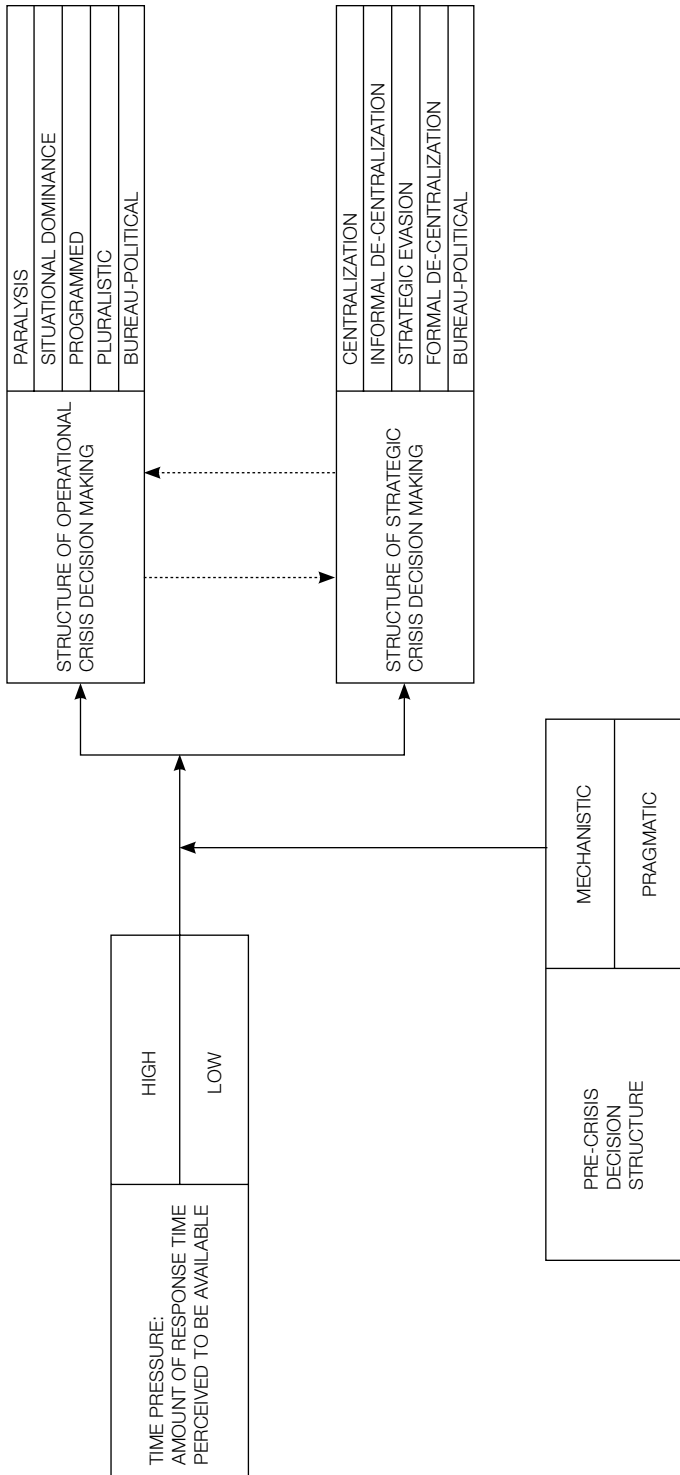
Hypothesis 7: If, in a crisis, the degree of perceived time pressure is low and the precrisis decision structure is mechanistic, operational decision making will be characterized by *programmed implementation* and interagency *bureau-politics*.

Hypothesis 8: If, in a crisis, the degree of perceived time pressure is low and the precrisis decision structure pragmatic, operational decision making will be characterized by *pluralistic implementation and bureau-politics*.

Figure 1 depicts the general framework for these hypotheses. From these hypotheses, a more general assumption about the incidence of bureaucratic politics in crisis decision making emerges. The likelihood of intensified bureaucratic politics increases as the amount of decision time perceived to be available increases. Stated differently, if there appears to be an overarching need for quick action (minutes and hours), interagency differences will temporarily be put aside. If this is not the case, or when the initial sense of urgency abates, bureaucratic politics will increase.

At this stage, it is difficult to develop detailed hypotheses about the incidence of the various patterns of non-decision making as opposed to proactive responses. Non-decision making may develop under any of the conditions outlined above. Yet it can be hypothesized that the first type of non-decision making, namely decisions not taken, will be more likely in situations of intense bureau-political confrontations, resulting in stalemate, extreme time pressure, resulting in dominance, and when the decisional actor suffers from personal or institutional weaknesses such as paralysis.<sup>2</sup>

It should be immediately added that the three key variables discerned here by no means exhaust the range of critical contingency factors. For example, national, local, or institutional cultures and subcultures, elusive as they may be to empirical observation and measurement, do appear to exert a significant influence. In the



**Figure 1:** Structure of crisis decision making



disaster literature, comparative studies of different communities responding to a major disaster indicate quite clearly how cultural differences shape attitudes toward risk, crisis preparedness, and response (Kouzmin, 1990; Roth, 1970; Stalling & Schepart, 1990). The same is true for risk management in different organizations, where the concept of a “safety subculture” is currently being employed to understand more precisely why structurally similar organizations facing similar risks cope so differently (Pidgeon, 1991).

Also, one should take into account the fact that the dominant structural pattern of crisis response may shift as the crisis evolves through time. This is particularly the case in “slow” or protracted crises. In “slow” crises, the initial tendency to misperceive or play down the threat leads to non-decision making. When the sense of crisis develops, some calls for positive responses become inevitable. Examples of slow crises abound in the area of soil and water pollution (Fowlkes & Miller, 1988) and emerging ecological threats such as acid rain (Vittes, 1990). Another example of such a shifting pattern of crisis decision making concerns the Apollo 13 flight, where an initial pattern of managerial centralization in response to the accident eventually gave way to decentralization and a devolution of flight control to the astronauts (Perrow, 1984). Studying such transition patterns in crisis response situations involves a necessary longitudinal, dynamic perspective in analysis. Such an important time element helps in identifying, and ultimately predicting, the *dynamics* of crisis management response modes as they develop in the course of particular crisis events (Jarman & Kouzmin, 1990; Kouzmin & Jarman, 1989).

### **Rethinking Crisis Decision Making**

Although the key function of such hypothesizing about patterns of crisis decision making bears on discovering and systematizing empirical regularities, such hypotheses also offer various possibilities for exploring, heuristically, policy issues in crisis management.

One such heuristic exploration involves the assessment of the functions and dysfunctions of various structures and modes of crisis management. This leads to the broader issue of normatively assessing different crisis management structures and regimes. From a purely functionalist perspective, clear advantages and disadvantages appear. For example, strategic centralization is aimed at increasing top-level control over crisis operations but has a high risk of presenting policy makers with a debilitating input overload. This may propel policy actors toward dysfunctional coping behavior such as hypervigilance, in the case of President Carter, during key phases of the Iran hostage crisis (Glad, 1989) or top-level paralysis, in the case of Amsterdam’s Mayor Van Hall, in June 1966. Likewise, as Weick (1988) observes, “the danger in centralization and contraction of authority is that there may be a reduction in the level of competence directed at the problem....” This is because “[the] person in authority is not necessarily the most competent person to deal with a crisis, so a contraction of authority leads either to less action or more confusion” (p. 312).

It appears, therefore, that the self-evident centralization of decision making planned for in so many crisis contingency plans may have serious drawbacks. This has prompted some students of crisis management to recommend alternative ways of structuring crisis responses, particularly in interorganizational settings.

Thus “organizational officials should be asking more than telling, requesting rather than ordering, delegating and decentralizing rather than narrowing and centralizing at the height of the emergency” (Quarantelli, 1988, p. 382).

Thinking in terms of alternative modes of structuring crisis decision making may enhance a more balanced assessment of the functions and dysfunctions of centralization. Further analysis could identify the personal, organizational, and inter-organizational prerequisites for effective crisis management in different situations. For each structural pattern, differentiation could be identified for successful and unsuccessful cases of crisis management using a set of procedural and/or substantive quality criteria (Herek, Janis, & Huth, 1987). Consequently, hypotheses identifying the structural and processual determinants of success and failure in each of these cases could be developed and tested. The results of such an analysis could then provide an important input to a much needed prescriptive theory of crisis management (DeGreene, 1982; Gilbert & Lauren, 1979).

A functionalist perspective by no means exhausts the possibilities for normative reflection. It is beyond the scope of the present analysis to venture into this complicated matter in any detail, but certainly intriguing normative questions await analysis. One of these concerns the issue of accountability for crisis management and responses. Which provisions for safeguarding democratic (Rosenthal, 1990a) and legal scrutiny are implied by the various structural arrangements discussed here? How does one effectively transpose normative conceptions of “checks and balances” to this sensitive area of governance, where decisions of great consequence are often required? How, in other words, can structural arrangements contribute to bringing crisis management, often portrayed as a predominantly “technical” activity, back into a sharper societal and political focus? Underlying these questions is a deeper concern with the ethical issues involved in crisis management, now and in the near future. As technology changes, the scope of potential man-made crises and disasters is increasing, as is the potential scope of decisions about crisis preparedness, mitigation, and response. Such decisions involve potential strategic choices and trade-offs in the allocation of attention and other scarce resources to different groups, especially the different kinds of disaster victims, localities, regions, industries, and sociopolitical systems. It is important that crisis analysts recognize these issues and make analytical and empirical contributions that facilitate at least a reasoned debate about their consequences.

### **Authors' Note**

Research support for this article was provided to the first author by the Royal Dutch Academy of Sciences. This support allowed him to spend an extended study period in Australia during 1990. This is gratefully acknowledged.

### **Notes**

1. Small groups of crisis decision makers were analyzed for their involvement in the escalation of tensions toward the First World War (Holsti, 1972; Lebow, 1981). British War Cabinets were analyzed for the Second World War, the Suez crisis, and the Falklands War (Freedman, 1988; Janis, 1972; Roberts, 1988). The Israeli cabinet's decision process during the wars of 1967 and 1973 is equally well documented (Brecher, 1980) as is its performance during the

Entebbe hijacking episode (Maoz, 1981). Finally, advisory groups surrounding consecutive U.S. presidents have been studied. For example, Truman during the Korean crisis (De Rivera, 1968; Paige, 1968), Eisenhower during the Dien-Bien Phu crisis (Burke & Greenstein, 1989) and the U2 affair (Beschloss, 1986), Kennedy during the Bay of Pigs planning (Janis, 1972) and the Cuban Missile crisis (McCauley, 1989), Johnson during the Vietnam War escalation (Burke & Greenstein, 1989; Janis, 1972), Nixon during the Watergate cover-up (Janis, 1982; Raven, 1974), Carter during the Tehran Embassy hostage crisis (Roberts, 1988; Smith, 1984), and Reagan during the Lebanese hostage crisis ('t Hart, 1990). Without doubt, similar analyses will appear, in due course, on the Bush administration during the 1990–1991 Gulf crisis.

2. It should be noted that these hypotheses entail subtle concepts that require careful operationalization. This is especially the case for the variables' degree of perceived time pressure and precrisis system decision structure. It is also the case with the dependent variable, the structure of crisis management response mode.

## References

- Adomeit, H. (1982). *Soviet risk-taking and crisis behavior*. London: Allen and Unwin.
- Allison, G. T. (1971). *Essence of decision: Explaining the Cuban missile crisis*. Boston: Little, Brown.
- Axlerod, R. (Ed.). (1976). *The structure of decision: Cognitive maps of political elites*. Princeton, NJ: Princeton University Press.
- Belden, T. (1977). Indications, warning, and crisis operations. *International Studies Quarterly*, 21, 181–198.
- Benyon, J. (Ed.) (1984). *Scarman and after*. Oxford: Pergamon.
- Benyon, J., & Solomos, J. (Eds.). (1987). *The roots of urban unrest*. Oxford: Pergamon.
- Beschloss, M. R. (1986). *Mayday: The U2 affair*. New York: Harper & Row.
- Betts, R. K. (1977). *Soldiers, statesmen and cold-war crises*. Cambridge, MA: Harvard University Press.
- Blau, P. M., & Scott, W. R. (1963). *Formal organizations: A comparative approach*. London: Routledge and Kegan Paul.
- Blight, J. G., Nye, J. S., Jr., & Welch, D. A. (1988). The Cuban missile crisis revisited. *Foreign Affairs*, 66(1), 170–188.
- Bracher, K. D. (1968). Crisis government. In D. L. Sills (Ed.), *International encyclopedia of the social sciences* (pp. 514–518). New York: Free Press.
- Bracken, P. (1983). *The command and control of nuclear forces*. New Haven, CT: Yale University Press.
- Brecher, M. (1980). *Decisions in crisis: Israel's choices, 1967 and 1973*. Berkeley: University of California Press.
- Bronner, R. (1982). *Decision making under time pressure*. Lexington, MA: D. C. Heath.
- Burke, J., & Greenstein, F. (1989). *How presidents test reality*. New York: Russell Sage.
- Cameron, K., Sutton, R., & Whetten, D. (Eds.). (1988). *Readings in organizational decline*. Cambridge: Ballinger.
- Cohen, R. (1979). *Threat perception in international crisis*. Madison: Wisconsin University Press.
- Comfort, L. (1989). The San Salvador earthquake. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 323–339). Springfield, IL: Charles C Thomas.
- COT (1989). *Onrust in de binnenscheepvaart: Het granaria conflict*. Arnhem, the Netherlands: Gouda Quint.
- Czada, R. (1990, December). Politics and administration during a “nuclear-political” crisis: The Chernobyl disaster and radioactive fallout in Germany [Special issue]. *Contemporary Crises*, 14(4), 285–312.
- Davis, S. M., & Lawrence, P. R. (1977). *Matrix*. Sydney: Addison-Wesley.
- DeGreene, K. B. (1982). *The adaptive organization: Anticipation and management of crisis*. New York: Wiley.
- De Rivera, J. (1968). *The psychological dimension of foreign policy*. Columbus, OH: Bobbs-Merrill.
- Deutsch, K. W. (1982). Crisis decision making: The information approach. In D. Frei (Ed.), *Managing international crises* (pp. 1–22). London: Sage.

- Dowty, A. (1984). *Middle-East crisis: US decision making in 1958, 1970 and 1973*. Berkeley: University of California Press.
- Drabek, T. (1986). *Human systems responses to disaster: An inventory of sociological findings*. New York: Springer.
- Dror, Y. (1968). *Public policymaking re-examined*. San Francisco: Chandler.
- Dynes, R. R. (1970). *Organized behavior in disaster*. Lexington, MA: D. C. Heath.
- Etheredge, L. S. (1981). Government learning. In S. L. Long (Ed.), *Handbook of political behavior* (pp. 73–161). London: Sage.
- Etheredge, L. S. (1985). *Can governments learn?* New York: Pergamon.
- Fine, B., & Millar, R. (Eds.). (1985). *Policing the miners' strike*. London: Lawrence and Wishart.
- Ford, D. (1985). *The button*. London: Counterpoint.
- Fowlkes, M. R., & Miller, P. Y. (1988). Unnatural disaster at Love Canal. In M. T. Charles & J. C. Kim (Eds.), *Crisis management: A casebook* (pp. 23–42). Springfield, IL: Charles C Thomas.
- Freedman, L. (1988). *Britain and the Falklands War*. Oxford: Blackwell.
- Gabriel, R. T. (1985). *Military incompetence: Why the American Military doesn't win*. New York: Hill and Wang.
- George, A. L. (1980). *Presidential decision making in foreign policy: The effective use of information and advice*. Boulder, CO: Westview.
- Gilbert, R. N., & Lauren, P. G. (1979). Crisis management: An assessment and critique. *Journal of Conflict Resolution*, 24(4), 641–664.
- Glad, B. (1989). Personality, political and group process variables in foreign policy decision making: Jimmy Carter's handling of the Iranian hostage crisis. *International Political Science Review*, 10(1), 35–61.
- Gray, A., & Jenkins, B. (1985). *Administrative politics in British government*. Brighton: Wheatsheaf.
- Haas, J., Kates, E.R.W., & Bowden, M. J. (Eds.). (1977). *Reconstruction following disaster*. Cambridge: MIT Press.
- Halperin, M. (1974). *Bureaucratic politics and foreign policy*. Washington: Brookings Institution.
- Handel, M. I. (1976). *Perception, deception and surprise: The case of the Yom Kippur War*. Paper no. 6. Jerusalem: Hebrew University.
- Herek, G. M., Janis, I. L., & Huth, P. (1987). Decision making during international crises: Is quality of process related to outcome? *Journal of Conflict Resolution*, 31, 203–226.
- Hermann, C. F. (1963). Some consequences of crisis which limit the viability of organizations. *Administrative Science Quarterly*, 8(1), 61–82.
- Hermann, C. F. (1978). Decision structure and process influences on foreign policy. In M. East, S. Salmore, & C. Hermann (Eds.), *Why nations act* (pp. 69–102). Beverly Hills, CA: Sage.
- Hermann, C. G., & Hermann, M. G. (1982). A look inside the "black box": Building upon a decade of research. In G. W. Hoppole (Ed.), *Biopolitics, political psychology and international politics* (pp. 1–36). London: Pinter.
- Hillsman, R. (1986). *The politics of policymaking in defense and foreign affairs: Conceptual models and bureaucratic politics*. New York: Prentice-Hall.
- Hirokawa, R. Y., Gouran, D. S., & Martz, A. E. (1988). Understanding the sources of faulty group decision making: A lesson from the Challenger disaster. *Small Group Behavior*, 19, 411–433.
- Holsti, O. R. (1972). *Crisis, escalation, war*. Montreal: McGill-Queens University Press.
- Holsti, O. R., & George, A. L. (1975). The effects of stress on the performance of foreign policy makers. *Political Science Annual*, 6, 255–319.
- Hoppole, G. W. (1980). *Political psychology and biopolitics: Assessing and predicting elite behavior in foreign policy crises*. Boulder, CO: Westview.
- Hoppole, G. W. (Ed.). (1982). *Biopolitics, political psychology and international politics*. London: Pinter.
- Howe, J. T. (1971). *Multicrisis: Sea power and global politics in the missile age*. Cambridge: MIT Press.
- Inbar, M. (1979). *Routine decision making: The future of bureaucracy*. London: Sage.
- Jacobs, B. D. (1986). *Black politics and the urban crisis in Britain*. Cambridge: Cambridge University Press.
- Jacobs, B. D. (1989). The Brixton riots: London 1981. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 340–366). Springfield, IL: Charles C Thomas.

- Janis, I. L. (1972). *Victims of groupthink*. Boston: Houghton Mifflin.
- Janis, I. L. (1982). *Groupthink* (2nd rev. ed.). Boston: Houghton Mifflin.
- Janis, I. L., & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice and commitment*. New York: Free Press.
- Jarman, A.M.G., & Kouzmin, A. (1990, December), Decision pathways from crisis: A contingency theory simulation heuristic for the Challenger shuttle disaster (1983–1988) [Special Issue]. *Contemporary Crises*, 14(4), 399–434. Also published in U. Rosenthal & B. Pijenburg (Eds.), *Crisis management and decision making: Simulation oriented scenarios* (pp. 123–157). Dordrecht: Kluwer.
- Kerner, O. (1968). *Report of the National Advisory Commission on civil disorders*. New York: Bantam.
- Kettle, M., & Hodges, L. (1982). *Uprising! The police, the people and the riots in Britain's cities*. London: Pan.
- Knight, K. (1976, May). Matrix organizations: A review. *Journal of Management Studies*, 13(2), 111–130.
- Kouzmin, A. (1980). Control in organizational analysis: The lost politics. In D. Dunkerley & G. Salaman (Eds.), *The international yearbook of organization studies 1979* (pp. 56–89). London: Routledge and Kegan Paul.
- Kouzmin, A. (Ed.). (1990, January–December). Crisis/disaster management [Special issue]. *Asian Review of Public Administration* 2(1–2).
- Kouzmin, A., & Jarman, A.M.G. (1989). Crisis decision making: Towards a contingent decision path perspective. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 397–435). Springfield, IL: Charles C Thomas.
- Kouzmin, A., & Jarman, A.M.G. (1990, January–December). Towards comprehensive planning in Australian crisis management. In A. Kouzmin (Ed.), [Special Issue], *Asian Review of Public Administration*, 2(1–2), 92–113.
- Lagadec, P. (1982). *Major technological risk*. New York: Pergamon.
- Lagadec, P. (1990). *States of emergency*. London: Butterworths.
- Lebow, R. (1981). *Between peace and war: The nature of international crises*. Boston: Johns Hopkins University Press.
- Lebow, R. (1987). *Nuclear crisis management: A dangerous illusion*. Ithaca, NY: Cornell University Press.
- Lentner, H. H. (1972). The concept of crisis as viewed by the US Department of State. In C. F. Hermann (Ed.), *International crises: Insights from behavioral research* (pp. 112–135). New York: Free Press.
- Lin, J. J., & Stepan, A. (Eds.) (1978). *The breakdown of democratic regimes*. Baltimore, MD: Johns Hopkins University Press.
- Lipsky, M., & Olson, D. (1977). *Commission politics: The processing of racial crisis in America*. New Brunswick: Transaction Books.
- Maoz, Z. (1981). The decision to raid Entebbe: Decision analysis applied to crisis behavior. *Journal of Conflict Resolution*, 25, 677–707.
- Maoz, Z. (1990a). *National choices and international processes*. Cambridge: Cambridge University Press.
- Maoz, Z. (1990b). Framing the national interest: The manipulation of foreign policy decisions in group settings. *World Politics*, 43(3), 77–110.
- McCaughey, C. (1989). The nature of social influence in groupthink: Compliance and internalization. *Journal of Personality and Social Psychology*, 5, 250–260.
- Meyers, G. (1987). *When it hits the fan: Managing the nine crises of business*. New York: Norton.
- Neustadt, R., & May, E. (1986). *Thinking in time: The uses of history for decision makers*. New York: Free Press.
- October 22, 1962: Transcripts of the meetings of the Executive Committee. (1987–1988). *International Security*, 12(3), 30–92.
- Paige, G.D. (1968). *The Korean decision, June 24–30*. New York: Free Press.
- Perrow, C. (1967, April). A framework for the comparative analysis of organizations. *American Sociological Review*, 32, 194–208.
- Perrow, C. (1984). *Normal accidents: Living with high-risk technologies*. New York: Basic Books.
- Petak, W. (Ed). (1985). Emergency management [Special issue]. *Public Administration Review*, 45(1).

- Pidgeon, N. F. (1991). Safety culture and risk management in organizations. *Journal of Cross-Cultural Psychology*, 22(1), 129–140.
- Pijenburg, B., & van Duin, M. J. (1990). The Zeebrugge ferry disaster. Elements of a communication and information processes scenario [Special Issue]. *Contemporary Crises*, 14(4), 321–350. Also published in U. Rosenthal & B. Pijenburg (Eds.), *Crisis management and decision making: Simulation oriented scenarios* (pp. 75–79). Dordrecht: Kluwer.
- Pika, J. A. (1988). Management style and the organizational matrix. *Administration & Society*, 20, 3–29.
- Quandt, W. (1977). *Decade of decisions*. Berkeley: University of California Press.
- Quarantelli, E. (1988). Disaster crisis management: A summary of research findings. *Journal of Management Studies*, 25(3), 373–385.
- Raven, B. H. (1974). The Nixon group. *Journal of Social Issues*, 30, 297–320.
- Roberts, J. (1988). *Decision making during international crises*. London: Macmillan.
- Rosenthal, U. (1984). *Rampen, rellen en gijzelingen: Crisisbesluitvorming in Nederland*. Amsterdam: Bataafsche Leeuw.
- Rosenthal, U. (1988). Disaster management in the Netherlands: Planning for real events. In L. Comfort (Ed.), *Managing disaster: Strategies and policy perspectives* (pp. 274–296). Durham, NC: Duke University Press.
- Rosenthal, U. (1989). A compulsive crisis: The inauguration of Queen Beatrix. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 225–253). Springfield, IL: Charles C Thomas.
- Rosenthal, U. (1990a). Politics and administration: Max Weber and the quest for democratic order. In A. Kouzmin & N. Scott (Eds.), *Dynamics in Australian public management: Selected essays* (pp. 392–408). Melbourne: Macmillan.
- Rosenthal, U. (1990b, January–December). Beyond disasters: Common grounds for crisis management. In A. Kouzmin (Ed.), [Special Issue]. *Asian Review of Public Administration*, 2(1–2), 114–122.
- Rosenthal, U., & 't Hart, P. (1989). Managing terrorism: The South Moluccan hostage takings. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 367–394). Springfield, IL: Charles C Thomas.
- Rosenthal, U., 't Hart, P., & Charles, M. T. (1989). The world of crises and crisis management. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises. The management of disasters, riots and terrorism* (pp. 3–33). Springfield, IL: Charles C Thomas.
- Rosenthal, U., 't Hart, P., & Kouzmin, A. (1991, Summer). The bureau-politics of crisis management. *Public Administration*, 69(2), 211–233.
- Ross, S. (1976). Complexity and the presidency. In R. Axelrod (Ed.), *The Structure of decision: Cognitive maps of political elites* (pp. 96–112). Princeton, NJ: Princeton University Press.
- Rossiter, C. (1948). *Constitutional dictatorship: Crisis government in modern democracies*. Princeton, NJ: Princeton University Press.
- Roth, R. (1970). Cross-cultural perspectives on disaster response. *American Behavioral Scientist*, 13, 440–451.
- Scarman, Lord. (1981). *The Scarman report on the Brixton disorders*. Harmondsworth: Penguin.
- Scranton, W. (1971). *Report of the presidential commission on campus unrest*. New York: Avon.
- Settle, A. K. (1989). Korean airline disaster: The tragic flight of KAL007. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 66–91). Springfield, IL: Charles C Thomas.
- Shrivastava, P. (1987). *Bhopal: Anatomy of a crisis*. Cambridge: Ballinger.
- Sipponen, K. (1987, May). Finnish reactions to the Chernobyl disaster. Paper presented to the Working Group on Crisis Management, European Group of Public Administration (EGPA), Valencia.
- Slovic, P., Fischhoff, B., & Lichtenstein, S. (1982). Facts versus fears: Understanding perceived risk. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgement under uncertainty: Heuristics and biases* (pp. 463–489). Cambridge: Cambridge University Press.
- Slusser, R. (1981). *The Berlin crisis of 1961*. Boston: Johns Hopkins University Press.
- Smart, C., & Stanbury, W. (1978). *Studies in crisis behavior*. Toronto: Butterworth.
- Smart, C., & Vertinsky, I. (1977). Designs for crisis decision units. *Administrative Science Quarterly*, 22(4), 640–657.

- Smith, S. (1984). Groupthink and the hostage rescue mission. *British Journal of Political Science*, 14, 117–123.
- Stalling, R. A., & Schepart, C. B. (1990). Contrasting local government responses to a tornado disaster in two communities. In R. T. Sylves & W. L. Waugh (Eds.), *Cities and disaster: North American studies in emergency management* (pp. 75–90). Springfield, IL: Charles C Thomas
- Stark, R. (1972). *Police riots: Collective violence and law enforcement*. Belmont, CA: Wadsworth.
- ’t Hart, P. (1990). *Groupthink in government: A study of small groups and policy failure*. Amsterdam, the Netherlands: Swets and Zeitlinger.
- ’t Hart, P., & Pijenburg, B. (1989). The Heizel Stadium tragedy. In U. Rosenthal, M. T. Charles, & P. ’t Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 197–224). Springfield, IL: Charles C Thomas.
- Thompson, J. D. (1967). *Organizations in action: Social science base of administrative theory*. New York: McGraw-Hill.
- Turner, B. A. (1978). *Man-made disasters*. London: Wykeham.
- Turner, B., & Toft, B. (1989). Fire at Summerland Leisure Centre. In U. Rosenthal, M. T. Charles, & P. ’t Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 169–195); Springfield, IL: Charles C Thomas.
- Tversky, A., & Kahneman, D. (1982). Availability: A heuristic for judging frequency and probability. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgement under uncertainty: Heuristics and biases* (pp. 163–178). Cambridge: Cambridge University Press.
- Vittes, M. E. (1990). Acid rain as a disaster agent. In R. T. Sylves & W. L. Waugh (Eds.), *Cities and disaster: North American studies in emergency management* (pp. 91–107). Springfield, IL: Charles C Thomas.
- Walsh, D. (1983). *The use and abuse of emergency legislation in northern Ireland*. London: Cobden Trust.
- Waugh, W. Jr. (1989). *Terrorism and emergency management*. New York: Dekker.
- Weick, K. E. (1988). Enacted sensemaking in crisis situations. *Journal of Management Studies*, 25(4), 305–317.
- White House tapes and the Cuban missile crisis. (1985). *International Security*, 10(1), 164–202.
- Wiegele, T. C. (1973). Decision-making in an international crisis. *International Studies Quarterly*, 17, 295–335.
- Wildavsky, A. (1984). *The politics of the budgetary process*. Boston: Little, Brown.
- Wildavsky, A. (1988). *Searching for safety*. Berkeley, CA: Transaction Books.
- Wilkinson, P. (1985). *Terrorism and the liberal state*. London: Macmillan.
- Wohlstetter, R. (1962). *Pearl Harbour: Warning, and decision*. Stanford, CA: Stanford University Press.
- Wolfenstein, V. E. (1967). Some psychological aspects of crisis leadership. In L. J. Edinger (Ed.), *Political leadership in industrialized societies* (pp. 155–181). New York: Wiley.

## Experts and Decision Makers in Crisis Situations

**Uriel Rosenthal and Paul 't Hart****Source:** *Knowledge: Creation, Diffusion, Utilization*, 12(4) (1991): 350–372.

**A**mong crisis experts, it is conventional wisdom that there is a difference between decision time and clock time. It is also said that organizational time and clock time may diverge considerably. The past 2 years have shown how true this observation really is. Within a span of 12 months, many states and international crisis management agencies such as the United Nations and NATO have had to rethink and redefine their objectives, strategies, and procedures and have been induced to test that conventional wisdom during a conflict in the Middle East.

The reality of crisis management in the Gulf, major business crises, and other critical events imposes high demands on decision makers. They need to master considerable strategic and tactical uncertainties and assess bulks of intelligence; they need to monitor dynamic patterns of domestic and international support, criticism, and hostility; they must develop and adapt “policy mixes” out of, in the case of international confrontations, a variety of political and military initiatives; and they must curb such crisis-induced complications as economic anxieties in world markets and financial institutions. On top of these crisis-related tasks, key public decision makers or top managers must continue to conduct daily affairs of government, diplomacy, or business, or at least appear to be doing so.

These are, indeed, monumental tasks for any set of crisis decision makers. Inevitably, they will seek support and assistance. One crucial aspect of such support concerns the various expert advisers. In this article, we analyze the relationship between crisis decision makers and expert advisers from the perspective of crisis management. What opportunities and loopholes emerge in the relationship between them under conditions of stress?

To put the analysis into proper perspective, we first provide some important caveats about crisis management and the management of expert advice. Next, taking the position of the expert adviser, we provide key points about the behavior of decision makers under conditions of stress which should be taken into account. Third, we reverse the perspective and analyze the dynamics of experts and advice giving during crises from the point of view of crisis decision makers. The two strands of the analysis are then integrated in our conclusion, which provides a set of recommendations for managing such relationships in a crisis.



## Caveats About a Seemingly Simple Question

### A Sharp-Edged Concept of Crisis

The international academic community often entertains a sharp-edged concept of crisis, which features severe threat (at the brink of war; Brecher, 1979), a high degree of uncertainty, and the need for prompt, yet critical and potentially irreversible decisions. The dramatic extent of international tension during the first weeks of the Gulf crisis, for example, fits this concept remarkably well. Other episodes of increasing international tension or protracted stalemates, such as occurred later in the Gulf crisis, however, lack the hectic characteristics of the pure concept of crisis. At the same time, contemporary notions of crisis extend their range to events that may be somewhat remote from the kinds of phenomena and developments falling within the traditional emphasis on increasing international tension. Our body of knowledge stems from analyzing not only international confrontations but disasters, technological mishaps, turmoil, and terrorism (Rosenthal, Charles, 't Hart, 1989; Rosenthal & Pijnenburg, 1991). In assessing the relevance of our views concerning the relations between advisers and decision makers, this caveat should be kept in mind.

### A Variety of Experts

A second caveat relates to the diversity of expertise, advisory capacity, and counseling in crisis situations. It may be tempting to negate or ignore the differences between the experts who advise crisis decision makers. It would allow sweeping statements about the role of experts in crisis circumstances. Nevertheless, apart from the fact that some experts know their responsibilities while others may not, one should keep an open mind about the variety of experts, advisers, and counselors which actually may play a role in crisis management.

Indeed, there is great diversity in the categories of expertise and advice which manifest themselves in policymaking in general but certainly in crisis situations. One may find policy advisers as well as technical experts lending advice on the implementation of decisions. Implementation expertise may also give way to other distinctive roles for organizational as well as operational experts.

Of course, a most important distinction will pertain to the organizational background of experts. Experts may be part of the bureaucracy or they may be outsiders asked for ad hoc advice. They may or may not be obliged to give detailed feedback to their constituency. They may have experience in giving advice in a crisis context or may be doing so for the first time.

Another question relates to the professional dimensions of expertise and advice. A crisis may induce the decision makers to call on professionals to help them reduce the uncertainty and ambiguity of the situation they face. By now, representatives from almost every science or discipline, natural as well as social science, have provided advice and consultation in crisis situations.

It is therefore no exaggeration to say that every part and parcel of crisis management situations evokes expert advice. The coordination of activities of the many actors involved in crisis management may call forth advice from organizational

consultants. The role of the media during crises invites decision makers to seek the advice of communications experts, even though the number of such experts having a really intimate knowledge of crisis communications is extremely limited. The individual and collective efforts of the decision makers themselves may elicit counseling on the part of experts qualified in observing and mending individual and collective stress in decision rooms, including medical experts (Dror, 1988). Despite the fact that decision makers may want to have sufficient political room for maneuvering, they often feel the need to consult political leaders in order to secure political support in the aftermath of the crisis.

In a way, each category and instance of crisis management will be characterized by the involvement and relative salience of specific kinds of expertise and advice. Occasionally, such expertise and advisory capacities may set the tone of crisis management and have a significant impact on the quality of the decision-making process. This is as true for civilian and military advice sought in international crises as it is for nuclear power expertise aimed at preventing a meltdown after a nuclear plant accident, for chemical knowledge dealing with a Bhopal-like explosion, or for psychiatric and negotiating skills called on in a hijacking case. To underline the need to maintain a differentiated picture, Table 1 presents some of the various dimensions of crisis-relevant expertise and advice giving.

**Table 1:** Experts and advisers and their functions

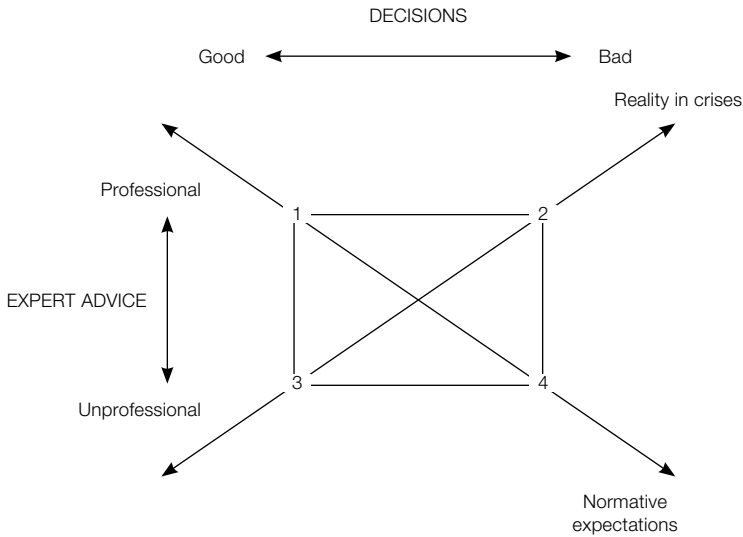
<i>Type of adviser</i>	<i>Primary functions for decision makers</i>
Personal staff	Strategic and tactical counsel
Political allies	Tactical intelligence and support
Personal friends	Social-emotional support
Spouses	Social-emotional support
Juridical fora	Formal scrutiny and legitimation
Senior bureaucrats	Expert information and assessment, such as situation assessment (intelligence agencies), option development (think tanks; planning units), feasibility testing (operational specialists), process counseling (management consultants; psychomedical experts), and support generation (media consultants)
In-house consultants	
External consultants and agencies	
Free-floating intellectuals	

### Experts and Decision Makers

The third caveat takes us to the heart of the matter because our analysis is guided by the premise that a simple and unequivocal relation between expert advisers and decision makers does not exist. Policy scientists have gone a long way in renouncing simple, overrationalistic models of expert advice to policymakers and decision makers. They have done away with the notion of automatic or mechanistic linkage between expertise (knowledge) and decision (action). More often than not, expert advice is part of the policy, if not the political, game. Policymakers and decision makers will tend to assess expert advice, however qualified, according to many criteria, only one of which happens to be the professional expertise involved. They will ask for usable rather than professional expertise (Lindblom & Cohen, 1979; O'Reilly, 1983).

This perspective is compatible with a restrained idea of the role of expertise in policymaking and decision making. Whatever its quality, expert advice will always be only one among several inputs to the decision-making process (Meltsner, 1989). Professional advice will not necessarily lead to good decisions just as unprofessional advice does not inevitably imply that fiascoes will occur.

Figure 1 consolidates this directing principle by presenting different patterns of expertise and decision. Whereas Cells 1 and 4 may meet our normative standards, reality may all too often embrace the patterns of Cells 2 and 3. A pivotal aspect must be the communication of expertise to decision-making circles. This is especially relevant in crisis situations when decision makers have to cope with a variety of inputs, some of which appear to press them to immediate decisions.



**Figure 1:** Expert advice and decisions

Note: The concept of decision quality is the subject of academic debate. It may pertain to the quality of consultation, deliberation, and information handling (e.g., to the *process* of decision making), but in the end, the challenge is to relate these process indicators to the *substance* of decisions and their *policy outcomes*. Janis and Mann (1977) and George (1980) developed widely used criteria for decision process quality, while Herek, Janis, and Huth (1987) attempted to provide an empirical test of the idea that procedurally “good” decision makers are also likely to be “substantively” successful: Good procedures maximize the chances for good outcomes, while bad procedures lead to avoidable bad outcomes. Their test, performed in the context of crisis decision making, found “sizable” correlations along the predicted lines. The article provoked a critical review by Welch (1989) and a rejoinder by the authors (Herek, Janis, & Huth, 1989). In this figure, decision quality pertains to the quality of process; the normative-technocratic expectation is that the use of professional experts will enhance decision quality (Cell-1), while failure to do so will produce ill-considered choices (Cell 4).

### What Expert Advisers should Understand about Crisis Decision Making

#### Good and Bad Crisis Decision Makers

For decision makers, crises involve a cumulation of adverse conditions and, if only for that reason, crises will be high-risk events. Some decision makers will turn out to be particularly good crisis managers, converting critical conditions into splendid opportunities, whereas others will be unable to cope with a crisis and may see their careers ruined by ill-conceived crisis management.

It is not always easy to predict the crisis management qualities of decision makers. Those who are solid managers of daily political or administrative affairs

may be far from effective in crisis management. A dramatic example of this was the former mayor of Amsterdam, Van Hall, who was an excellent administrator and promoter of business activity but could not effectively cope with youth protests and public-order disturbances; he was removed from his post by central government intervention (Rosenthal, 1986). On the other hand, decision makers who show mediocre talents in routine politics and administration may rise to the occasion in a crisis. In fact, decision makers may be very talented in coping with certain types of crises but unable to make appropriate decisions in others. They may be excellent in one stage of crisis management (for instance, crisis response at hectic moments) and then fail to keep to that level the longer the crisis continues.

In consequence, experts should anticipate a surprising distribution of crisis management qualities among key decision makers. They should also anticipate changes in the distribution of such qualities during a crisis.

#### Informal and Improvised Decision Making

In crisis situations, decision making is usually characterized by formal rules and procedures giving way to informal processes and improvisation. Key decisions will be made in ad hoc decision units. There is some evidence that as threat increases, the number of key decision makers will tend to increase, but there is also evidence that time pressures may counter this tendency and reduce the number of participants in critical decisions (Hermann, 1969, 1972).

In many crises, standard operating procedures, however frequently exercised, will be put aside by the exigencies of the situation. As it is said, necessity is the mother of invention. Under the pressure of circumstances, authorities may be overruled by situational leaders. In addition, decision makers may cross the line and engage in activities and evaluations usually preserved for expert advisers.

Experts should therefore be well aware that in crisis situations they may be confronted with informal patterns of decision making and that decision processes may not take place according to previously arranged standard operating procedures. Again, they should not be surprised to receive requests, if not orders, from ad hoc decision units about which they had known little up until then.

#### The Politics of (Dis)Information

In the initial stages of a crisis, there tends to be a considerable increase in the volume of communication reaching decision-making circles (the so-called information explosion leading to information overload). Subsequently, there may be periods when the original outburst of information gives way to an informational standstill. During such information vacuums, which may occur in international crises, terrorist actions, and some business crises, information functions as an important, often vital, resource at the disposal of "the other side." Spreading rumors and taking the decision makers by surprise are part of the crisis game.

To some extent, the media are crucial allies in such politics of (dis)information (Walters, Wilkins, & Walters, 1989). Examples include the staging of leaks (e.g., the role played by "Deep Throat" in the Watergate affair) and informal agreements not to broadcast pictures of military preparations for surprise antiterrorist operations, such as the Israeli raid on Entebbe airport to liberate Israeli hostages (Williamson, 1976), as well as dramatic examples of media interference with such operations,

where media become part of the story instead of its mere reporters. A dramatic example of this effect occurred when the media reported that during the hijacking of a Lufthansa jet, the captain was passing information on to the authorities; the captain was subsequently executed by the terrorists (Kelly, 1989).

In connection with the observation concerning informal and improvised patterns of crisis decision making, there may be significant flaws in the scanning and screening of relevant information addressed to the key decision makers. Apart from psychological factors yet to be discussed, improvisation and sudden fluctuations in the power structure of the key decision unit will not be conducive to the effective scanning and screening of incoming information. Key decision makers often communicate directly with low-ranking officials and incidental outsiders called in for immediate assistance and encouragement. Such efforts do not help to secure adequate scanning and screening of information. At the same time, there may be similar difficulties in guaranteeing the systematic dispersal of relevant information from decision-making circles to those in need of it. The release of such information may seem to take place in a spasmodic way, with an intricate mix of open and classified messages, with subordinates and low-ranking experts becoming utterly confused by such direct messages and requests from key decision makers they only recognize from the papers and television.

As a consequence, experts should understand that their advisory reports and messages, however urgent and expert, will not always find their way to key decision makers. They may, indeed, feel compelled to push their advice through and reiterate what they have to say – at the expense of falling victim to the “crying wolf” syndrome or finding themselves ushered out of prominent positions.

The syndrome of decision makers becoming “overwarned” by experts or field officials has played a pivotal role in many intelligence fiascoes, such as the German invasion of the Low Countries (Van Welkenhuyzen, 1982), Pearl Harbor (Wohlstetter, 1962), the Yom Kippur War (Handel, 1976), and the Argentinian seizure of the Falkland Islands (Kam, 1988). Likewise, many “Cassandras” in government and business have fallen from grace because their warnings or cautions irritated or publicly embarrassed their superiors – for example, engineers and other experts arguing for a more cautious approach toward nuclear energy or exposing specific risks and flaws in the reactors of existing plants (Ford, 1986). The discounting of expert warnings was among the key immediate causes of the disaster with the space shuttle *Challenger*, when Morton Thiokol engineers’ warning about the performance of the O-rings at low temperatures was overruled by their management, which, in turn, was put under heavy pressure by NASA officials to withdraw the initial advice not to launch (Charles, 1989; Vaughn, 1990).

#### High Politics

It is an attractive thought that in crisis situations, political considerations and ambitions will yield to broad bi- or multipartisan or even transnational consensus. Under critical circumstances, all those involved in decision making and expert counseling should be disposed to a common goal: averting the immediate threat and preventing similar threats from occurring in the future. Conventional wisdom has it that crises foster the mitigation of political and social antagonism and, for all that, depoliticize the context in which critical decisions are to be made.

However, a realistic approach to crisis decision making will emphasize the political quality of what will be going on, even in the hectic moments when critical decisions are being made. Crises are indeed the domain of high politics, in that they put to the test the viability of the political regime and challenge the capacity of ruling elites or incumbent authorities to withstand formidable and acute threats to the legitimacy of the political system.

Crises, then, are critical for public careers and political interests. They may enhance or ruin the power and prestige of decision makers. It is evident that during a crisis, decision makers will be concerned not only with managing the substantive threat itself, but also with creating favorable interpretations about the way in which they handle the situation, as well as with anticipating the direction of the public and political debate in the aftermath of the crisis (Lynn, 1987).

In a similar way, it is unrealistic to think that in crisis situations, decision makers lose interest in the ranking of their agency on the prestige ladder of public organizations. Put differently, in crisis situations, organizational politics flourish. Decision makers directing agencies with a special assignment for critical circumstances will be keen on safeguarding institutional interests, for their public existence will logically depend on their success in dealing with the crisis. But even if their agency may have a less prominent role to play in the crisis, other decision makers will grasp the importance of taking an active part in it. There will not be many decision makers who will fully conform to the proclaimed need for consensus and solidarity.

Experts should therefore dissociate themselves from the idea that substantive advice will always hit fruitful ground during crises. They need to anticipate political considerations that may take precedence over technical arguments. They should understand that they may be urged to develop plans for a “mission impossible” and that interorganizational tensions will not only affect bureaucrats and permanent officials but will find their way into the political and strategic levels where critical decisions are made.

#### Individual and Collective Stress

How reassuring it would be to be able to postulate a calm context for crisis decision making and a purely rational attitude of the key decision makers. How easy it would be to impute irrational and irresponsible behavior to “the other side.” How confident we would feel with decision makers who could withstand the pressures of a crisis without falling prey to psychological and physiological drawbacks.

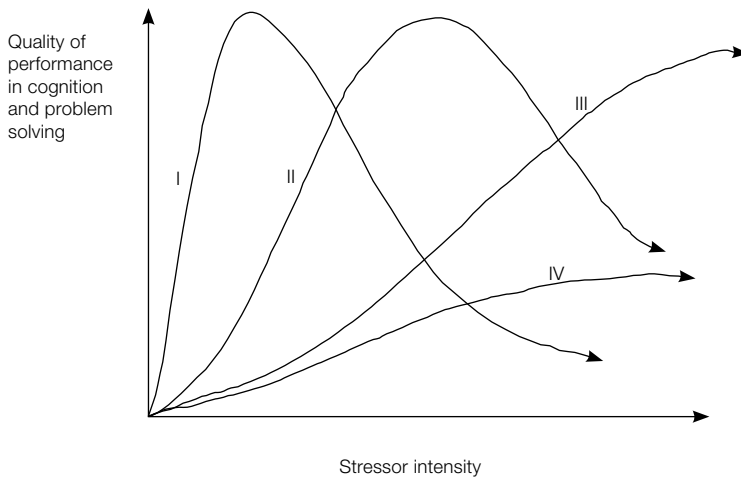
Here, those familiar with decision theory will recognize what policy scientists would call objective rationality. It is the domain of decision makers who have at their disposal the maximum amount of information and time to offer complete certainty about desirable courses of action. It is not difficult to see why objective rationality will not suffice in a crisis context. In many ways, crises indeed perform as its antipole, as they nurture threat, uncertainty, urgency and often a considerable dose of surprise (O’Neal, 1982; Roberts, 1988; Rosenthal, 1986; Snyder & Diesing, 1977, pp. 340–418).

For that reason, the best approach for crisis decision makers would be some sort of bounded rationality. It would underscore the relevance of the values, norms, past experiences, present state of knowledge, subjective orientations, and all those personality traits entertained by individual decision makers. Such factors

are supposed to limit the capacity of decision makers to arrive at a theoretically optimal solution. At the same time, instead of claiming superhuman qualities for crisis decision makers, bounded rationality makes them human again (Simon, 1983, 1985).

In addition, the psychology of crisis decision making produces a series of qualifications that substantially abate the ideal picture stated earlier. There is no reason to assume that tensions, severe and acute threat, time pressure, sheer uncertainty, and serious risk will leave individual decision makers and decisional units unaffected. They will have their fair share of individual and collective stress (George, 1986; Janis, 1988; Rosenthal, 1989). Certainly, some crisis decision makers will take a more or less rational stand than others; decision makers differ in their capacity to mitigate psychological pressures.

Research into performance under stress has indicated that each individual decision makers' pattern of stress tolerance can be identified as a curvilinear stress-performance curve. The different shapes of these curves, as shown in Figure 2, indicate this. The implication for the adviser is that he or she should be aware that decision makers' susceptibilities to high-quality advice during a crisis are a function of both personal characteristics and the nature and course of the crisis.



**Figure 2:** Stress and performance

Source: George (1986), Hermann (1972), Janis and Mann (1977), and Lebow (1981).

Note: Explanation of curves: I = hypervigilance, or low-stress-tolerance actor; II = "average" stress tolerance; III = "slow starter," or high performance in protracted crises; and IV = relatively stress-insensitive actor.

Decision makers under high stress are likely to display any of the following behavioral propensities:

1. Crises are *stress-inducing* events. As stress increases, decision makers tend to show increasingly rigid perceptions of the situation. Their "enemy image" tends to become stereotyped. They tend to foreclose on possibly feasible options and may stick, too eagerly and too soon, to one dominant goalmeans scheme. They tend to have great difficulty in redefining the situation, even when incoming information and situational stimuli indicate dramatic changes (Rosenthal, Charles, & 't Hart, 1989; Smart & Vertinsky, 1977).

2. Crisis decision makers may be overanxious to forgo *cognitive dissonance*, whereby “the obverse of one element would follow from the other” (Festinger, 1957). They desperately want the bits and pieces of incoming information and situational stimuli to fit their frame of reference and the course of action to which they have committed themselves. If this is not the case, they either neglect the source of dissonance or start looking for additional information that will place the initial message into the proper perspective. In its extreme version, this choice eventually results in the syndrome of shooting the messenger who brings in the bad news, as in some of the more extreme cases when individuals were fired or penalized for crying wolf.

3. The stress-inducing impact of crises does not only manifest itself with individual decision makers. Decision groups may also undergo the negative effects of *groupthink*: “excessive concurrence seeking” (Janis, 1982; ‘t Hart, 1990). Individual decision makers may feel the burden of personal involvement to the extent that, all too easily, they shift individual responsibility to the group level of the decision unit. The paradox of groupthink is that unanimous decisions may then seem to be a display of resoluteness, when, in fact, they result from defensive avoidance on the part of the individual members of the decision group. Policy fiascoes in which groupthink has played a major role include Pearl Harbor, the escalation of U.S. involvement in the Korean and Vietnam Wars, the Iran rescue mission, and the Iran-Contra affair (Janis, 1982; Smith, 1984; ‘t Hart, 1990). Evidence for strong pressures toward uniformity in group decision making can also be found in managerial settings, for example, in the social meaning attached to the concept of teamwork (Jackall, 1988).

4. Confronted with a crisis situation, decision makers tend to reduce uncertainty by drawing on *analogies* from the past and from other places. Particularly strong candidates for such analogous thinking are the previous crises that decision makers have experienced – in a decision capacity or otherwise. Such analogies may create more problems than they actually solve, however. They may overstate the similarities between the present and previous crises and, for that reason, may produce quasi-certainty in the present situation. For example, Dutch decision makers, when confronted with repeated warnings of an impending German invasion in the fall of 1939 and winter and spring of 1940, continued to rely on the belief, as had been the case in World War I, that Holland would be bypassed and would manage to stay neutral (‘t Hart, 1990). Another example concerns the so-called Munich analogy (i.e., the belief that appeasement toward an aggressor will be counterproductive), which has continued to emerge as an unquestioned belief and justification among crisis managers in conflict situations – including the recent Gulf crisis. Finally, many communities and firms caught unprepared for natural or man-made disasters seem entrapped in the belief that “it cannot happen here,” rooted in historical analogies (Baker & Chapman, 1962; Lagadec, 1982). It may turn out to be extremely difficult to prevent decision makers from relying excessively on such critical images and experiences from the past (Jervis, 1976; May, 1973; Neustadt & May, 1986).

5. Under critical circumstances, decision makers are inclined to give priority to information from *trusted and liked sources* (Milburn, 1972). They will tend to lend their ear to friends and allies rather than outsiders, let alone enemies or members of “the other side.” Thus the source of information often is as important as



its content. Useful information and communication channels may get closed off for the simple reason that the decision makers do not trust or favor the source of information.

Experts should therefore anticipate that their advice, however sound and well balanced, will not always be appealing to the decision makers. Insofar as their message is at odds with the firm beliefs and mental commitments at the decision level, they should not feel surprised when decision makers engage in wishful reappraisals of their data or recommendations. Furthermore, experts would be well advised to take into account that by resorting to expert advice, key decision makers may try to accept full responsibility for critical decisions and may thus transpose the risk of groupthink to their advisers. Finally, experts should recognize the mental set of decision makers facing a critical situation. They should understand the anxieties and aspirations of the decision makers and anticipate very human reactions on their part in response to pessimistic or bad news coming from expert advisers.

### **What Crisis Decision Makers should Understand about Expert Advisers**

#### Crisis-relevant Expertise: Good and Bad Performance

Crisis decision makers should understand that they are not alone in feeling the pressures of critical conditions and unprecedented threat. Many bureaucrats and expert advisers share their discomfort with the acute peril and paralyzing uncertainty of sudden crisis. Even though the prime responsibility will rest with the decision makers, experts will surely feel part of the burden. Some experts comprehend the intricacies of this particular context; others will fail to do so. To a great extent, this ability will determine the difference between good and bad performance by experts. It is of utmost importance to crisis decision makers to understand that they need crisis-relevant rather than just professional expertise.

Crisis decision makers should be sensitive to the capacity of their expert advisers to work effectively under critical conditions. A small group of expert advisers specially trained to cope with the pressures of crisis decision making and crisis counseling could prove beneficial. But in no way should this imply that all advisers should be all-out crisis experts spending their professional life running from one crisis to the other. Then, there would be too much interest in dilating adverse developments toward serious crisis. On top of that, such experts could easily lose the feel for creative solutions that so often are the essence of real expertise. They would run the risk of playing up past crisis experiences.

#### Advancing into Decision-Making Roles

The adaptation to the requirements of a critical condition by resorting to informal processes, improvisation, and ad hoc arrangements involves the functioning of expert advisers. In fact, the felt need to quickly reduce crisis-related uncertainties heightens the need for relevant expertise and advice, often of a highly specialist nature. In crisis situations, there is the distinct possibility that because of this, experts advance into decision-making roles.

Although this role expansion is made possible by the prevalence of improvisation and the blurring of formal jurisdictions during crises, a more important factor lies in the shortage of expertise in hectic moments when decision makers must make prompt choices even though they lack crucial facts and figures. Under such circumstances, those few experts who are able to give advice immediately may be elevated to positions of near monopolistic power. Examples include psychiatrists used to dealing with seemingly erratic terrorists; radiation specialists who possess detailed knowledge of nuclear plant hazards; police commanders who advocate intervention in public-order disturbances; media consultants versed in turning around the public images of controversial corporations; and country or area specialists who have had direct access to a foreign tyrant and seem to understand the political and military appraisals in the tyrant's corridors of power. Unfortunately, expert advisers are not always sufficiently strong-minded to withstand the enticement of becoming "part of it." Experts who have had no prior experience in dealing with the media may be particularly tempted by such attention. When crises are prime media events, experts may suddenly find themselves in the center of not just local but international news coverage.

Crisis decision makers may also maneuver themselves into a vulnerable position by giving too much leeway to their advisers (Rosenthal & 't Hart, 1989). They should be well aware of the risks involved. In fact, a clear division of labor between decision makers and advisers is in order, as well as a firm determination to respect the specific rights and duties on both sides. On their part, those in positions of direct authority should resist the temptation to leave the dirty work of risky decision making with their expert advisers; it may very well turn out to be counterproductive.

#### Processing Expertise

In crisis situations, information processing takes on special characteristics. The volume and speed of upward and downward communication are very different from what decision makers and experts are used to under normal circumstances.

In several ways, experts may experience difficulties in meeting the demands of effective *crisis communication* (cf. Drabek, 1986, chap. 3; Perry, 1985, chap. 3; Thompson, 1985). First, they may be accustomed to providing their advice in the form of extensive, preferably written communication. In crisis situations, they will be forced to be succinct and to engage in oral communication and "nutshell briefings" (Janis, 1989). At the same time, they run the risk of becoming inundated with raw intelligence data, which has been known to amount to more than 1,000 pages per day (Sick, 1985; cf. Vertzberger, 1989).

Second, while experts may tend to present in-depth analyses of the pros and cons of alternative courses of action, the pressures of an acute threat may be so pervasive that they will be compelled to forsake a reasoned elaboration of the various alternatives.

Third, due to the absence or inadequate sophistication of their terms of reference, experts may feel it appropriate or necessary to go beyond their legitimate knowledge base. On some occasions, this approach will simply compensate for the decision makers' disposition to arrogate a specific expertise. It should not be forgotten that the entire context of a severe crisis may be one where any request for expert advice will carry with it an implicit yet urgent call to present the magic decision course.

Fourth, as a consequence of the sudden circumvention of standard operating procedures and layers of bureaucratic organization, some experts may indeed be summoned to give their advice quite unexpectedly. It may take precious time to make them understand that the key decision makers are in desperate need of the data at their disposal and the opinions they may have had for a long time. They may well wonder about the need to hurry when no one showed any interest in their work during all those preceding years.

Fifth, because expert information may be flawed by deficient scanning and screening procedures, crisis decision makers may erroneously take incoming messages, maltreated by nonexperts, as expert opinion.

Crisis decision makers should acknowledge the pitfalls of expert communication. They should understand the enormous importance of effective crisis communication on the part of available experts. To draw the best out of expert sources, they should be realistic about what to expect from expert advisers.

They should realize that no matter how urgent the threat or situation, some experts need time to respond in a well-balanced manner to pertinent questions. The decision makers should also be attentive to what information processing in a crisis setting might do to expert reports; for that reason, they might be well advised to distinguish between the facts and opinions conveyed by experts and the expert reports as mediated by their permanent staff. Checklists of typical forms of malfunctioning advisory processes may be a useful tool for decision makers seeking to assess experts' performance (for a good example of such a list, see George, 1980).

#### Experts Disagree

Crises are, first and foremost, political events; they are the domain of high politics. Contrary to conventional wisdom about overriding consensus and solidarity as basic features of crisis management, research indicates it is virtually impossible to underestimate the salience of organizational politics and interorganizational rivalry in crises (Rosenthal, 't Hart, & Kouzmin, in press).

It could be argued that one of the main functions of sound advice and solid expertise for crisis management would be to overcome data-based ambiguities and to mitigate differences of opinion. In this view, experts would imbue the decision-making process with uncertainty-reducing facts, figures, and assessments that make up for the loss of rationality harassing the decision circles. Thus crises would be the perfect illustration of the classical dichotomy between decision makers' politicking and expert rationality (Dunsire, 1978).

There is no reason to accept this perspective, however. In many ways, experts can and do take an active part in playing the game of crisis politics. If they give their advice as representatives of an organization or agency, they will usually be realistic enough to keep in line with institutional interests, thus becoming players in interagency competition (Benveniste, 1977; Fischer, 1990; Plowden, 1987; Prince, 1983). Some experts will take the norms and codes of their profession very seriously, while others will feel obliged to compromise for the sake of the critical situation.

In addition to such instances of expert bureau politics and professional trade-offs, there is a more fundamental issue to be addressed. Simple as it may be, it is too often disregarded that experts may severely *disagree* for substantive and intrinsic

reasons (Douglas & Wildavsky, 1982; Jentleson, 1990). They may have diverging opinions about the definition of the situation, the relevance of particular data, and the assessment of different proposals to contain the crisis. It is not so much the level of expertise but differing expertise-driven conceptions – theories, if you wish – about the crisis that are at issue here. From there, it is only one step for more or less naive experts to be coopted by one of the many parties in the game called crisis politics. One example of such a situation occurred during the first hours of the Cuban missile crisis, when disagreement arose between Secretary of Defense Robert McNamara and other members of President Kennedy's executive committee. While Kennedy and the majority of his advisers considered the news of the construction of Soviet missile sites a major threat that required prompt and forceful U.S. action, McNamara took a totally different view of the situation. He argued that it made little difference whether the U.S. was attacked by Soviet missiles launched from Moscow or from Cuba and thus advocated a more restrained approach. Kennedy, however, was under strong domestic pressure to take a hard line against communism and quickly dismissed further discussion of the issue (Lebow, 1981).

For their part, decision makers should not be too confident in resorting to expert advice as an instrument to force a rational breakthrough in crisis politics. They should accept the possibility that while it would seem the last resort in many a case of tantalizing uncertainty and suspense, expertise fails to be the binding factor and sometimes even reduces the probability of finding a way out of the crisis. Bringing in the experts might very well bring about an additional source of disagreement.

### Expert Psychology

There is no need to reflect extensively on psychological deficiencies which may interfere with the ideal of expert opinion. Notwithstanding the conventional picture of expert advice and counseling as the pursuit of objective truth and rational analysis, it should be clear that in crisis situations, experts face the same kinds of limitations experienced by key decision makers.

The unexpected exposure to critical conditions and, consequently, to an equally critical appeal for their knowledge may represent a significant stressor for experts who are used to quiet deliberation and calculation in bureaucratic agencies, staff units, or research centers. Occasionally, experts go astray and yield to oversimplification, stereotyping, wishful interpretation of data, or all too favorable assessments of the situation (cf. Bell, Raiffa, & Tversky, 1988; Kahneman, Slovic, & Tversky, 1982; Nisbett & Ross, 1980; Nutt, 1989, pp. 64–69). In collective settings, they may submit to groupthink. It is really questionable if, in times of crisis, a group of experts commissioned to come up with sound advice is, in fact, more resilient to excessive concurrence seeking than are top decision makers (Janis, 1982; 't Hart, 1990). Again, expert advisers may be overly confident in using analogies to fill information gaps. Lacking personal experience to draw on, they may borrow analogies from books. Experts may also be favorably biased toward trusted and liked sources in time of need (see George, 1980).

Finally, another question that should be raised is whether an exception should be made for one particular category of expert advisers: stress psychologists and those familiar with the pitfalls of group dynamics. This possibility may look like

a logical exception to the rule. Of course, (social)psychological, psychiatric, and social scientific expertise can be highly relevant in coping with crises, but no brand of experts can ever be guaranteed as fully crisis-proof. In crises, even in the presence of medical and psychological expertise, psychopathology may be just around the corner (Post, in press; Wiegele, 1973).

Decision makers should, then, understand that experts may not be devoid of the psychological pressures they themselves have to live through during a crisis. The sheer fact of being an adviser rather than an authorized decision maker does not per se alleviate the burden for the expert. To mitigate the risks of expert bias cultivated in a monopolistic setting, decision makers would be well advised to mobilize sufficient counterexpertise (Dror, 1986, chap. 10; 't Hart, 1990). When it comes to making high-quality decisions under stress, controlled redundancy and overlap in expertise on the whole seem to be preferable to efficiency and monopoly (George, 1980; Landau, 1969; Lerner, 1986).

### Concluding Observations

This analysis of the relationships between experts and decision makers in crisis management suggests a few basic lessons at the metapolicy level that should be taken into account in setting up or restructuring crisis management information and decision systems. These can be briefly stated as follows:

First, crises place a heavy burden on both decision makers and expert advisers. The cumulation of adverse conditions requires a combined effort of decision makers and experts. This effort includes maintaining a broad contingent perspective on the dynamics of information, communication, and decision making during crises. In particular, decision makers and experts should develop sophisticated understandings of the needs and realities of the advisory process under turbulent conditions.

Second, both crisis decision makers and expert advisers are subject to a variety of impulses and pressures. They should keep an open eye to the fact that their mutual relations are in fact part of a larger crisis management network. This assumption implies a clear view of the interorganizational and bureaupolitical context within which crisis management takes place.

Third, the recruitment of expert advisers should build on precrisis networks established for that purpose, taking into account the multifaceted nature of potentially relevant domains of expert knowledge (process, content, assessment, choice, and implementation).

Fourth, crisis decision makers should recognize the danger of expert and advisory monopolies. They should make controlled use of counterexpertise, for example, through managerial procedures allowing for dialectical inquiry or multiple advocacy (Schwenk, 1988). Such devices augment the costs of decision making and may seem to obstruct the development of consensus. Yet very few decisions are so urgent that they cannot afford to wait for the time needed to have additional debate. Decision makers should be aware that, in large part, crisis-induced urgency is self-imposed by publicly announced deadlines and ultimata (Rosenthal, 't Hart, Charles, Jarman, & Kouzmin, 1989, p. 445). While crisis decision makers should be aware of "Meltsner's Law" that the ruler's use of analysis is inversely proportional to the number of advisers (Meltsner, 1989, p. 92), they

should not assume therefore that they would be wise to slim down expertise functions to the bare minimum of experts and a convenient reservoir of loyalists. Only by insisting on internal checks and balances can they avoid dangers of groupthink-like excessive concurrence.

Fifth, reflecting the need to provide a positive and constructive edge to the close interdependency between themselves and expert advisers, key decision makers should take an active part in crisis exercises and simulations. They as well as their top experts and other advisors should overcome obvious agenda concerns and less obvious psychological defenses. They should critically test their crisis-related working relationships and try to develop a degree of mutual trust essential for an effective operation of the advisory process.

Sixth, the demarcation of responsibilities between crisis decision makers and expert advisers should be clear-cut and should leave no doubt about the division of labor and the respective rights and obligations of each. This includes explicit decisions about accountability for crisis decisions as well as ground rules for communicating policies to other crisis actors and the media.

Finally, because of the salience of informal decision making, the circumvention of multilayer channels of information, political strains, and psychological pitfalls, the effectiveness of communication between crisis decision makers and expert advisers depends to a large part on mutual restraint. In circumstances of severe stress, there may be strong forces propelling both experts and decision makers toward individual and collective forms of psychological defensiveness and self-serving strategies. Nevertheless, they should continue to acknowledge the need for a functional interaction geared toward high-quality problem solving.

## References

- Baker, G., & Chapman, D. (1962). *Man and society in disaster*. New York: Basic Books.
- Bell, D., Raiffa, H., & Tversky, A. (1988). *Decision making*. Cambridge: Cambridge University Press.
- Benveniste, G. (1977). *The politics of expertise*. San Francisco: Boyd & Fraser.
- Brecher, M. (1979). State behavior in international crisis. *Journal of Conflict Resolution*, 23, 446-480.
- Charles, M. T. (1989). The last flight of the space shuttle Challenger. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 141-168). Springfield, IL: Charles C Thomas.
- Douglas, M., & Wildavsky, A. (1982). *Risk and culture*. Berkeley: University of California Press.
- Drabek, T. E. (1986). *Human systems response to disaster: An inventory of sociological findings*. New York: Springer-Verlag.
- Dror, Y. (1986). *Policymaking under adversity*. New Brunswick, NJ: Transaction Books.
- Dror, Y. (1988). Decisionmaking under disaster conditions. In L. Comfort (Ed.), *Managing disaster: Strategies, and policy perspectives* (pp. 255-273). Durham, NC: Duke University Press.
- Dunsire, A. (1978). *Control in a bureaucracy*. London: Robertson.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Fischer, F. (1990). *Technocracy and the politics of expertise*. London: Sage.
- Ford, D. (1986). *Meltdown: The secret papers of the Atomic Energy Commission*. New York: Touchstone.
- George, A. (1980). *Presidential decision making in foreign policy: The effective use of information and advice*. Boulder, CO: Westview.
- George, A. (1986). The impact of crisis-induced stress on decision making. In Institute of Medicine, *The medical implications of nuclear war*. Washington, DC: National Academy of Sciences.

- Handel, M.I. (1976). *Perception, deception and surprise: The case of the Yom Kippur War* (Paper No. 6). Jerusalem: Hebrew University, Leonard Davis Institute.
- Herek, G. M., Janis, I. L., & Huth, P. (1987). Decision making during international crises: Is quality of process related to outcome? *Journal of Conflict Resolution*, 30, 497–531.
- Herek, G. M., Janis, I. L., & Huth, P. (1989). Quality of U.S. decision making during the Cuban missile crisis: Major errors in Welch's reassessment. *Journal of Conflict Resolution*, 33, 445–459.
- Hermann, C. F. (1969). *Crises in foreign policy: A simulation analysis*. Indianapolis, IN: Bobbs-Merrill.
- Hermann, C. F. (1972). *International crises: Insights from behavioral research*. New York: Free Press.
- Jackall, R. (1988). *Moral mazes: The world of corporate managers*. New York: Oxford University Press.
- Janis, I. L. (1982). *Groupthink* (2nd ed.), Boston: Houghton Mifflin.
- Janis, I. L. (1989). *Crucial decisions: Leadership in policymaking and crisis management*. New York: Free Press.
- Janis, I. L., & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment*. New York: Free Press.
- Jentleson, B. (1990). Discrepant responses to falling dictators: Presidential belief systems and the mediating effects of the senior advisory process. *Political Psychology*, 11, 353–371.
- Jervis, R. (1976). *Perceptions and misperceptions in international politics*. Princeton, NJ: Princeton University Press.
- Kahneman, D., Slovic, P., & Tversky, A. (Eds.), (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press.
- Kam, E. (1988). *Surprise attack: The victim's perspective*. Cambridge, MA: Harvard University Press.
- Kelly, M. J. (1989). The seizure of the Turkish embassy in Ottawa: Managing terrorism and the media. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises* (pp. 117–138). Springfield, IL: Charles C Thomas.
- Lagadec, P. (1982). *Major technological risk*. London: Pergamon.
- Landau, M. (1969). Redundancy, rationality and the problem of duplication and overlap. *Public Administration Review*, 29, 346–359.
- Lebow, R. N. (1981). *Between peace and war: The nature of international crises*. Baltimore, MD: Johns Hopkins University Press.
- Lerner, A. W. (1986). There is more than one way to be redundant: A comparison of alternatives for the design and use of redundancy in organizations. *Administration & Society*, 18, 334–359.
- Lindblom, C., & Cohen, D. (1979). *Usable knowledge*. New Haven, CT: Yale University Press.
- Lynn, L. E. (1987). *Managing public policy*. Boston: Little, Brown.
- May, E. R. (1973). *"Lessons" of the past*. New York: Oxford University Press.
- Meltsner, A. (1989). Taking advice: Scenes from a play. In *Proceedings of the International Conference on Public Policy Planning* (pp. 89–112). Taipei, Taiwan: Research, Development and Evaluation Commission of the Executive Yuan.
- Milburn, T. (1972). The management of crisis. In C. F. Hermann (Ed.), *International crisis: Insights from behavioral research* (pp. 259–280). New York: Free Press.
- Neustadt, R. N., & May, E. R. (1986). *Thinking in time: The uses of history for policy makers*. New York: Free Press.
- Nisbett, R., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment*, Englewood Cliffs, NJ: Prentice-Hall.
- Nutt, P. (1989). *Making tough decisions*. San Francisco: Jossey-Bass.
- O'Neal, R. (1982). *Foreign policymaking in times of crisis*. Columbus: Ohio University Press.
- O'Reilly, C. (1983). The use of information in organizational decision making: A model and some propositions. In L. L. Cummings & B. M. Shaw (Eds.), *Research in organizational behavior Vol. 5* (pp. 103–139). Greenwich, CT: JAI.
- Perry, R. W. (1985). *Comprehensive emergency management*. Greenwich, CT: JAI.
- Plowden, W. (Ed.). (1987). *Advising the rulers*. Oxford: Blackwell.
- Post, J. M. (in press). Effects of crisis-induced stress on decision makers in a nuclear environment. In A. George (Ed.), *Avoiding inadvertent war*.

- Prince, M. J. (1983). *Policy advice and organizational survival*. Aldershot: Gower.
- Roberts, J. M. (1988). *Decision making in international crisis*. London: Macmillan.
- Rosenthal, U. (1986). Crisis decisionmaking in the Netherlands. *Netherlands' Journal of Sociology*, 22(3), 103–129.
- Rosenthal, U. (1989). Facteurs humains influençant la prise de décision dans une situation d'urgence. *Revue de la protection civile*, 16(3), 12–15.
- Rosenthal, U., Charles, M. T., & 't Hart, P. (Eds.). (1989). *Coping with crises: The management of disasters, riots and terrorism*. Springfield, IL: Charles C Thomas.
- Rosenthal, U., & Pijnenburg, B. (Eds.). (1991). *Multiple scenarios for crisis decision making*. Dordrecht: Kluwer.
- Rosenthal, U., & 't Hart, P. (1989). Managing terrorism: The South-Moluccan hostage-takings. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 367–394). Springfield, IL: Charles C Thomas.
- Rosenthal, U., 't Hart, P., & Charles, M. T. (1989). The world of crises and crisis management. In U. Rosenthal, M. T. Charles, & P. 't Hart (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 3–33). Springfield, IL: Charles C Thomas.
- Rosenthal, U., 't Hart, P., Charles, M. T., Jarman, A., & Kouzmin, A. (1989). From case studies to theory and recommendations: A concluding analysis. In U. Rosenthal, P. 't Hart, & M. T. Charles (Eds.), *Coping with crises: The management of disasters, riots and terrorism* (pp. 436–472). Springfield, IL: Charles C Thomas.
- Rosenthal, U., 't Hart, P., & Kouzmin, A. (in press). The bureau-politics of crisis management. *Public Administration*.
- Schwenk, C. R. (1988). *Essence of strategic decisionmaking*. Lexington, MA: D. C. Heath.
- Sick, G. G. (1985). *All fall down: America's tragic encounter with Iran*. New York: Penguin.
- Simon, H. (1983). *Reason in human affairs*. Stanford, CA: Stanford University Press.
- Simon, H. (1985). Human nature in politics: The dialogue of psychology with political science. *American Political Science*, 78, 293–304.
- Smart, C., & Vertinsky, I. (1977). Designs for crisis decision units. *Administrative Science Quarterly*, 22, 640–657.
- Smith, S. (1984). Groupthink and the hostage rescue mission. *British Journal of Political Science*, 14(1), 117–123.
- Snyder, G. H., & Diesing, P. (1977). *Conflict among nations*. Princeton, NJ: Princeton University Press.
- 't Hart, P. (1990). *Groupthink in government: A study of small groups and policy failure*. Amsterdam: Swets & Zeitlinger.
- Thompson, J. (1985). *Psychological aspects of nuclear war*. New York: Wiley.
- Van Welkenhuyzen, J. (1982). *Les avertissements quivenaient de Berlin, 9 octobre 1939–10 mai 1940*. Paris-Gembloux: Duculot.
- Vaughan, D. (1990). Autonomy, interdependence and social control: NASA and the space shuttle Challenger. *Administrative Science Quarterly*, 35, 225–257.
- Venzberger, Y. (1989, June). *Information overload and foreign policy decision making*. Paper presented at the annual meeting of the International Society for Political Psychology, Tel Aviv, Israel.
- Walters, L., Wilkins, L., & Walters, T. (Eds.). (1989). *Bad tidings: Communication and catastrophe*. Hillsdale, NJ: Lawrence Erlbaum.
- Welch, D. (1989). Crisis decision making reconsidered. *Journal of Conflict Resolution*, 33, 430–445.
- Wiegele, T. C. (1973). Decision making in an international crisis. *International Studies Quarterly*, 17, 295–335.
- Williamson, T. (1976). *Counterstrike Entebbe*. London: Collins.
- Wohlstetter, R. (1962). *Pearl Harbor: Warning and decision*. Stanford, CA: Stanford University Press.



## Designs for Crisis Decision Units

**Carolyn Smart and Ilan Vertinsky****Source:** *Administrative Science Quarterly*, 22 (1977): 640–657.

The papers of Hedberg, Nystrom, and Starbuck (1976) and Turner (1976) are excellent examples of a growing literature that deals with causes of organizational crises and designs for their prevention. Yet in a world of sharp discontinuities, crises are inevitable. Reducing their frequency may unfortunately result in a reduction of the organization's coping resources. Designs for preventing crises should be complemented by development of capabilities for coping with crises. This paper deals with the design of the specialized decision process that emerges once a crisis has begun.

The microcosm of crisis decision making is presented through a conceptual model describing the major variables affecting the quality of decision making and the implementation of decisions during a crisis. In particular, attention is focused on those links in the model that define areas of a decision unit's vulnerability to malfunctions. The model is presented by means of a flow graph where pluses imply positive impacts and minuses imply inverse interrelationships. The paper then investigates some of the major areas of organizational susceptibility to pathologies and explores design features aimed at preventing these pathologies.

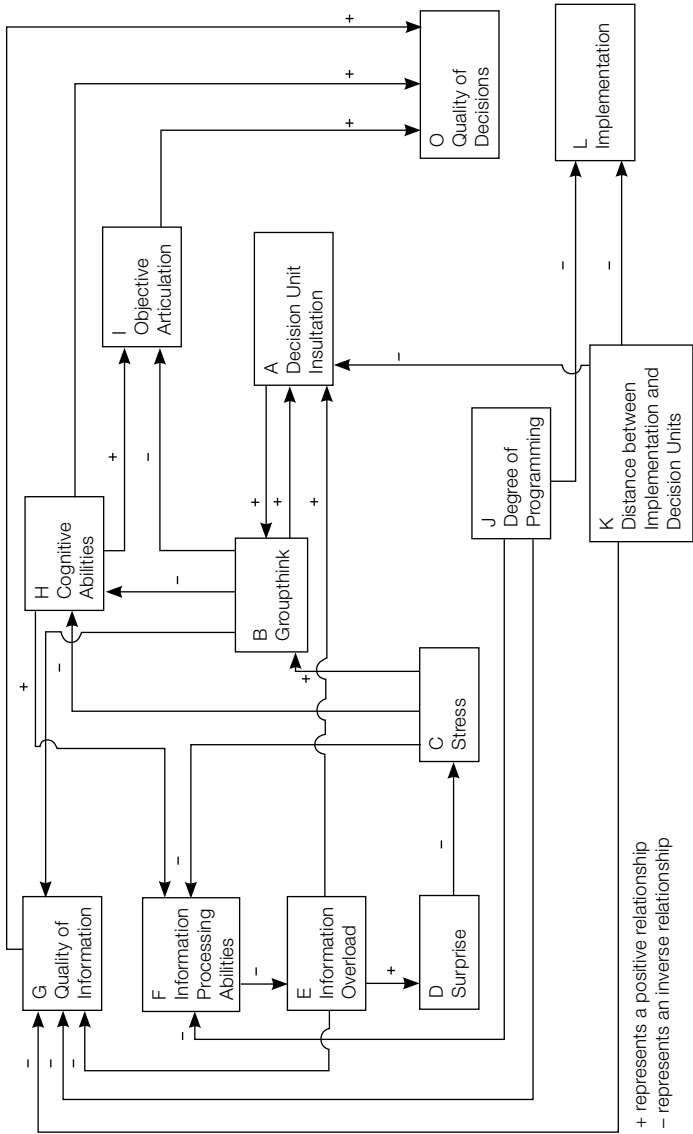
**Quality of Decisions and Implementation during A Crisis:  
A Conceptual Model**

The Figure displays some of the major links that contribute to the lowering of decision quality within a group and that lead to dysfunctions within the implementation process during a crisis.

Decision quality (Box 0) is inversely related to the rates of the four types of decision errors: rejecting a correct course of action, accepting a wrong solution to a problem, solving the wrong problem, and solving the right problem correctly but too late (Raiffa, 1968).

Decision quality depends upon three factors: the quality of information inputs into the decision process (Box G), the fidelity of objective articulation and tradeoff evaluation (Box I), and cognitive abilities of the decision group (Box H).

The quality of information inputs into the decision process depends on the ability of the system to effectively absorb information flows, thus preventing overloads (Box E), and to reduce noise in communication channels. Noise depends upon the distance between units in the organization (Box K) (distance in the psychological sense not necessarily geographical). Information overload results in dysfunctional selective attention, retention of information, and delays and



**Figure:** A conceptual model of crisis decision and implementation processes

subversion of communication flows. The special dynamics of group decision making under stress – “groupthink” – also introduce pathological filters into information processing.

Articulation of objectives and fidelity in assessing tradeoffs are essential to the choice process. Especially relevant to the study of crisis is the ability to preserve the appropriate posture of risk taking and insulate such posture from the impact of short-term circumstances. In the model, the major impacts are groupthink, which introduces a risk bias, and general cognitive abilities, which affect the scope of objectives attended.

Cognitive abilities are the abilities of the decision unit to interpret information, generate options creatively, calculate and make choices between alternative courses of action. Changes in cognitive abilities during a crisis are attributed mainly to the groupthink phenomenon (Box B) and stress (Box C).

Implementation (Box L) depends on the distance between decision and implementation units (Box K) and the ability of organizational units to realign their procedures with new states of the system, an ability which is inversely related to the degree of programming in the organization (Box J). One should note that the two evaluative variables, quality of decision and implementation, are not additive. When decision quality is high, lack of implementation voids its value to the organization. When decision quality is low, however, lack of implementation may have a positive buffering impact on the organization. In a crisis one must secure a high-quality decision-making process, the outputs of which are duly and precisely implemented. High-quality decisions increase the implementation units’ trust in the decision unit and increase degree of compliance with directives. High-quality decisions tend also, in the long run, to reduce the demands imposed on the management information system by improving the process of problem definition and making economical use of information.

### **Crisis Decision-Making Pathologies**

Analysis for design may proceed in two ways, by adopting a developmental point of view or by adopting a preventive perspective. The latter provides a more economical closure for the analysis, while sacrificing many relevant design aspects. The preventive focus is more appropriate here since, from a cost-benefit point of view, the general development of the organization should not be attuned to rare circumstances – and by definition crises are rare events. Therefore, the focus is on specific components and links of the model that are potential sources of pathologies in the decision and implementation processes during a crisis.

A decision process consists of articulation of objectives, generation of alternate courses of action, appraisal of their feasibility, evaluation of the consequences of given alternatives, and a choice of that alternative which contributes most to the attainment of organizational objectives.

The following classes of crises-specific pathologies affect one or more of these components of decision making:

1. Narrowing of cognitive processes – affecting primarily alternative generation and calculation of consequences

2. Information distortion – affecting the appraisal of feasibility of alternatives and identification of their consequences
3. Group pathologies – affecting the range of alternatives considered, the appraisal of the alternatives' feasibility, identification of true objectives, and evaluation of consequences
4. Rigidities in programming – affecting primarily the scope of alternatives generated and the choice process
5. Lack of decision readiness – affecting indirectly all the above pathologies by intensifying the stress rooted in the crisis situation.

Rigidities in programming and information distortion are the key constraints upon the implementation process. Rigidities of programming increase the friction associated with a substantial organizational change while information distortion inhibits the effectiveness of any control system.

#### Narrowing of Cognitive Processes

During crises when individuals are under great stress and important decisions must be made within a short time, certain pathologies may arise in the decision process that reduce its quality, for example, more errors of calculation and fewer options considered. Although a moderate level of stress may promote learning in a decision situation (Cangelosi and Dill, 1965), during a crisis stress is usually of such a magnitude that it promotes dysfunctional behavior. Holsti (1971: 62) suggested that an “increasingly severe crisis tends to make creative policy making both more important and less likely.”

Creative decision making in part depends on an input of ideas from a wide variety of individuals reflecting different experiences and expertise. During a crisis, there is a tendency, however, for a contraction of authority to occur in an organization (Hermann, 1963). Authority for decision making shifts to higher levels and there is a reduction in the number of persons participating in the decision process (Mulder, van Eck, and de Jong, 1971: 21).

As the decision/authority unit contracts, the amount of stress on decision makers increases since each member feels a greater responsibility for potential failure. The greater the level of felt stress, the greater the perceived pressure for decisiveness. Stress leads to the narrowing of cognitive processes. An individual under stress screens out some essential environmental cues thereby adopting a restricted perspective of the decision situation (Easterbrook, 1959; Holsti, 1971). With decreasing levels of cognitive efficiency, behavior becomes less adaptive and the resulting decision is often of poor quality (Levine, 1971; Robinson, 1972).

Stress-related maladaptive behavior is manifested in numerous ways. Milburn (1972) suggested that stress has a curvilinear effect on individual performance. While a moderate level of stress may be conducive to good decision making, high levels of stress lead to a breakdown in perceptual accuracy and reduced ability to focus on relevant information from the environment. Paige (1968) and Albers (1966) have suggested that, under great stress, decision makers become increasingly concerned with short-range issues at the expense of long-range outcomes. Stress also promotes a rigidity in problem solving, a functional fixedness that reduces the individual's capacity for abstract reasoning and tolerance for ambiguity

(Beier, 1951; Smock, 1955; Loomis, 1960). The impaired cognitive abilities of the individual may result in an inability to predict the consequences of various alternate courses of action (Holsti, 1972).

“The consensus of most behavioral research is that men operating under . . . acute stress are scarcely capable of considered judgement. Strain and fatigue commonly produce actions which are caricatures of day-to-day behavior.” (Nathan, 1975: 259)

### Information Distortion

During crises changes in information-processing abilities throughout the organization also contribute to reduced efficiency in making decisions. Under crisis-induced stress, the number of communication channels used for collection and distribution of information between the decision unit and the rest of the organization is reduced (Hermann, 1963). This is in part a result of the tendency toward centralization noted previously and the debilitating impact of a high volume of information competing for the attention of fewer decision makers.

Overload of information and the need to respond quickly force decision makers to use fewer channels, hence further reducing their alternate information sources and shortening their horizons.<sup>1</sup> Under conditions of information overload, an organization may use mechanisms such as omission, delay of response, filtering and processing incorrect information in order to cope with emerging threats (Miller, 1960). These mechanisms if employed in an ad hoc fashion may cause great distortion of information. Clearly with appropriate planning the dysfunctions of these mechanisms can be minimized. Planned omissions, managed delays, and functional filtering are important parts of any management information system coping with capacity overruns.

Lanzetta and Roby (1957) found that the error rate on task performance was correlated positively with the increased volume of information received by decision makers. Information overload and the perceived need to respond quickly tend to force decision makers to shorten their decision horizons. This tendency increases the probability of decision error.

Information distortion also occurs as a result of the position of a decision unit in the organizational network and the impact a position has upon the timing and information content that reaches decision makers. In hierarchical organizations information must travel through a lengthy filtering process before it reaches the decision unit. The information content reflects the accumulation of information processing selectivities in intermediate stages. Downs (1967) calculated that in a six-level hierarchy, there may be a 98 percent loss of informational content between the lowest and highest level of the organization. Citing Tullock (1965), Downs noted that information is subject to hierarchical distortion in both quantity and quality. The quantity of information received by senior decision makers is reduced as a result of the high cost of communication and their own limited cognitive capacities. Quality of information is distorted due to perceptual differences resulting, in part, from specialization of individuals at each organizational level.

Individuals at lower levels of the organization have a parochial range of interests in contrast to the holistic organizational perspectives of senior decision makers. The filtering process in upward communications therefore reflects information needs and perspectives of lower echelons rather than the needs of recipients.

Ackoff (1967) noted that decision makers often suffer from an overabundance of irrelevant information, while Crozier (1963: 51) stated, "Those who have the necessary information do not have the power to decide, and those who have the power to decide cannot get the necessary information."

As noted previously, both an overload and an underload of information can exist in different stages of a crisis. Taylor (1975: 410) argued that the information-processing capacity of a decision maker should be viewed as having both upper and lower bounds. Taylor's argument for a band of efficient information processing capacity is made on the basis of optimal levels of stress-related arousal. In the case of a crisis, however, overload and underload of information are both causes of high levels of stress. It has been demonstrated that information deprivation leads individuals to seek out stimuli (Jones, Wilkinson, and Braden, 1961; Suedfeld, 1971). This psychological state may lead a decision maker to seize upon irrelevant or incorrect information without appropriate discrimination.

### Group Pathologies

Under conditions of crisis-induced stress there is a tendency for participation in decision making to be limited to a small number of individuals. Specifically, the individuals included in the decision unit tend to be from the highest levels of the organization and have the personal confidence of the head of the organization (Hermann, 1972: 288). Consequently, the central decision unit is likely to consist of a tightly knit, homogeneous group, led by a strong leader. The group is usually insulated from the rest of the organization by a sense of shared responsibility, trust, and mutual support.

Special dynamics of the group structure itself can contribute to error under such conditions. Janis (1972) suggested that during crises, under a particular combination of circumstances, in-group pressures in the decision unit bring about a deterioration of mental efficiency, reality testing, and moral judgment. This promotes a condition called groupthink. Janis noted (1972: 13):

The concept of groupthink pinpoints an entirely different source of trouble, residing neither in the individual nor in the organizational setting. Over and beyond all the familiar sources of human error is a powerful source of defective judgment that arises in cohesive groups – the concurrence seeking tendency, which fosters overoptimism, lack of vigilance, and sloganistic thinking about the weakness and immorality of out groups.

Individuals become committed to group decisions, and, as a result, their own personal attitudes and models of reality shift to reflect that of the group in an attempt to maintain inner consistency. De Rivera (1968: 27) has also noted the effects of group pressures on the individual's sense of reality, suggesting that for a decision maker, "changing his view of reality means losing emotional contact with the group."

Groupthink is most likely to occur under the following conditions: when the decision unit displays high cohesion, when the decision unit is insulated from the advice of qualified experts, and when a strong leader actively promotes a solution to a problem. Cohesive groups are not all prone to groupthink. Groupthink results only when the above attributes are present. For example,

virtually the same group of individuals in the U.S. government was involved in the decision processes that led to the Bay of Pigs Invasion and to the blockade at the time of the Cuban missile crisis. The effects of groupthink in the first situation resulted in a course of action that was an unmitigated disaster, while the second action is usually considered a model of rational crisis-decision making.

There are eight major symptoms of groupthink.

1. Most or all group members develop an illusion of invulnerability, which promotes excessive optimism and encourages decisions of very high risk.
2. Group members ignore warnings and negative feedback that might force a reassessment of a decision. Attempts are made to rationalize the status quo.
3. Group members display an inviolate belief in their own morality. The ethical and moral consequences of a decision may be ignored entirely.
4. Group members hold stereotyped views of the enemy in adversarial situations. The adversary is regarded as immoral and too evil to attempt genuine negotiations to resolve conflicts, or too stupid and too weak to take any effective counteractions.
5. The group applies direct pressure to any member who expresses doubts about a course of action or questions arguments supporting policies that are favored by the majority. The potentially negative ramifications of a decision are never discussed. In this manner the concurrence-seeking norm is reinforced.
6. Individual members practice self-censorship. They avoid deviating from group consensus by keeping silent about their own doubts and misgivings. This occurs not because of a lack of faith in one's own ideas, but through a fear of losing approval of fellow group members. The assumption that silence means consent reinforces self-censorship.
7. Group members share an illusion that unanimity means truth.
8. Groups develop mindguards – self-appointed members who try to shield the decision unit from information that may go against shared beliefs.

When a decision unit displays most of these symptoms in a crisis situation, it will generally produce poor quality decisions that are likely to bring on a disaster for the organization. The dynamics of groupthink may reinforce some dysfunctional individual behavior patterns. Staw (1976) found that decision makers in some instances may increase their commitment to poor decisions, even at the risk of further negative consequences, to avoid cognitive dissonance.

#### Rigidities in Programming

To ensure coordination, economical information processing, and reliable and efficient routine responses in noncrisis situations, organizations develop standard operating procedures (SOPs). SOPs ensure alignment of interpretation between senders and recipients of messages, and increase predictability of responses to alternative stimuli. To achieve alignment and predictability SOPs demand a restricted repertoire of messages and meanings. Economy of communications is achieved at the price of poverty of expression. Novel situations requiring

communications that do not fit into established molds are either ignored or forced into the mold. The new situation triggers the responses the old situation merits or no response at all.

Crisis situations often involve sharp discontinuities requiring realignments of resources, roles, and functions, thus interrupting regular communication networks. The economies obtained by institutionalized SOPs and detailed programming become liabilities, as unlearning may be sometimes a more difficult short-term task than learning.

The process of organizational socialization is geared to penalize deviations from SOPs. In the short run overcoming the existing structure of rewards and penalties may be difficult especially if the reward system is also rigidly programmed. Allison (1971) suggested that most SOPs are highly resistant to change since they are usually grounded in the norms or basic attitudes of the organization and the operating style of its members.

There are, however, some situations in which a network of SOPs may be harnessed for effective coping with a novel situation. This will be the case if (1) a communication strategy exists that uses the predictable, reliable responses in new patterns to yield the correct path of action or (2) the need for change was anticipated and capacity for it built in existing procedures.

#### Lack of Decision Readiness

Degree of preparedness, both in psychological terms and in terms of decision capabilities, is an important determinant of the degree of stress resulting from surprise, and in the ability of an organization to cope with the event. Rarity of events contributes to the degree of surprise they generate. Lack of experience induces higher stress since it means that an organization has no repertoire of responses to help it cope with unknown events and the effects of the potential impact are uncertain. Fink, Beak, and Taddeo (1971) have suggested that the intensity of a crisis depends upon the degree of change required in the organization to adapt successfully. The more unfamiliar the event, the greater will be the requirement for adaptation and change to cope with the event, and thus, the greater the level of stress generated.

Surprise occurrence of familiar situations may also induce stress but such stress has a shorter life span than the stress produced by the uncertainty of unfamiliar situations (Cyert and March, 1963). Under conditions of uncertainty, there is a need to develop a model of the situation with an appropriate repertoire of responses. Such a conceptformation process typically is slow. It requires simultaneous discrimination among alternate possible models of the situation and estimation of their parameters. In a familiar situation, the availability of a model for the situation permits quick convergence in reconciling new data from the surprise with existing concepts in the organization.

#### Implementation Failures

Crisis situations require precise and quick implementation of decisions. In large organizations, most problems require the support of others for implementation of solutions. Rarely does the decision unit itself have the ability to implement directly.



Thus, an actual decision may be timely, well thought out, and represent the best action in a crisis, but the organization may still end up in a disaster through faulty implementation techniques. MacCrimmon (1973) suggested that in organizations with multiple implementation units, there is considerable room for discretionary action resulting in accidental or purposeful misimplementation. Difficulties in implementation seem rooted in three areas: action units are not motivated to carry out the decision selected; noisy channels of communication and inflexible procedures affecting coordination may delay receipt of messages and timing of actions; and the action units may not understand their orders.

As noted before, mobilization for coping with crises may disrupt existing organizational patterns. The uncertainty produced by organizational reshuffling may strengthen the tendency of units to engage in defensive moves for preserving their territories. Uncertainty may heighten the commitment to parochial goals, which represent to individuals the familiar. Different degrees of exposure to crises and therefore different degrees of felt threat may increase the existing differences in perceived organizational priorities between units. While an external threat may be the best motivator for long-term organizational cohesiveness, in the short run differentiated exposure to this threat may intensify internal organizational conflicts. Even when alignment between units' motives and organizational needs is achieved, implementation may fail because units do not understand or are incapable of executing the required course of action.

In the discussion of standard operating procedures and interunit communications, it was suggested that needs generated by novel situations will be ignored or interpreted to fit existing molds. Such resistance to change unintentionally subverts directives. Control systems which may provide quick feedback to central decision units for corrective actions also often suffer from rigidity of programming and therefore fail to signal implementation failures.

### Prescriptions for Crisis

The Table presents design features for preventing the crisis pathologies just discussed. While generally the prescriptions will contribute positively to alleviating a specific pathology, they may also have undesirable side effects. Improvements typically come at a cost. The balance of costs and benefits depends upon the contingency, the organization, and the particular role players in the decision situation. The following discussion attempts to illustrate some of these tradeoffs by examining the suggested prescriptions for improving decision quality and for increasing decision implementation during a crisis.

#### Preventing Premature Consensus

Dominant leadership has been recognized as an element of group dynamics that can lead to error in the decision process, particularly as such leadership promotes a quick convergence on a single alternative (Maier, 1967; Janis, 1972). This tendency can be alleviated by the decision leader encouraging critical evaluation of policies, perhaps assigning a specific role to each group member, and encouraging the expression of a variety of different points of view and expressions of doubts. Varying opinions from members are more likely to be considered if, as Thibaut and Kelley (1959)

**Table:** Designs for crisis: Preventive measures

<i>Major problems</i>	<i>Characteristics and symptoms</i>	<i>Prescriptions</i>
<p>Narrowing of cognitive processes premature consensus resulting from limited alternative generation</p>	<p>Preferred solution promoted by strong central leadership</p> <p>Reduced cognitive abilities as a result of increased stress</p> <p>Limited information from fewer sources as a result of pressure and stress</p> <p>Reduction in decision unit size; fewer alternate points of view from all parts organization (insulation)</p> <p>Functional fixedness in problem solving</p> <p>Attention to short-range issues at the expense of long-range issues</p>	<p>Encourage critical evaluation and various points of view, remain nonevaluative at outset of policy session</p> <p>Rotate decision members or have separate crisis- and noncrisis-decision units</p> <p>Develop stress profiles on leaders and use stress reduction techniques (TM, relaxation)</p> <p>Use behavioral modification techniques to increase individual thresholds of stress tolerance</p> <p>Vary membership of decision unit to ensure leaders are exposed to new points of view</p> <p>Generate alternatives to current solution for a specific time period</p> <p>Members of a decision unit should discuss alternatives with associates in their own units to obtain fresh opinions and reactions</p> <p>Invite outside experts to give their opinions to the decision group</p> <p>Use creative problem-solving techniques for generating alternatives such as brainstorming, synectics, morphology</p> <p>Shift focus deliberately to evaluate long-range issues</p> <p>Develop specialized responsibility to advocate the long-range perspective</p> <p>Encourage entire decision group to generate additional alternatives with a long-range focus</p>
<p>Information distortion</p>	<p>Information overload as a result of reduced size of the decision unit and increased information inputs</p> <p>Time delays in intelligence reports</p> <p>Preference for agreeable information mindguards*</p> <p>Stereotypes of the adversary, cultural blocks*</p>	<p>Develop better scanning techniques and efficient monitoring devices to flag trends above threshold levels; use special formats for presenting information</p> <p>Use special information systems for crises based on data compression and effective sampling techniques</p> <p>Use special communications channels (hotlines)</p> <p>Establish special crisis units for data assembly and coordination</p> <p>Set up outside channels of information to cut through hierarchy</p> <p>Develop new flexible SOPs</p> <p>Diversify jobs</p> <p>Use role playing and psychodrama</p> <p>Protect minority points of view</p> <p>Communicate directly with outside groups not part of the decision unit</p> <p>Construct scenarios of adversary's alternatives</p> <p>Carefully consider and reinterpret signals from adversary</p> <p>Use expert advice on foreign cultures; cross-cultural training</p>

<i>Major problems</i>	<i>Characteristics and symptoms</i>	<i>Prescriptions</i>
<p>Illusions of invulnerability of decision group and high risk propensity*  Rationalization of warnings which may force a reassessment of current policies*  Belief in the inherent morality of the decision group*  Pressures on members to conform to accepted group policies*  Suppression of personal doubts*  Cognitive biases and faulty conceptualization</p>	<p>Set up independent resource and capability appraisals Shift risk propensity from group level to lower individual levels; record acceptable risk levels before an alternative is selected Construct worst-outcome scenarios for realistic appraisal of seriousness of proposed alternative Assign at least one member of decision group the role of devil's advocate Structure evaluation of each proposal, emphasizing negative aspects (dialectal approach) Form subgroups to reduce the possibility of the group developing a concurrence-seeking norm Protect minority opinions Use dialectic approach or independent groups to work on the same problems but with different leaders Encourage expression of objections and doubts Set up anonymous channels for expressing opinions and providing information to the group (Delphi: technique) Formal bias-correcting programs (computer routines) for assessment of subjective probabilities</p>	<p>Expand repertoire to SOPs to take into account a greater number of contingencies Introduce more individual discretion into SOPs Incorporate dialectical approach into procedures  Use environmental scanning procedures and trigger mechanisms Create scenarios Establish contingency plans Create a crisis-planning group</p>
<p>Rigidities in programming</p>	<p>Responses made in fixed patterns which may be unsuited to the situation Resistance to changing established procedure</p>	<p>Expand organizational structure to include more groups in decision making Establish independent policy planning and evaluation groups composed of members from implementation units Set up indoctrination programs (goal training) Manipulate organizational rituals to focus on primary goals Place trusted people in the field to coordinate Use drills to simulate crises Plan triggering cues for automatic implementation Clarify communications; shorten channels Use dual SOPs for routine and crisis situations with established trigger rules for movement between regimes Set up fishscale structures</p>
<p>Lack of decision readiness</p>	<p>Surprise leading to increased levels of stress</p>	<p>Use environmental scanning procedures and trigger mechanisms Create scenarios Establish contingency plans Create a crisis-planning group</p>
<p>Lack of motivation of sense of urgency</p>	<p>Unit alienation and lack of understanding</p>	<p>Expand organizational structure to include more groups in decision making Establish independent policy planning and evaluation groups composed of members from implementation units Set up indoctrination programs (goal training) Manipulate organizational rituals to focus on primary goals Place trusted people in the field to coordinate Use drills to simulate crises Plan triggering cues for automatic implementation Clarify communications; shorten channels Use dual SOPs for routine and crisis situations with established trigger rules for movement between regimes Set up fishscale structures</p>
<p>Implementation pathologies</p>	<p>Role conflicts and political games</p>	<p>Use dual SOPs for routine and crisis situations with established trigger rules for movement between regimes Set up fishscale structures</p>

\* Characteristic of groupthink

suggested, the leader refrains from critical evaluation and acts merely to guide the discussion. Although this procedure can work if the leader is committed to ensuring critical appraisal, it is difficult for most organizational members to overcome traditional hierarchical norms of deference to the leader. If one group or individual is intent on pleasing the leader, the process can be subverted. Open criticism in debates can lead to damaged feelings if members are carried away in their roles as critical evaluators. "Feelings of rejection, depression, and anger might be evoked so often when this role assignment is put into practice that it could have a corrosive effect on morale and working relations within the group" (Janis, 1972: 210).

Impartiality by the leader in a discussion may also be a drawback. The group may be deprived of the services of one of the best decision makers in the organization. The result may be a lower quality decision than would have resulted if the leader had participated. There is also the danger that nondirection by the leader may result in a decision that is completely unacceptable to the leader. The proper role of the leader lies somewhere between the two extremes.

Critical evaluation and the exploration of a wide range of policy alternatives is a time-consuming process. The organization may not have the time to adopt such procedures. Especially in a crisis, a decision on a response must be reached very quickly to head off disaster. In crisis periods the high level of stress felt by the decision unit contributes to reduced cognitive abilities. Increased generation and evaluation of alternatives may contribute to information overload, which in turn increases the probability of information distortion – another source of error. Premature consensus can be prevented by inviting the opinions of outside experts, seeking opinions from associates in the organization, and generating alternatives through brainstorming, through synectics, and other creative problem-solving techniques (Arnold, 1962; Stein, 1974). These techniques may prevent premature consensus, but they also substantially increase the probability of information overload. Janis (1972) noted that while the use of outside experts and trusted associates provides the decision unit with fresh perspectives, there is always the danger of a breach of security or an information leak in an expanded group. In highly competitive situations this is most undesirable and potentially damaging to the organization. If expert assistance is to be used effectively, assistants must be consulted early in the decision process before convergence on a particular alternative starts.

Special effort should be made by the leader to ensure that a long-range perspective is introduced early into the deliberations by assigning special responsibility to certain members for developing such a focus. Incremental decisions made for short-term expediency may have severe consequences on future policies and negotiating positions.

A program for crisis prevention must also consider the individual decision makers and their ability either to avoid stress or to manage it. Selecting organizational members for stressful positions should be done not merely on the basis of technical competence and know-how but also in terms of capabilities to handle stress. A variety of stress-reducing techniques can be incorporated into the daily routine of appropriate role players. Individuals may undergo behavioral modification treatment to raise their tolerance to stress (Budzynski, 1973). Rotating decision makers or replacing them with new individuals selected and trained for these high-stress situations is another possibility.

### Preventing Information Distortion

Information overload is a serious problem for decision units given the requirements of increased information flows and the debilitating effects of heightened stress and shortened time horizons during a crisis. More information does not necessarily mean better information. Improved scanning techniques and monitoring devices of the information environment and presentation in special formats can help ensure that information received by the decision unit is of the proper quality as well as a manageable quantity. Special information systems for crisis situations may be developed based on data compression through effective sampling techniques or coding and flagging only those critical trends above a given threshold. Such special systems could include extraordinary channels of communication to cut through the organizational hierarchy and, in some instances, to utilize direct links with the environment or more than one source of the same information (Downs, 1967). These techniques will also help reduce the effects of time delays, decision unit insulation, and the screening process at various levels of the hierarchy as information is filtered upward. In terms of resources, however, such systems can be costly for the organization. In many instances, personnel are diverted from their regular pursuits to participate, sometimes at the expense of the day-to-day functioning of other parts of the organization. Most certainly there are costs of system development that must be incurred. Expansion of organizational systems may also have the drawback of making the organization more unwieldy, especially in the ability to effect coordination. Through the proliferation of subgroups there is an increased danger of empire building, which can lead to intraorganizational conflict and bargaining. This in turn will affect the ability to implement decisions.

Personal biases and stereotypes of the adversary are major factors contributing to information distortion. Role playing and psychodrama may help to overcome the influence of stereotypes and increase understanding of the adversary. Scenario building is another technique that promotes understanding of a rival's actions and warnings and enables the decision group to predict responses to an action with greater accuracy (Janis, 1972). Such role playing can be expanded to include general crisis training or drills, which has the secondary effect of reducing stress on individuals when a real crisis develops. The cost of techniques like role playing and cross-cultural training may be prohibitive because they are so time consuming; ideally these techniques should be developed as part of precrisis training.

#### Prevention of Errors in Judgment Resulting from Group Pathologies

Some errors of judgment are the result of group dynamics and are manifested in symptoms of groupthink. Solutions to problems such as the propensity to take increased risks and illusions of invulnerability may be found through role playing and scenario building. In addition, attempts should be made to reduce risk propensity by focusing on individual responsibilities thereby avoiding a group-induced shift toward greater risk taking (Wallach, Kogan, and Bem, 1964). Techniques such as building scenarios of the worst possible outcome will aid in evaluating the seriousness of proposed actions realistically and reduce the propensity toward high-risk alternatives.

Since units subject to groupthink try to rationalize away warnings and other disturbing data that may require a reevaluation of policy, to ensure full evaluation

of all alternatives, at least one member should be assigned the role of devil's advocate. This technique is based on the premise that conflict is the best means of exposing hidden assumptions. In this manner, both good and bad aspects of a proposal are examined. There is a danger, however, that devil's advocates may become tokens or "domesticated." An institutionalized devil's advocate can paradoxically lead to a false sense of security in the decision unit. Group members may develop the "comforting feeling that they have considered all sides of the issue and that the policy chosen has weathered challenges from within the decision-making circle" (Janis, 1972: 215). One way to avoid tokenism is to rotate the responsibility to play devil's advocate among the group members. The dialectical approach is a more formal vehicle, which uses structured debate to bring forth alternative views of the world. Mason (1969: B408) noted that use of dialectics forces "exposing hidden assumptions and developing a new conceptualization of the planning problem the organization faces."

Pressures on group members to conform to majority opinions can be avoided through the use of subgroups that meet separately under different leaders and report back to the decision unit. Techniques such as Delphi allow anonymous expression of opinion and questioning, and thus could also serve to protect minority viewpoints. Mitroff and Pondy (1974) have suggested that Kantian Delphi is superior to traditional Delphi techniques, which result in positions based on minimum compromise not the best decisions. The goal in Kantian Delphi is not consensus but the elicitation of diverse points of view from many disciplines. In this manner the information base is enlarged beyond that which any one individual possesses. The technique is particularly good for poorly structured problems.

#### Preventing Rigidities in Programming

Organizations attempt to minimize the probability of decision pathologies either by expanding the repertoire of programmed solutions to include more contingencies, or by introducing higher levels of individual discretion into SOPs. The strategy of expanding SOPs involves high development and maintenance costs to the organization. This strategy is effective only in coping with anticipated events. The vulnerability of the organization is increased when novel situations occur. Complex but inappropriate decision programs may delay organizational realignment necessary to cope with the novel decision situation. While an expanded repertoire of SOPs will reduce the number of errors which occur when information is forced into rigid formats, the complexity involved will increase random noise in the information system and make the tracing of errors more difficult. The strategy of allowing more individual discretion in SOPs gives greater flexibility but organizational economies obtained by standardization and programming are lost.

Every organization must develop SOPs to obtain an appropriate balance between flexibility and standardization to fit its specific environment. To guard against the introduction of biases, however, a dialectic component can be built into every information processing and decision program. The dialectic will ensure that counterplans are developed for all major decisions and contradictory points of view are examined. In this manner any latent biases can be identified. This procedure is similar to the dialectical approach suggested as a measure to prevent group pathologies – episodic dialectics are supplemented by routine programmed dialectics.

### Improving Decision Readiness

An organization that is engaged in constant drills in anticipation of rare events may avoid the strategic damage inherent in surprise. Constant scanning of the organizational environment for possible threats, coupled with imaginative scenario building of yet unrealized contingencies, may reduce the chance of surprise. It may be possible to form special intelligence groups whose major responsibility would be the identification of possible rare events with threat potential and whose members would be freed from daily organizational decision making. The formation of special groups may offer an advantage to the organization in the anticipation of the future. The problem associated with such independent centers, however, is that of credibility. Often the hyperinnovative tendencies of such groups cause a loss of credibility and isolation from power, with resulting inability to influence decision processes. Involving organizational members through rotation in activities of such institutions may partially eliminate this problem of credibility.

Enrichment of the organizational repertoire of responses – contingency plans – with appropriate, sensitive trigger mechanisms may reduce the chance of crisis, either by mitigating the seriousness of an event by a timely appropriate response, or by reducing the surprise associated with the event.

### Preventing Implementation Failures

There are two components to the prevention of implementation pathologies. The first consists of general organizational development of abilities for coping with crises: the second component involves structural changes and enrichment of the repertoire of SOPs.

Motivation of implementation units to carry out decisions can be improved by involving at least one representative from each unit in the actual decision process. When a group solves a problem, each member of the group participating feels responsible for making the solution work. If a solution has been imposed without consultation, however, there is not the same commitment to implementation. Action groups involved with the decision will also be more aware of critical timing factors. Maier noted (1967: 249), “a low-quality solution that has good acceptance can be more effective than a higher-quality solution that lacks acceptance.” Motivation of implementation units can also be improved by thorough indoctrination programs for all members of the organization to develop a heightened commitment to goals. While this procedure will not entirely remove the problems of political games and bargaining between units, there will be some reduction in the incompatibility of goal structures between the diverse units of the organization.

Problems of comprehension are also reduced by participation in the decision process. Implementation units frequently do not understand the reasons for choosing a course of action that they regard as arbitrary or threatening. Hence, a tendency to subvert the implementation process either consciously or unconsciously often emerges. Participation in the decision process increases understanding of the decision through exposure to all the alternatives considered and the reasons for their rejection. Participation leads to a widened perspective of the total crisis, including overall organization goals, not just a narrow perspective dominated by

self-interest. Commitment to and understanding of the decision facilitate diffusion of information throughout the organization.

Noisy channels of communication between decision and implementation units can result in misinterpretation and lack of coordination. This in part can be alleviated by the decision unit placing trusted people in the field to effect coordination. Usually such people will be in direct communication with the decision unit to reduce the probability of error. SOPs increase inertia and lead to subversion of new directives but the commitment to SOPs can be made to work to the advantage of the organization. Special cues for triggering new automatic programs for crisis situations can be developed and incorporated in SOPs. These cues can be reinforced by the use of precrisis drills and simulations. Thus, during an actual crisis much of the required behavior is preprogrammed, reducing the latitude for error.

For major improvements to be made in implementation, the organization must make a strong commitment to precrisis training. Most of these solutions, with the exception of greater participation in the decision process, cannot be carried out during a crisis. The organization must also be prepared to allocate resources for development of these programs since they are not without cost, both in time and in money.

The second component of a strategy for preventing implementation failures consists of some basic modifications in the organization's structure. Dual structures, one for routine and the other for crisis situations, can be developed with appropriate transition rules between crisis and noncrisis regimes. The crisis-triggered regime will be characterized by a flexible repertoire of operating procedures capable of accommodating unanticipated changes required by novel situations. Its structure is aimed at reducing the distances between implementation units and the central unit by increasing overlaps of group memberships to form a fishscale structure. Key positions in staff and line units will be filled by crisis specialists – executives selected on the basis of creative adaptive abilities in high-stress situations. Special emergency communication networks and other organizational resource reserves should be developed emphasizing rapid mobilization.

The dual structure is similar to the adaptive management or project management form proposed by Ansoff and Brandenburg (1971). Personnel are assigned on a temporary basis to projects: when needs change the personnel are reassigned. Ansoff and Brandenburg suggested that this type of structure is particularly suited for situations requiring flexible strategic and operational responses. Membership in the crisis management team, however, should remain relatively stable since permanent decision-making groups tend to perform better than ad hoc groups (Hall and Williams, 1966).

## **Conclusion**

Designs for crisis decision making attempt to (1) prevent certain biases that are specific to stressful situations, (2) increase flexibility and sensitivity of line units, and (3) develop computational and processing capabilities in the organization to meet sudden increasing demands imposed upon decision units.

The prescriptions proposed in the paper can be classified into three categories:



1. Minor structural and procedural modifications of the crisis-decision process – for example, scenario building, dialectics, use of devil’s advocates.
2. Major general development of capabilities – for example, build up of information processing capabilities, selective recruitment of executives, improvement in line units’ sensitivities to commands through drills.
3. Creation of dual specialized structures, one for routine decision making and one for crisis decision making.

The first class of prescriptions is limited in scope but general in application. The main choice is one of design – selecting between a general organizational development strategy and the creation of dual structures. Through specialization, better coping abilities can be attained but at a cost of maintaining idle structures and the need to develop the capability of transition between these structures.

Clearly the size, the general resource capabilities, and the objectives of an organization must be considered in deciding between these two strategies. A large organization with a stable environment but vulnerable to the impacts of discontinuities – for example, a centralized, undiversified, low-slack organization – should maintain a dual specialized structure. The costs of general development and maintenance of crisis-coping capabilities will far exceed the costs of developing a contingency skeleton organization ready to move in and manage the crisis. In contrast, a small organization coping with a fluctuating environment may benefit from a general development of crisis-coping capabilities.

### Acknowledgements

This study was supported in part by the International Institute of Management, Wissenschaftszentrum, Berlin. Without implicating them in anyway, we would like to thank Professors Dunbar, Stanbury, and Taylor for their helpful comments.

### Note

1. Miller (1956) studied the capacity of individuals to process and retain information. He found that short-term capacity of individuals is limited to seven chunks of information.

### References

- Ackoff, Russell L. 1967 “Management misinformation systems.” *Management Science*, 14: B147–B156.
- Albers, Robert J. 1966 “Anxiety and time perspectives.” *Dissertation Abstracts*, 21: 4848.
- Allison, Graham T. 1971 *Essence of Decision*. Boston: Little, Brown.
- Ansoff, H. Igor, and R. G. Brandenburg 1971 “A language for organizational design: parts I and II.” *Management Science*, 17: B705–B731.
- Arnold, John E. 1962 “Useful creative techniques.” In S. J. Parnes and H. F. Harding (eds.), *A Sourcebook for Creative Thinking*: 251–268. New York: Scribner’s.
- Beier, Ernst G. 1951 “The effects of induced anxiety on flexibility of intellectual functioning.” *Psychological Monographs*, 65: no. 326.
- Budzynski, T. H. 1973 “Biofeedback procedures in the clinic.” *Seminars in Psychiatry*, 5: 537–547.

- Cangelosi, Vincent E., and William R. Dill 1965 "Organizational learning: observations towards a theory." *Administrative Science Quarterly*, 10: 173–203.
- Crozier, Michel 1963 *The Bureaucratic Phenomenon*. Chicago: University of Chicago Press.
- Cyert, Richard M., and James G. March 1963 *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.
- de Rivera, Joseph H. 1968 *The Psychological Dimension of Foreign Policy*. Columbus, OH: Merrill.
- Downs, Anthony 1967 *Inside Bureaucracy*. Boston: Little, Brown.
- Easterbrook, J. A. 1959 "The effect of emotion on cue utilization and the organization of behavior." *Psychological Review*, 66: 183–201.
- Fink, S. L., J. Beak, and K. Taddeo 1971 "Organizational crises and change." *Journal of Applied Behavioral Science*, 7: 15–37.
- Hall, Jay, and Martha S. Williams 1966 "A comparison of decisionmaking performances in established and ad hoc groups." *Journal of Personality and Social Psychology*, 3: 214–222.
- Hedberg, Bo L. T., Paul C. Nystrom, and William H. Starbuck 1976 "Camping on seesaws: prescriptions for a self-designing organization." *Administrative Science Quarterly*, 21: 41–65.
- Hermann, Charles F. 1963 "Some consequences of crisis which limit the viability of organizations." *Administrative Science Quarterly*, 8: 61–82.
- Hermann, Charles F. 1972 *International Crises: Insights from Behavioral Research*. New York: Free Press.
- Holsti, Kalevi J. 1966 "Resolving international conflicts: a taxonomy of behavior and some figures on procedures." *Journal of Conflict Resolution*, 10: 272–296.
- Holsti, Ole R. 1971 "Crises, stress, and decision-making." *International Social Science Journal*, 23: 53–67.
- Holsti, Ole R. 1972 *Crisis, Escalation, War*. Montreal: McGill-Queens University Press.
- Janis, Irving L. 1972 *Victims of Groupthink*. Boston: Houghton Mifflin.
- Jones, A., H. J. Wilkinson, and I. Braden 1961 "Information deprivation as a motivational variable." *Journal of Experimental Psychology*, 66: 126–137.
- Lanzetta, John T., and Thornton B. Roby 1957 "Effects of work-group structure and certain task variables on group performance." *Journal of Abnormal and Social Psychology*, 53: 307–314.
- Levine, Seymour 1971 "Stress and behavior." *Scientific American*, 224: 26–31.
- Loomis, C. P. 1960 *Social Systems: Essays on Their Persistence and Change*. New York: D. Van Nostrand.
- MacCrimmon, Kenneth R. 1973 *Theories of Collective Decision*. Review paper, 4th International Research Conference on Subjective Probability, Utility and Decision Making, Rome.
- Maier, Norman R. F. 1967 "Assets and liabilities in group problem solving: the need for an integrative function." *Psychological Review*, 74: 239–249.
- Mason, Richard O. 1969 "A dialectical approach to strategic planning." *Management Science*, 15: B403–B414.
- Milburn, Thomas W. 1972 "The management of crisis." In Charles F. Herman (ed.), *International Crises: Insights from Behavioral Research*: 249–277. New York: Free Press.
- Miller, G. A. 1956 "The magical number seven, plus or minus two: some limits on our capacity for processing information." *Psychological Review*, 63: 81–97.
- Miller, J. G. 1960 "Information input overload and psychopathology." *American Journal of Psychiatry*, 16: 695–704.
- Mitroff, Ian I., and Louis R. Pondy 1974 "On the organization of inquiry: a comparison of some radically different approaches to policy analysis." *Public Administration Review*, 34: 471–479.
- Mulder, Mauk, Jan R. Ritsema van Eck, and Rendel D. de Jong 1971 "An organization in crisis and non-crisis situations." *Human Relations*, 24: 19–41.
- Nathan, James A. 1975 "The missile crisis." *World Politics*, 27: 256–281.
- Paige, Glenn D. 1968 *The Korean Decision*. New York: Free Press.
- Raiffa, Howard 1968 *Decision Analysis*. Reading, MA: Addison-Wesley.
- Robinson, James A. 1972 "Crisis: an appraisal of concepts and theories." In Charles F. Hermann (ed.), *International Crises: Insights from Behavioral Research*: 20–35. New York: Free Press.

- Smock, Charles D. 1955 "The influence of psychological stress on the intolerance of ambiguity." *Journal of Abnormal Psychology*, 50: 177-182.
- Staw, Barry M. 1976 "Knee-deep in the big muddy: a study of escalating commitment to a chosen course of action." *Organizational Behavior and Human Performance*, 16: 27-44.
- Stein, Morris I. 1974 *Stimulating Creativity*. New York: Academic Press.
- Suedfeld, Peter 1971 "Information processing as a personality model." In Harold M. Schroder and Peter Suedfeld (eds.), *Personality Theory and Information Processing*: 3-14. New York: Ronald Press.
- Taylor, Ronald N. 1975 "Psychological determinants of bounded rationality: implications for decision-making strategies." *Decision Sciences*, 6: 409-429.
- Thibaut, J. W., and H. H. Kelley 1959 *The Social Psychology of Groups*. New York: Wiley.
- Tullock, Gordon 1965 *The Politics of Bureaucracy*. Washington, DC: Public Affairs Press.
- Turner, Barry A. 1976 "The organizational and interorganizational development of disasters." *Administrative Science Quarterly*, 21: 378-397.
- Wallach, Michael A., Nathan Kogan, and Daryl J. Bern 1964 "Diffusion of responsibility and level of risk taking in groups." *Journal of Abnormal and Social Psychology*, 68: 263-274.

## Indicators of Stress in Policymakers during Foreign Policy Crises

**Margaret G. Hermann****Source:** *Political Psychology*, 1(1) (1979): 27–46.

Given the far-reaching consequences of decisions in foreign policy crises for a nation and the international arena, the quality of decision making in such situations needs careful attention. Case studies indicate that the quality of the performance of policymakers in crises is highly variable. Some policymakers reveal abilities and resourcefulness in crisis situations seldom seen in their day-to-day activities; whereas others appear erratic, devoid of sound judgment, and disconnected from reality. As Robert Kennedy (1969, p. 31) noted of the policymakers who participated in the decision making during the Cuban missile crisis:

For some there were only small changes, perhaps varieties of a single idea. For others there were continuous changes of opinion each day; some, because of the pressure of events, even appeared to lose their judgment and stability.

One reason for such variability in performance may be the degree to which a foreign policy crisis has generated stress for the individual policymaker. The problem is how to ascertain when policymakers are experiencing stress severe enough to have an impact on decision making. The purpose of this paper is to propose several ways of making such judgments.

**Foreign Policy Crises and Individual Stress<sup>1</sup>**

Since crisis and stress are terms used casually in everyday conversation to describe a variety of experiences, let us stipulate at the outset how these terms will be used. Following C. Hermann (1969), a crisis is a situation that poses a major threat to one or more goals or other values of the group experiencing the crisis. In foreign policy, the threat is to a goal, policy, program, or other state of affairs that the government desires on behalf of the nation in its relations with the external environment. In addition to threat, a crisis is characterized by shortness in the perceived time available for decision. Unless something is done quickly, the external situation will be transformed and the opportunity to do anything to avert disaster will be gone or much more costly.

Individual (psychological) stress has three components: a stimulus, a response, and an intervening psychological process (see Lazarus, 1966). In the case of foreign policy crises, the stress stimulus is the major threat to the nation's goals that has been perceived as such by a policymaker. Moreover, the policymaker has

interpreted the threat to the nation's goals as also endangering something of value to him as an individual. For several reasons, policymakers, particularly at higher levels, seem quite vulnerable to perceiving threats to their nation's goals as personal threats:

1. The policies or objectives that are endangered may very well be ones they struggled to obtain.
2. They probably have a strong identity with the nation as an "entity" or they would not have pursued a career to high national office.
3. Their success, if not their continuation in office, may depend on their effective pursuit of the goals that the crisis threatens.

Perceiving the threat personally, the policymaker becomes emotionally aroused, experiencing such feelings as distress, fear, uncertainty, or anxiety. This negative affect indicates that the foreign policy threat has been translated into a personal threat. In effect, the foreign policy threat is internalized. Once the policymaker has internalized the foreign policy threat and is experiencing negative affect, coping behavior is activated. Coping behavior involves the individual's strategies for dealing with the threat. Both the internalization process and the coping process form the psychological process component of stress.

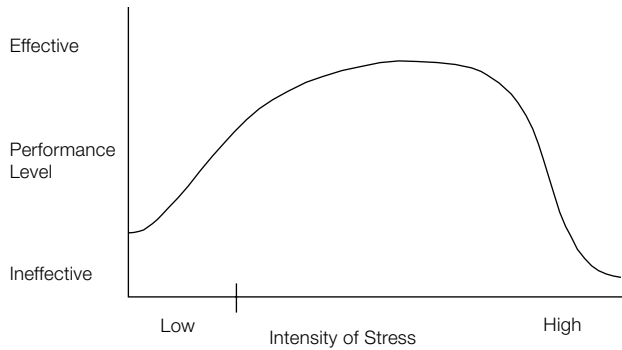
Signs of a policymaker's coping strategy become observable in his (her) responses during a crisis. Some coping behaviors can lead to individual functioning that is inadequate for dealing with the international problem. Such coping behaviors affect the policymaker's ability to operate effectively in a decision-making situation. The relationship between crisis and stress just described is schematized in Figure 1.



**Figure 1:** A schematization of relation between crisis and stress

### Relationship between Stress and Performance

What happens when a policymaker or anyone else internalizes a threat? What is significant for crisis management is the resulting impact on task-oriented behavior or problem solving. A wide variety of studies in both laboratory and natural settings (see Lazarus, 1966; Coelho, Hamburg, & Adams, 1974) have found a similar general pattern between the intensity of individual stress and performance on some task. Those situations in which some stress occurs lead to better performance than situations in which the persons performing the task are emotionally detached. In other words, performance generally improves as individual stress increases, when the overall intensity of the stress is relatively mild. As the intensity of individual stress increases, however, the rate of improvement in performance begins to slow and then to stop altogether. If the amount of stress a person experiences continues to increase, performance begins to plummet, and at some point the performance can become much worse than when there was no stress at all. This generalized relationship between stress and performance appears diagrammatically as an "inverted U" in Figure 2.



**Figure 2:** The generalized relationship between performance level and individual stress

It is the downward slope of the curve in Figure 2 that poses the danger in crisis management. The task is to discover when stress has become so extreme as to seriously inhibit the quality of decision making and related tasks required of a policymaker. Several qualifications are important here. The relationship between stress and performance that is characterized in Figure 2 as an inverted U is a generalized one and varies substantially under a variety of conditions. Three such conditions include the type of task (e.g., how complex), the nature of the individual (e.g., tolerance for stress), and the kind of setting (e.g., type of group or organization individual is in). Instead of one curve in Figure 2, there probably should be families of curves for different tasks, individuals, and settings.

It is essential to keep these qualifications and four others in mind as we continue this discussion. The four are:

1. Policymakers involved in a crisis need not experience individual stress.
2. Not all coping processes that policymakers employ to deal with stress disrupt effective decision making.
3. Crises have effects on individuals, groups, and organizations, other than those resulting from individual stress.
4. Crises are by no means the only source of individual stress.

Even though it is extremely difficult to predict how much stress any particular individual can tolerate before his decision making begins to deteriorate, it is possible to describe various symptoms that a person under stress may display and the effects of such stress responses on decision making. Moreover, while it is not possible on the basis of presently available knowledge to isolate stress responses that are associated exclusively with intense stress or are found in all individuals under stress, nonetheless it should be possible to establish a rough "baseline" for particular individuals, indicating their normal patterns of behavior for certain responses which can be disruptive under stress, and to observe the changes in these normal patterns under situations with a high capacity for triggering intense stress.

Several features of crises make feasible the application of existing knowledge on stress and performance. Historical studies of foreign policy crises (e.g., Holsti, 1972) strongly support the assertion that crises are likely sources of intense individual stress, setting off the chain of reactions shown in Figure 1. Crises are also reasonably well-bounded in time and space. Furthermore, the number of

individuals involved in the decision-making group in any given foreign policy crisis tends to be small, and at least some of the probable participants are predictable (e.g., head of government, foreign minister).

### Observable Indicators of Stress

How can we tell when policymakers are experiencing stress? The schematization in Figure 1 suggests two points at which signs of individual stress might be noted, i.e., when policymakers internalize a foreign policy threat, experiencing negative affect, and when they try to cope with the threat.

#### Verbal and Nonverbal Indicators of Negative Affect

According to our conceptualization of stress, the appearance of indicators of negative affect implies that the foreign policy threat has been perceived as a personal threat by the policymaker. There is the beginning of a stress experience.

In the past decade, social scientists have become increasingly interested in verbal and nonverbal indicators of negative affect (i.e., feelings of fear, distress, uncertainty, anxiety). They have tried to learn when an individual is experiencing negative affect by observing the person's interactions with others in situations likely to lead to such feelings. Researchers have found that facial expressions, gestures, body movements, vocal characteristics, and the structure, as well as the content, of speech give information concerning what a person is feeling. Studies suggest that verbal and nonverbal indicators of negative affect fall into seven broad categories, as shown in Table 1.

In addition to presenting the broad categories, Table 1 gives illustrative indicators of the general type of behavior and several studies where that particular indicator has been found to relate to negative affect. The cited studies are those focusing on spontaneous, as opposed to staged or posed, behavior. Instead of asking subjects to act out a particular negative affect, these investigators have observed people experiencing the negative affect. The setting where the research was conducted is also listed in Table 1.

Individuals can reflect the negative affect that they are experiencing in the following ways: The speech gets flustered; it often becomes faster. There is a change in voice quality; the body tenses. The person becomes irritable and/or vigilant. The face records signs of distress.

Recently, several researchers (R. Frank, 1977; M. Hermann, 1977; Wiegele, 1977) have used various of these indicators of negative affect to study stress in policymakers. Frank (1977) observed the first 1972 California primary debate between George McGovern and Hubert H. Humphrey. He was interested in what topics during the debate appeared stressful for each of these political figures. By examining eyeblinks, head nods, spontaneous movements, and use of repetitions or sentence changes, Frank found that the Soviet Union, domestic politics, and the election were highly stressful topics for Humphrey, while tax reform, bussing, and the election were highly stressful issues for McGovern. Vietnam, tax reform, and the Middle East were low stress topics for Humphrey; Vietnam and military spending were low stress topics for McGovern. In showing stress, Humphrey tended to use more head nods and eye-blinks. McGovern evidenced

**Table 1:** Verbal and nonverbal indicators of negative affect

<i>General type of behavior</i>	<i>Illustrative indicators</i>	<i>Studies finding relationship to negative affect*</i>
1. Flustered Speech	<ul style="list-style-type: none"> <li>a. increased use of "all" or "you know"</li> <li>b. increased number of repetitions of words, phrases, or sentences</li> <li>c. increased number of changes or corrections in sentences in course of conversation</li> </ul>	<p>Kasl and Mahl, 1965 (Laboratory); Laljee and Cook, 1973 (Laboratory); Macley and Osgood, 1959 (Speech samples); Panek and Martin, 1959 (Psychotherapy interviews); Stegman and Pope, 1965, 1966, 1972 (Laboratory)</p> <p>Kasl and Mahl, 1965 (Laboratory); Lerca, 1956 (Speech course); Mahl, 1956 (Psychotherapy session); Osgood and Walker, 1959 (Suicide Notes)</p> <p>Kasl and Mahl, 1965 (Laboratory); Lerca, 1956 (Speech course); Macley and Osgood, 1959 (Speech samples); Mahl 1956 (Psychotherapy session)</p>
2. Increased Speech Tempo	<ul style="list-style-type: none"> <li>a. faster rate of speech</li> <li>b. fewer unfilled pauses</li> </ul>	<p>Kanfer, 1958, 1959 (Laboratory); Sauer and Marcuse, 1957 (Laboratory); Siegmen and Pope, 1972 (Psychiatric hospital)</p> <p>Goldman-Eisler, 1961 (Laboratory); Siegman and Pope, 1965, 1966, 1972 (Laboratory)</p>
3. Body Tension	<ul style="list-style-type: none"> <li>a. increased nonpurposive or spontaneous movement</li> <li>b. increased eyeblinking</li> <li>c. increased self-adoptive gestures (gestures that appear to help an individual relieve tension or pent-up energy) – e.g., finger picking, head scratching, playing with ring</li> </ul>	<p>Dittmann, 1962 (Psychotherapy session); Mehrabian and Ksionzky, 1972 (Laboratory); Raskin, 1962 (Psychotherapy session); Salsbury, 1954, 1955 (Psychotherapy sessions)</p> <p>Doehring, 1957 (Laboratory); Ponder and Kennedy, 1927 (Courtroom); Kanfer, 1960 (Hospital psychiatric interview); Russell and Snyder, 1903 (Counseling interview)</p> <p>Freedman, 1972 (Clinical interview); Freedman O'Hanlon, Oltman, and Witkin, 1972 (Laboratory); Freedman, Blass, Rifkin, and Quitkin, 1973 (Laboratory); Kourt, 1954a, 1954b (Laboratory); McClintock and Hunt, 1975 (Laboratory)</p>
4. Irritability	<ul style="list-style-type: none"> <li>a. increased number of statements of discomfort</li> <li>b. increased number of evaluative statements</li> <li>c. increased forced smiling</li> <li>d. fewer positive head nods</li> </ul>	<p>Auld and Mahl 1956 (Psychotherapy sessions); Caughron 1965 (Laboratory); Dollard and Mowrer, 1947 (Clinical interview); Lebo and Applegate, 1958 (Laboratory); Osgood and Walker, 1959 (Suicide notes)</p> <p>Osgood and Walker, 1959 (Suicide notes); Weintraub and Aronson, 1967 (Psychiatric hospital)</p> <p>McClintock and Hunt, 1975 (Laboratory); Mehrabian, 1971 (Laboratory)</p> <p>Mehrabian, 1971 (Laboratory); Resenfeld, 1966a, 1966b (Laboratory)</p>



5. Distress Signs in Face	a. furrowed brow	Coleman, 1949 (Laboratory); Ekman and Friesen, 1975, 1976 (Laboratory); Hanawalt, 1944 (Laboratory); Loventhal and Sharp, 1965 (Hospital)
	b. eyelids raised so see white sclera above iris	Coleman, 1940 (Laboratory); Ekman and Friesen, 1975, 1976 (Laboratory); Hanawalt, 1944 (Laboratory); Loventhal and Sharp, 1965 (Hospital)
G. Vigilance	a. increased eye contact	Exline, 1963 (Laboratory); Kleck, 1968 (Laboratory); McClintock and Hunt, 1975 (Laboratory); Muhrabian, 1966 (Laboratory); Mohrblan and Friar, 1969 (Laboratory)
	b. postural rigidity	Doutsch and Murphy, 1955 (Clinical interview); Klock, 1969 (Laboratory); Lawen, 1950 (Psychotherapy); Mehrabian, 1955 (Laboratory); Mahmhlan, 1971 (Laboratory)
7. Changes in Voice Quality of "Tone of Voice"	a. higher pitch	Ekman, Friesen, and Scheier, 1976 (Laboratory); Eldred and Prico, 1958 (Psychotherapy); Fairbanks and Pranovosi, 1930 (Laboratory); Krauss, Geiler, and Olsen, 1976 (Laboratory)
	b. change in intivsity	Fridboff, Alpert, and Kurtzberg, 1964a, 1964b (Laboratory); Hargravos, Starkweather, and Blacker, 1965 (Hospital); Starkweather, 1964 (Radio conversation)

\*Negative affect have refers to feelings of fear, distvess apptehension, anxiety, uncertainly, anger. The studies listed have focused on spontaneous rather than posed behavior.

stress with more repetitions and sentence changes, more spontaneous movement, and more eyeblinks. McGovern's signs of negative affect were more generalized; Humphrey's more specific. Frank's data suggest that in this debate Humphrey showed more nonverbal indicators of negative affect when defending his own positions, while McGovern exhibited more nonverbal indicators of negative affect when attacking his opponent's (Humphrey's) positions. Whereas Humphrey felt his own record suspect, McGovern was more confident of his own positions than convinced of the weakness in Humphrey's positions.

Hermann (1977) used verbal indicators from Table 1 to explore local policy-makers' reactions to stress in a negotiation situation. Of interest was how representatives from city hall, a municipal employees union, and the administration of a municipal service behaved in high and low stress conditions during the course of the negotiations. The particular negotiations involved an attempt to settle the 1965 New York City transit strike. High stress conditions were those times during the negotiations when there was a disruption or breakdown in talks; low stress conditions occurred when the negotiations were proceeding smoothly, with some progress toward an agreement noted. Using the indicators of flustered speech and increased speech tempo from Table 1. Hermann found different patterns among the indicators for the different representatives. For each of the negotiators, one or two of the indicators changed from low to high stress conditions. Moreover, it was possible to show how the negotiators dealt with the negative affect they were experiencing in the high stress conditions. For example, in the high stress situations, as John Lindsey (mayor-elect and mayor of New York City during the course of the negotiations) became more uncertain (increased his use of "ahs"), he tried to cope with this uncertainty by denial (increased use of negatives). As Lindsey became more anxious (increased use of repetitions, increased sentence changes), he dealt with his anxiety by withdrawing from the negotiations (decreased self-references) and focusing attention on the two main parties to the negotiations – the transit union and the transit authority. These relationships were minimal or reversed in the low stress situations.

For Richard Nixon, the Watergate incident was a particularly stressful situation, becoming more intensely stressful as the possibility of impeachment began surfacing. For a classroom exercise in a course on leadership, the author had her students monitor Nixon's behavior during his televised State of the Union address in January 1974. At the close of this speech, Nixon made a statement to Congress about Watergate. The students observed Nixon's verbal behavior for flustered speech (use of repetitions, use of sentence changes) and his nonverbal behavior for body tension (use of spontaneous movement, use of self-adaptive gestures). Nixon made, on the average, three repetitions and sentence changes per minute when discussing Watergate and only 4 repetitions and sentence changes per minute during the general State of the Union address. Moreover, he exhibited, on the average, eight movement changes per minute during his statement on Watergate and only 1.3 movements per minute in the main address. The differences were dramatic.

Using the Psychological Stress Evaluator, which analyzes vocal stress, Wiegele (1977) has examined U.S. presidents' addresses to the people during international crises (e.g., Truman's speech of July 19, 1950, following the North Korean invasion of South Korea; Kennedy's speech on October 22, 1962, concerning the Cuban missile crisis; and Johnson's statement of January 28, 1968 about the

North Korean capture of the U.S. ship, the *Pueblo*). The Psychological Stress Evaluator analyzes subtle changes in voice quality. Plotting sound waves for words, Wiegele ascertained which aspects of the situations were particularly stressful to the presidents. Thus, for instance, when the North Koreans seized the *Pueblo*, Johnson's voice indicated little stress in his announcement of the seizure, but much stress when he discussed why the North Koreans had taken the ship. Wiegele's data also suggested that situations over which the presidents perceived they had some control were less stressful than those in which the "enemy" was in control. We note that the mean stress level for Kennedy's speech concerning the Cuban missile crisis was lower than that for his speech on the Berlin crisis on July 25, 1961. Moreover, Johnson's mean stress level for his speech on August 4, 1964 concerning the Gulf of Tonkin attacks was lower than that for his report of the capture of the *Pueblo*.

In each of these studies, the investigators observed verbal and/or nonverbal indicators of negative affect in policymakers. With the exception of Nixon's State of the Union address, the observations were made "after the fact" from recordings or videotapes. It would be possible, however, for an observer to use those indicators "on the spot." Moreover, a staff member or aide to a policymaker could be trained to observe these signs of stress in his boss. Regardless of who the observer is, however, there are several cautions that such an observer needs to bear in mind in using this list of indicators of negative affect with policymakers.

In the first place, as the R. Frank (1977) and M. Hermann (1977) studies showed, stress reactions are highly idiosyncratic. Different persons emphasize or display different verbal and nonverbal indicators of negative affect. When focusing on individual policymakers, an observer needs to become acquainted with the verbal and nonverbal behaviors that the policymaker uses generally, so that changes can be noted. Such an assessment means observing what behaviors are not characteristic of the policymaker as well as those that are characteristic. The abrupt appearance of a behavior that is usually not a part of a policymaker's repertoire may be as important an indicator of the onset of stress as a gradual increase or decrease in a generally occurring behavior. In fact, an observer may want to compare a policymaker's verbal and nonverbal behavior under easily specified stressful and nonstressful conditions, in order to identify the indicators which are likely to be most useful in monitoring the behavior of that policymaker under severe stress, such as may occur in a foreign policy crisis. In effect, the observer needs some baseline information on the policymaker in order to know when a change in an indicator signals an increase in negative affect and, in turn, an increase in stress.

A second caution concerns the continuous nature of the coping process in the stress experience. The coping process cannot be considered as linking a stress stimulus to only one stress response. Rather, coping involves a continual appraisal and reappraisal of the effects of any stress responses which are used in dealing with the threat or the negative affect that the individual is experiencing. Thus, negative affect may fluctuate markedly as coping behaviors are successful or unsuccessful in dealing with the threat. And the indicators of negative affect may change as the policymaker tries out various ways of alleviating the unpleasant feelings being experienced. For this reason, observers who are deputies or key staff members might have an advantage over outside observers. Such individuals have probably

had long enough associations with the policymakers to have some idea of which behaviors come early in a stressful experience and which may suggest a prolonged stress experience.

A final note of caution concerns the number of indicators of negative affect observed. We would not expect an observer to be able to monitor all the behaviors in Table 1 simultaneously. Such would be impossible. From previous knowledge of a policymaker's styles of behavior, an observer should be able to narrow the list of indicators to two or three that seem particularly likely to be important signals of negative affect for that individual.

#### Verbal and Nonverbal Indicators of Coping Behavior

Once an individual has internalized a threat and is experiencing negative affect, what does that person do? How does he cope with what is happening? Table 2 presents some verbal and nonverbal indicators of various types of coping behaviors. As with negative affect, researchers have tried to ascertain verbal and nonverbal clues as to how individuals deal with stressful situations. How do their words, gestures, facial expressions, and voice indicate the way they are attempting to contend with the situation in which they find themselves?<sup>2</sup>

One type of coping behavior is to avoid the threatening situation. An individual can avoid the situation by withdrawing himself psychologically from the scene – by “distancing” one's self from the event or by denying or negating involvement in the situation. A second way of coping is to “take the situation on” – to become involved in the situation. Confronting the situation may include increased problem-oriented activity, but it also can mean increased belligerence and aggressiveness toward others participating in the situation, increased rigidity in what one proposes needs to be done, or increased deception. A third way of coping is to be inactive, as the result, for example, of ambivalence or depression. Illustrative verbal and nonverbal indicators of these various coping behaviors are presented in Table 2.

As with the indicators of negative affect, it helps to have some information about an individual's usual coping behavior in ascertaining what to observe. In situations where one can be fairly sure the policymakers are under stress, what do they generally do? What specific nonverbal and verbal behaviors do they exhibit?

If the coping behaviors are fairly habitual, the observer has to be careful to catch the presence of stress. The individual may mask any signs of negative affect by manifesting the coping behavior. The slightest experience of negative affect brings on the coping behavior. Thus, the observer has but a small opportunity to see the presence of negative affect. For such individuals, the indicators in Table 2 will be more salient than those in Table 1.

As this discussion suggests, individuals often have characteristic ways of dealing with negative affect and threat. Thus, we have deniers, aggressors, and deceivers. One way to gain information about people's typical coping behaviors is to learn something about their personality characteristics. What a policymaker is like gives clues about the type of coping behavior he or she is likely to use under stress. For example, in examining how decision makers who were high and low in conceptual complexity reacted to stress in an international simulation, Driver (1977) found that the decision makers low in conceptual complexity became highly rigid under

**Table 2:** Verbal and nonverbal indicators of coping behaviors

<i>General type of coping behavior</i>	<i>Specific coping behavior</i>	<i>Illustrative verbal and nonverbal indicators</i>	<i>Studies finding relationship between stress and indicator</i>
Avoidance of Situation	1. Psychological Withdrawal from Situation  2. Denial or Negation of Situation	a. increased physical distance from others in interactions b. increased use of outward-directed ("pushing away") gestures and postures c. increased use of words that indicate distance from objects and people a. increased use of negative words such as "no," "not," "never" b. increased use of retractions	Dosoy and Meisals, 1969 (Laboratory); Leibold, 1963 (Interview); Little, 1966 (Parent-child interaction) James, 1932 (Laboratory); Mehrabian, 1968a, 1968b (Laboratory)  R. Frank, 1973 (Political speeches); R. Frank, 1977 (Political debate); Wiener and Mehrabian, 1968 (Laboratory) Aronson and Weintraub, 1972 (Psychiatric hospital); M. Hermann, 1977 (Labor-management negotiation) Aronson and Weintraub, 1972 (Psychiatric hospital); Weintraub and Aronson, 1962 (Psychiatric hospital)
Contending with Situation	1. Problem-Oriented Activity  2. Aggression	a. increased rate of interaction b. increased requests for information and feedback. c. increased references to problem a. increased intensity in voice b. increased object (other) focused motions c. increased hostile statements involving subject (actor)	Alger, 1967 (United Nations); Blau, 1954 (Government agency); Chapple, 1949 (Interview); Strauss, 1952 (Labor union meeting) Davis, 1968 (Interview); Heller, 1968 (Interview)  Heller, Davis, and Myers, 1966 (Interview); Heller, 1968 (Interview) Eldred and Price, 1958 (Interview); Stagner, 1936 (Laboratory) Freedmen, 1972 (Psychiatric hospital); Freedman, Blass, Rifkin, and Qulitkin, 1973 (Interview) Gottschalk, Winget, Gleser, and Springer, 1956 (Interview); Murray, 1954 (Psychotherapy)

(Continued)

<i>(Continued)</i>	<i>General type of coping behavior</i>	<i>Specific coping behavior</i>	<i>Illustrative verbal and nonverbal indicators</i>	<i>Studies finding relationship between stress and indicator</i>
		3. Rigidity in Position	a. increased use of "altness" terms such as "always," "forever," "conclusively"	M. Hermann, 1977 (Labor-management negotiation); Osgood and Walker, 1959 (Suicide notes)
			b. increased redundancy in what is said (i.e., the use of fewer different words)	Lerce, 1956 (Speech course); Moses, 1959 (Classroom); Osgood and Walker, 1959 (Suicide notes)
		4. Deception	a. less smiling	Argyle and Kendon, 1987 (Laboratory), McClintock and Hunt, 1975 (Interview)
			b. increased self manipulations	Freedman, Blass, Rifkin, and Qutkin, 1973 (Interview); McClintock and Hunt, 1975 (Interview)
			c. increased use of hand-shurg gesture	Ekman and Friesen, 1972 (Interview); Mahl, 1968 (Interview)
			d. short responses	Kraut, 1976 (Interview); Mohrobian, 1971 (Laboratory)
	Inaction	1. Ambivalence	a. Increased use of qualifying words such as "perhaps," "maybe"	Eichler, 1966 (Prison); M. Hermann, 1977 (Labor-management negotiation); Osgood and Walker, 1959 (Suicide notes)
			b. Increased use of asertions (i.e., objects described both positively and negatively)	Aronson and Weintraub, 1972 (Psychiatric hospital); Osgood and Walker, 1959 (Suicide notes)
		2. Depression	a. increased hand to body motions	Freedman, 1972 (Interviews); Rosenfeld, 1988 (Laboratory)
			b. increased self-references	Aronson and Weintraub, 1972 (Psychiatric hospital); Wantraub and Aronson, 1987 (Psychiatric hospital)
			c. increased silence	Arnson and Weintraub, 1972 (Psychiatric hospital); Wantraub and Aronson, 1987 (Psychiatric hospital)

stress, assuming the correctness of their position, whereas decision makers high in conceptual complexity became more problem-oriented under stress. If we had been observing the verbal and nonverbal behavior of these decision makers, we would have focused on the appropriate indicators in Table 2 of rigidity and problem orientation. The personality information provides a clue on what to look for.

A policymaker's attitudes and beliefs may also predispose him/her to perceive a particular government, group, or type of action as threatening, triggering negative affect and coping behavior. Across time, the attitude or belief may automatically lead to the use of the coping behavior toward that government, group, or type of action. For example, in examining Dulles' belief system toward the Soviet Union, Holsti (1962) observed that Dulles interpreted each Soviet behavior as threatening and responded to each by becoming rigid in his own position. The Soviets could only be dealt with in one way. Driver (1977) has noted that certain attitudes appear to be stress-enhancing. If present, these attitudes increase the likelihood that threat will be perceived. Ambiguous actions are likely to be interpreted as threatening events. The two attitudes Driver examined were a general distrust of others and the belief in a normative ideology, with its consequent expectation of the worst from others.

At this point, a caution is in order with regard to observing verbal and nonverbal indicators of both negative affect and coping behavior. Some individuals appear better able to monitor their movements, facial expressions, and speech than others. Monitoring can occur in two ways. Snyder (1974) has shown that some people are more sensitive to cues in their environment than others, manifesting behavior appropriate to the cues or the appearance they wish to exhibit in that situation. The research of Buck, Miller, and Caul (1974) suggests that some people show physiological rather than verbal or nonverbal expressions of negative affect and coping behavior. Their skin conductance responses and heart rates increase, while their nonverbal and verbal behaviors remain fairly nondescript. Whether the individual is highly situation-sensitive or an internalizer of his/her reactions, Ekman and Friesen (1969, 1972) have found that such control is more likely to affect facial than body behavior. Particularly if one is familiar with another's nonverbal behavior, gestures, posture shifts, and feet and leg movements will belie what the person is experiencing and how he/she is reacting. Political leaders, given the high visibility of their activities, are probably quite adept at monitoring their behavior, so that careful observation will be necessary to pick up changes in their verbal and nonverbal behavior. Here again, knowledge from frequent observations of the policymaker over time may shed light on the behaviors that stress affects.

### **Disruptive Manifestations of Stress on Decision Making**

We have discussed verbal and nonverbal indicators of negative affect and coping behavior. We have suggested that these indicators can be used as signals that a policymaker has internalized a foreign policy threat and is trying to cope with it and/or his/her feelings. What about the effects of stress on decision making? Might it not be easier for an observer to watch for direct manifestations of stress on policymaking in judging whether or not a policymaker is experiencing stress rather than looking for the indicators in Tables 1 and 2? After all, it was the appearance

of disruptive signs of stress in the decision making of some policymakers that triggered the present exploration of verbal and nonverbal indicators of stress. It is to a consideration of this issue that we now turn.

Table 3 presents some possible disruptive influences on decision making that policymakers may evidence as a result of experiencing stress. In addition to listing the disruptions to decision making, Table 3 includes verbal and nonverbal indicators of each particular disruptive influence and research relating the disruption to a stressful event. This table is more tentative than the previous two since these particular indicators have received less direct, systematic testing than the indicators in the other tables. Qualitative case studies and anecdotal evidence account for much of the support for these indicators.

Let us explore some of the reasons for suggesting that these seven responses are disruptions to decision making. The reader will note in what follows that many of the reasons flow directly from the coping behaviors listed in Table 2.

**Fixation on only one alternative.** There may, of course, be crisis situations that arise where there is only one alternative available, given time, resources, and other constraints. But one of the often-reported findings in research on stress is that it can produce a fixation on one response in a decision maker who normally would explore a variety of alternatives (cf. DeRivera, 1968; J. Frank, 1967; Holsti, 1972; Lazarus, 1966). In effect, stress makes it more difficult for individuals to think of alternatives. People become conceptually rigid. Even a person who is usually inventive and imaginative may experience a mental block under severe stress. Moreover, stress increases the need for action to eliminate or reduce the threat. The presence of one reasonable alternative speeds one's decision process along, since there is little necessity to search for others. As a result, action can be taken more quickly and the individual can extricate himself/herself from the situation.

**Simplification of the adversary and the adversary's limitations.** As stress increases, there is a tendency to define elements of crisis situations in either-or terms, particularly one's adversaries and allies. Quickly, in-groups and out-groups are defined – who is for you and who is against you are stipulated. This process helps policymakers to deal with the enormous uncertainties which crises generate – uncertainties concerning the nature of the adversary's motives and intentions and the impact that any behavior of the actor is likely to have on the adversary. By simplifying the adversary, policymakers can reduce these uncertainties and can increase their sense of understanding of the situation and, in turn, can respond. One consequence of simplifying the adversary is that the policymaker also simplifies the adversary's limitations. The adversary's behavior is always hostile, always motivated by the desire to undermine one's actions. If the alternatives which policymakers face in a crisis situation have particularly negative consequences (i.e., risk war), this simplification of the adversary's limitations may take the form of attributing the ability to control events to that adversary (cf. J. Frank, 1967; Holsti, 1972). The responsibility for what happens lies with the "bad guys," not with you.

**Fatigue.** Almost by definition, crises are demanding decision situations, requiring long hours with little opportunity for diversion or relaxation. These circumstances alone would be sufficient to generate physical fatigue. However, when the crisis creates high stress for individuals and the stress continues for a protracted period, the fatigue is compounded. Research findings suggest that extended periods of high stress lead to the deterioration of various physiological systems, which makes fatigue more acute. "If continued long enough, fatigue



**Table 3:** Verbal and nonverbal indicators of disruptive manifestations of stress on decision making

<i>Disruption in decision making</i>	<i>Possible indicators</i>	<i>Research relating disruption in decision making to stressful situation</i>
1. Fixation on Only One Reasonable Option	<ul style="list-style-type: none"> <li>a. increased statements indicating that there is only one course of action available</li> <li>b. increased statements indicating that a course of action is not possible, is inadequate, or is flawed</li> <li>c. increased expressions of displeasure with other people who criticize or suggest reservations with favored course of action</li> </ul>	George, 1974 (Presidential decision making); Holsti, 1972 (Outbreak of World War 1); Lazarus, 1968 (Laboratory); Paige, 1972 (invasion of South Korean)
2. Simplification of Adversary and Adversary's Limitations	<ul style="list-style-type: none"> <li>a. increased statements about the adversary as if was a single individual or dehumanized, undifferentiated agent (e.g., "the enemy," "Reds," "them," "as Paking says")</li> <li>b. increased statements about the many courses of action open to the adversary and the control the adversary has over events</li> <li>c. increased statements that attribute rationality and planning to the adversary's actions</li> </ul>	Berkowitz, 1962 (Laboratory); DeFiorra, 1968 (invasion of South Korea); Holsti, 1962 (Statements by Dulles); Holsti, 1972 (Outbreak of World War 1); Paige, 1968 (invasion of South Korea); Rosenblatt, 1964 (Review of research); White, 1966 (Vietnam War)
3. Fatigue	<ul style="list-style-type: none"> <li>a. dramatic increase in signs of irritability listed in Table 1</li> <li>b. increased statements that challenge another person's position for no reason (e.g., "You can't be right," "How do know that," "What makes you an expert")</li> <li>c. dramatic increase in indicators of psychological withdrawal from Table 2</li> </ul>	Holsti, 1972 (Outbreak of World War 1); Kennedy, 1969 (Cuban Missile Crisis); Janis, 1972 (Cuban Missile Crisis); Milburn, 1972 (Review of research); Thomson, 1968 (Vietnam War)

(Continued)

<i>(Continued)</i>	<i>Disruption in decision making</i>	<i>Possible indicators</i>	<i>Research relating disruption in decision making to stressful situation</i>
4. Collapsed Time Perspective and Neglect of Future Consequences	a. increased statements considering only the situation at hand b. decreased statements concerned with the future consequences of an action	a. increased recurrence in statements of references to certain previous events b. increased statements suggesting the need to follow policies used in previous situations	Holsti, 1972 (Outbreak of World War 1); Korchin, 1964 (Korean War); Thompson and Howkes, 1962 (Natural disaster)
5. Heightened Tendency to Perceive Similarities between Present Situation and Certain Past Situations or Policies	a. increased recurrence in statements of references to certain previous events b. increased statements suggesting the need to follow policies used in previous situations	a. increased recurrence in statements of references to certain previous events b. increased statements suggesting the need to follow policies used in previous situations	Bobrow, 1968 (Decision making in People's Republic of China); J. Frank, 1967 (Review of research); Holsti, 1962 (Statements by Dulles); Holsti, 1972 (Outbreak of World War 1); Jervis, 1970 (Case studies); Paige, 1972 (invasion of South Korea)
6. Declining Sense of Responsibility for Outcome	a. increased statements denying responsibility for any outcome b. increased statements indicating that the specific role or position one holds forced outcome	a. increased statements denying responsibility for any outcome b. increased statements indicating that the specific role or position one holds forced outcome	George, 1974 (Presidential decision making); Holsti, 1972 (Outbreak of World War 1); Schlenker and Miller, 1977 (Laboratory); Sorensen, 1965 (Cuban Missile Crisis)
7. Tendency to Consult Only with Others Who Support Own Position	a. increased appointments and interactions with persons known to support particular position b. fewer public appearances or non-staff appointments	a. increased appointments and interactions with persons known to support particular position b. fewer public appearances or non-staff appointments	George, 1974 (Presidential decision making); Holsti, 1972 (Outbreak of World War 1); Janis, 1972 (Presidential decision making)

leads to increased irritability, to sub-clinical paranoid reactions, to heightened suspiciousness, hostility, and increased defensiveness” (Milburn, 1972, p. 264). Illustrations of these effects have been noted about policymakers in many crises. For example, Walter Hines Page, the American ambassador to London during the 1914 crisis, described an encounter with Prince Lichnowsky in the height of the crisis. “I went to see the German Ambassador at 3 o’clock in the afternoon. He can down in his pyjamas, a crazy man. I feared he might literally go mad . . . the poor man had not slept for several nights” (Albertini, 1953, p. 501). During the Cuban missile crisis, William Knox noted, on meeting with Khrushchev, that the Soviet premier was “in a state of near exhaustion” and “like a man who had not slept all night” (Abel, 1966, p. 151). At some point, for each individual, fatigue becomes debilitating, influencing decision making.

**Collapsed time perspective and neglect of future consequences.** Stress, as it increases, leads to a narrowing of the field of attention, generally to the threatening situation itself (cf. Korchin, 1964; Thompson & Hawkes, 1962). There is a tendency to bound or limit the situation. One consequence of this riveting of attention on the task at hand (or present) is that the difficulties with or ramifications of policies are not considered – often are not even raised. The immediate danger is so intense, the future seems almost irrelevant. Certainly the future has “little or no relevance unless a satisfactory solution can be found for the immediate problems” (Holsti, 1972, p. 16). But what if the choice is between two alternatives, one with great costs in the future but some benefits in the short run, the other with some costs in the short term but great payoff in the future? With no consideration of the future effects of a policy, an ineffective choice may result. As Holsti (1972, p. 16) notes: There is

something seductively appealing about the belief that “If I can just solve the problem of the moment the future will take care of itself.” This reasoning appears to have contributed to both Neville Chamberlain’s actions during the Czech crisis of 1938 and to Lyndon Johnson’s policies during the war in Vietnam.

**Heightened tendency to perceive similarities between present situation and certain past situations or policies.** As with collapsed time perspective, the tendency to perceive similarities between the present situation and past situations is an attempt to put boundaries on the situation. The stressful event is much easier to deal with (and perhaps less threatening) if there is some situation that it resembles for which choices have already been made – “We can do what we’ve done successfully in the past” or “By all means we must avoid doing what we did previously.” Following in one’s footsteps may be appropriate if the situations do indeed resemble one another. Problems arise, however, if similarities are perceived that are not accurate. Given the tendency for a narrowing of the perceptual field and reliance on one’s own expectations and beliefs in stressful situations, misinterpretations become a real possibility (cf. Jervis, 1970). Thus, European leaders in the summer of 1914 perceived the latest Balkan crisis as similar to those that had been successfully managed before (cf. Holsti, 1972). “When faced with an intransigent Egypt in 1956, Anthony Eden drew an analogy between Nasser and Hitler” (Holsti, 1972, p. 22). Truman perceived “that the aggression in Korea [in 1950] was like Nazi aggression in the 1930s and, if unopposed, would encourage Communists to undertake new aggression” (George, 1974, p. 224).

**Declining sense of responsibility for outcome.** As stress increases and there is less sense of a way out of the dilemma, to protect one's self-esteem, an individual is likely to begin to withdraw from the situation. By decreasing one's sense of responsibility, a person can avoid failures. There is a wealth of research at the individual level that shows that people assume success is the result of their own talents and efforts, while failures result from bad luck or the complexity of the task and situation (cf. Fitch, 1970; Frieze & Weiner, 1971; Luginbuhl, Crowe, & Kahan, 1975; Schlenker & Miller, 1977; Wortman, Costanzo, & Witt, 1973). Successes are of one's own doing; failures are attributable to outside forces. Schlenker and Miller (1977, p. 755) have called this "the existence of self-serving motivational biases that protect self-esteem and color attributions and perceptions." One method policymakers can use to assume less responsibility is to identify with their role. It is in the nature of the presidential role, for instance, "that there will be many occasions on which one simply cannot make a good decision without some sacrifice to one's own interests or those of some significant others" (George, 1974, p. 186). The role, not one's self, is to blame for any failures. A declining sense of responsibility makes aggressive and hostile behaviors more feasible, since one cannot be held accountable for the consequences.

**Tendency to consult only with others who support own position.** Janis (1972) has proposed in his notion of "group think" that policymakers faced with highly stressful situations depend on the cohesiveness and consensus of their decision-making groups for support. By including in their decision-making compatriots only those who agree with their position, policymakers can insure a sense of being right. In describing nine malfunctions in the presidential decision process during crises, George (1974, pp. 219–231) suggests five malfunctions that contain evidences of this bias of consulting only those persons who agree with you. These five times when malfunctions occur are:

1. "when the president and his advisers too readily agree on the nature of the problem facing them and on a response to it."
2. "when there is no advocate for an unpopular policy option."
3. "when the president, faced with an important decision, is dependent upon a single channel of information."
4. "when the key assumptions and premises of a plan have been evaluated only by the advocates of the plan."
5. "when the president is impressed by the consensus among his advisers but fails to ascertain how firm the consensus is, how it was achieved, and whether it is justified."

In each case the president only hears what he wants to hear. Dissent, questioning, and search for information or alternatives are dropped from the decision-making process.

In this section of the paper we have been deliberately looking at behaviors that can be, and often are, dysfunctional or disruptive to effective decision making. In a parallel manner to Holsti (1972, p. 199), we suggest that:

Men rarely perform at their best under intense stress. The most probable casualties of high stress are the very abilities which distinguish men from other species: to establish logical links between present actions and future

goals; to create novel responses to new circumstances; to communicate complex ideas; to deal with abstractions; to perceive not only blacks and whites, but also the many shades of grey which fall in between; to distinguish valid analogies from false ones, and sense from nonsense; and, perhaps most important of all, to enter into the frames of reference of others. With respect to these precious attributes, the law of supply and demand seems to operate in a perverse manner; as crisis increases the need for them, it also appears to diminish their supply.

The question becomes: if policymakers are aided in perceiving how their behavior is being influenced by stress, can they change? Can policymakers learn to avoid those disruptive behaviors most characteristic of themselves by taking certain precautions when stress becomes severe? George (1974), Hermann and Hermann (1975), and Janis (1972) have proposed some ways of counteracting the disruptive effects of the behaviors in Table 3. However, before we can counteract these behaviors, we must be able to record their occurrence. Monitoring policymakers during crisis situations for the indicators in Table 3 can assist us in learning which behaviors are characteristic of which policymakers. Corrections become possible once we have information on these characteristic disruptive activities.

### Conclusion

This paper has proposed ways of observing stress in policymakers, based on the growing research literature on verbal and nonverbal indicators of various aspects of the stress experience. We have examined three types of indicators – indicators of negative affect, indicators of coping behavior, and indicators of the possible disruptive influences of stress on decision making. Political figures leave many traces of their behavior. They are constantly monitored by the media. Moreover, political forums are often open to the public. We should be able to use these indicators of aspects of the stress experience on such traces of behavior.

The most direct way, of course, of employing the indicators that we have presented in this paper would be to train staff members or aides of policymakers to observe the described signs of stress and the effects of stress in their superiors. These individuals would be privy to the policymaker's behavior during the decision-making process and would have a reservoir of knowledge about the policymaker's usual behavior (see Hermann & Hermann, 1975). Before such a proposal can become feasible, however, several preliminary steps are necessary.

Can we use the indicators to examine stress and the effects of stress in readily accessible policymakers (e.g., city council members, school board members) to see where the problems lie in using such an observation scheme? Simulations of policymaking environments could prove useful for these exploratory ventures. Based on these "trial run" experiences, are there modifications in the indicators that are required?

At the same time, can we begin to work with policymakers to develop a positive milieu toward the self-examination of stress responses? At present, to admit to being under stress is "bad form." As Selye (1973) has proposed, though, stress needs to be considered as posing an opportunity as well as a threat. If one

can take advantage of the situation to be creative and innovative, the rewards to both the individual policymaker and his/her political unit can be great. In effect, knowing when one is experiencing stress and the likely effects of stress on one's behavior can increase policymakers' control over their own fate and the fates of their constituents.

### Notes

This literature review was supported by the Advanced Research Projects Agency. Human Resources Research Office on Office of Naval Research Contract N00014-75-C-0765 and by Mershon Center. The author wishes to thank Charles Hermann for his helpful comments on an earlier draft of this paper.

1. The first two sections of this paper borrow from Hermann and Hermann (1975). The present paper builds on and elaborates the previous one.
2. A question can be raised about the validity of the indicators in Tables 1 and 2. How do we know that the indicators are representative of one component of the stress process rather than another? More work needs to be done before this question can be adequately answered. The author has used a criterion of face validity before including a study in either table. The studies listed in Table 1 focused on the feelings the subjects were experiencing in what would appear to be fairly stressful solutions (e.g., undergoing major surgery, contemplating suicide, being told one has failed), whereas the studies listed in Table 2 were concerned with how the subjects dealt with a stressful event. Generally, the studies in both tables examined high and low stress conditions or groups likely to be under high stress and groups under little stress.

### References

- Abel, E. *The missile crisis*. New York: Bantam Books, 1966.
- Albertin, L. *The origins of the war of 1914* (Vol. 3). New York: Oxford University Press, 1953.
- Alger, C.F. Interaction in a committee of the United Nations General Assembly. In J.D. Singer (Ed.), *International yearbook of political behavior research* (Vol. 7). New York: Free Press, 1967.
- Argyle, M., & Kendon, A. The experimental analysis of social performance. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 3). New York: Academic Press, 1967, 55-98.
- Aronson, H., & Weltraub, W. Personal adaptation as reflected in verbal behavior. In A.W. Siegman & B. Pope (Eds.), *Studies in dyadic communication*. New York: Pergamon Press, 1972, 265-279.
- Auld, F., Jr., & Mahl, C.F. A comparison of the DRQ with ratings of emotion. *Journal of Abnormal and Social Psychology*, 1956, 53, 386-388.
- Berkowitz, L. *Aggression: A social-psychological analysis*. New York: McGraw-Hill, 1982.
- Blau, P.M. Patterns of interaction among a group of officials in a government agency. *Human Relations*, 1954, 7, 337-348.
- Bobrow, D. Communist China's conflict system. *Orbis*, 1966, 9, 930-952.
- Buck, R., Miller, R.E., & Caul, W.F. Sex, personality, and physiological variables in the communication of affect via facial expression. *Journal of Personality and Social Psychology*, 1974, 30, 587-596.
- Caughren, H.J., Jr. The relationship of stimulus-structure and selected personality variables to the discomfort-relief quotient in autobiographies. *Journal of Counseling Psychology*, 1965, 12, 74-80.
- Chapple, E.D. The interaction chronograph: Its evolution and present application. *Personnel*, 1949, 25, 295-307.
- Coelho, G.V., Hamburg, D.A., & Adams, J.E. *Coping and adaptation*. New York: Basic Books, 1974.

- Coleman, J.C. Facial expressions of emotions. *Psychological Monographs*, 1949, 63 (1, Whole No. 296).
- Davis, J.D. *The Interview arena: A model for interviewee strategies in standardized interviews*. Unpublished doctoral dissertation, Indiana University, 1968.
- DeRivera, J. *The psychological dimension of foreign policy*. Columbus, Ohio: Charles E. Merrill Publishing Co., 1968.
- Doutsch, F., & Murphy, W.F. *The clinical Interview* (Vol. 1 and 2). New York: International Universities Press, 1955.
- Dittmann, A.T. The relationship between body movements and moods in interviews. *Journal of Consulting Psychology*, 1962, 26, 480.
- Doehring, D.G. The relation between manifest anxiety and rate of eyeblink in a stress situation. *U.S. Navy School of Aviation Medicine Research Report* (No. 6), 1957.
- Dollard, J., & Mowrer, O.H. A method for measuring tension in written documents. *Journal of Abnormal and Social Psychology*, 1947, 42, 3–32.
- Dosey, M.A., & Meisels, M. Personal space und self-protection. *Journal of Personality and Social Psychology*, 1969, 11, 93–97.
- Driver, M.J. Individual differences as determinants of aggression in the inter-nation simulation. In M.G. Hermann (Ed.), *A psychological examination of political leaders*. New York: Free Press, 1977, 337–353.
- Elchier, M. The application of verbal behavior analysis to the study of psychological defense mechanisms: Speech patterns associated with sociopathic behavior. *Journal of Nervous and Mental Disorders*, 1960, 141, 658–663.
- Goldman-Eisler, F. The significance of changes in the rate of articulation. *Language and Speech*, 1961, 4, 171–174.
- Ekman, P., & Friesen, W.V. Nonverbal leakage and clues to deception. *Psychiatry*, 1969, 32, 88–106.
- Ekman, P., & Friesen, W.V. Hand movements. *Journal of Communication*, 1972, 22, 353–374.
- Ekman, P., & Friesen, W.V. Detecting deception from the body or face. *Journal of Personality and Social Psychology*, 1974, 29, 208–298.
- Ekman, P., & Friesen, W.V. *Unmasking the face*. Englewood Cliffs, N.J.: Prentice-Hall, 1975.
- Ekman, P., & Friesen, W.V. *Pictures of facial affect*. Palo Alto, Calif.: Consulting Psychologists Press, 1976.
- Ekman, P., Friesen, W.V., & Scherer, K.R. Body movement and voice pitch in deceptive interaction. *Semiotica*, 1976, 16, 23–27.
- Eldred, S.H., & Prico, D.B. A linguistic evaluation of feeling states in psychotherapy. *Psychiatry*, 1958, 21, 115–121.
- Exline, R. Explorations in the process of person perception: Visual Interaction in relation to competition, sex, and need for affiliation. *Journal of Personality*, 1963, 31, 1–20.
- Fairbanks, G., & Pronovost, W. An experimental study of the pitch characteristics of the voice during the expression of emotions. *Speech Monographs*, 1939, 6, 87–104.
- Fitch, G. Effects of self-esteem, perceived performance, and choice on causal attributions. *Journal of Personality and Social Psychology*, 1970, 16, 311–315.
- Frank, J.D. *Sanity and survival: Psychological aspects of war and peace*. New York: Vintage, 1968.
- Frank, R.S. Linguistic analysis of political elites: A theory of verbal kinosics. *Sage Professional Papers in International Studies*, 1973, 2, 02–022.
- Frank, R.S. Nonverbal and paralinguistic analyses of political behavior: The first McGovern-Humphrey California primary debate. In M.G. Hermann (Ed.), *A psychological examination of political leaders*. New York: Free Press, 1977, 62–79.
- Freedman, R. The analysis of movement behavior during the clinical interview. In A.W. Siegman & H. Pope (Eds.), *Studies in dyadic communication*. New York: Pergamon, 1972, 153–175.
- Freedman, R., Blass, T., Rifkin, A., & Oultkin, F. Body movements and the verbal encoding of aggressive affect. *Journal of Personality and Social Psychology*, 1973, 26, 72–85.
- Freedman, N., O'Hanlon, J., Qltman, P., & Witkin, H.A. The imprint of psychological differentiation on kinetic behavior in varying communicative contexts. *Journal of Abnormal Psychology*, 1972, 79, 239–258.
- Friedhoff, A.J., Alpert, M., & Kurtzberg, R. L. An electro-acoustic analysis of the effects of stress on voice. *Journal of Neuropsychiatry* 1964, 5, 266–272. [a]

- Friedhoff, A.J., Alpert, M., & Kurtzberg, R. L. Infra-content channels of vocal communication. *Disorders of Communication*, 1964, 42, 414–423. (b)
- Frieze, I., & Weiner, B. Cue utilization and attributional judgments for success and failure. *Journal of Personality*, 1971, 39, 591–605.
- George A.L. Adaptation to stress in political decision making: The individual, small group, and organizational contexts. In G.B. Coelho, D.A. Hamburg, & J.E. Adams [Eds.], *Coping and adaptations*. New York: Basic Books, 1974, 176–245.
- Gottschalk, L.A., Winget, C.M., Gleser, G.C., & Springer, K.J. The measurement of emotional changes during a psychiatric interview: A working model toward quantifying the psychoanalytic concept of affect. In L.A., Gottschalk & A.H. Auerbach [Eds.], *Methods of research in psychotherapy*: New York: Appleton-Century-Crofts. 1966, 93–126.
- Hanawalt, N.G. The role of the upper and the lower parts of the face as a basis for judging facial expressions. H. In posed expressions and “candid camera” pictures. *Journal of General Psychology*, 1944, 31, 23–36.
- Hargreaves, W.A., Starkweather, J.A., & Blacker, K.H. Voice quality in depression. *Journal of Abnormal Psychology*, 1965, 70, 218–220.
- Heller, K. Ambiguity in the interview introduction. In J. M. Schlen (Ed.), *Research in psychotherapy* (Vol. 3). Washington, D.C.: American Psychological Association, 1968, 242–259.
- Heller, K., Davis, J.D., & Myers, R.A. The effects of interviewer style in a standardized interview. *Journal of Consulting Psychology*, 1966, 30, 501–508.
- Hermann, C.F. *Crises in foreign policy: A simulation analysis*. Indianapolis, Ind.; Bobbs-Merrill, 1969.
- Hermann, M.G. Verbal behavior of negotiators in periods of high and low stress. In M.G. Hermann (Ed.), *A psychological examination of political leaders*. New York: Free Press, 1977, 356–382.
- Hermann, M.G., & Hermann, C.F. Maintaining the quality of decision making in foreign policy crises: A proposal. In A.L. George, *Towards more soundly based foreign policy: Making better use of information*. Report to the Commission on the Organization of Government for the Conduct of Foreign Policy, 1975.
- Holsti, O.R. The belief system and national images: A case study. *Journal of Conflict Resolution*, 1962, 6, 244–252.
- Holsti, O.R. *Crisis, escalation, war, Montreal*, Canada: McGill-Queen’s University Press, 1972.
- James, W.T. A study of the expression of bodily posture. *Journal of General Psychology*, 1932, 7, 405–437.
- Jonis, I.L. *Victims of groupthink*. Boston, Mass.: Houghton-Mifflin, 1972.
- Jervis, R. *How decision-makers learn from history*. Unpublished manuscript, Harvard University, 1970.
- Kanfer, F.H. Supplementary report: Stability of a verbal rate change in experimental anxiety. *Journal of Experimental Psychology*, 1958, 56, 182.
- Kanfer, F.H. Verbal rate, content and adjustment ratings in experimentally structured interviews. *Journal of Abnormal and Social Psychology*, 1959, 58, 305–311
- Kafer, F.H. Verbal rule, eyeblink and content in structured psychiatric interviews. *Journal of Abnormal and Social Psychology*, 1960, 51, 341–347.
- Kasl, S.V., & Mahl, G.F. The relationship of disturbances and hesitations in spontaneous speech to anxiety. *Journal of Personality and Social Psychology*, 1965, 1, 425–433.
- Kennedy, R.F. *Thirteen days*. New York: Norton, 1969.
- Kleck, R. Physical stigma and nonverbal cues emitted in face-to-face interaction. *Human Relations*, 1968, 21, 19–28.
- Korchin, S.J. Anxiety and cognition. In C. Sheerer (Ed.), *Cognition; Theory, research, promise*. New York: Harper and Row, 1964.
- Krauss, R.M. Geller, V., & Olson, C. Modalities cues in the deception of deception. Paper presented at annual meetings of American Psychological Association. Washington, D.C., Sept. 1976.
- Kraut, R.E. Verbal and nonverbal cues in the perception of lying. Paper presented at annual meeting of American Psychological Association, Washington, D.C., Sept. 1976.
- Krout, M.H. An experimental attempt to produce unconscious manual symbolic movements. *Journal of General Psychology*, 1954, 51, 93–120, (a)



- Krout, M.H. An experimental attempt to determine the significance of unconscious manual symbolic movements. *Journal of General Psychology*, 1954, 51, 121–152. (b)
- Lalljee, M., & Cook, M. Uncertainty in first encounters. *Journal of Personality and Social Psychology*, 1973, 26, 137–141.
- Lazarus, R.S. Psychological stress and the coping process. New York: McGraw-Hill, 1986.
- Lebo, D., & Applegate, W. The Influence of instructional set upon the discomfort-relief quotient. *Journal of Clinical Psychology*, 1958, 14, 280–282.
- Laipold, W.D. *Psychological distance in a dyadic interview*. Unpublished doctoral dissertation. University of North Dakota, 1963.
- Larua, L.A. Preliminary study of the verbal behavior of speech fright. *Speech Monographs*, 1956, 23, 229–233.
- Levanthal, H., & Sharp, E. Facial expressions as indicators of distress. In S.S. Tomkins & C.E. Izard (Eds.), *Affect, cognition and personality*. New York: Springer, 1965, 296–316.
- Little, K.B. Child-parent interaction distances under praise and reproof. Unpublished Doctoral Dissertation, University of Denver, 1966.
- Lowen, A. *Physical dynamics of character structure: Body form and movement in analytic therapy*. New York: Grune and Stratton, 1958.
- Luginbuhl, J.E.R., Crowe, D.H., & Kahan, J.P. Causal attributions for success and failure. *Journal of personality and Social Psychology*, 1975, 31, 86–93.
- Maclay, H., & Osgood, C.E. Hesitation phenomena in spontaneous English speech. *Word*, 1959, 15, 19–44.
- Mahl, G.F. Disturbances and silences in the patient's speech in psychotherapy. *Journal of Abnormal and Social Psychology*, 1956, 53, 1–15.
- Mahl, G.F. Gestures and body movements in interviews. In J. M. Schlen (Ed.), *Research in Psychotherapy* (Vol. 3). Washington, D.C.: American Psychological Association, 1988, 295–346.
- McClintock, C.C., & Hunt, R.G. Nonverbal indicators of affect and deception in an interview setting. *Journal of Applied Social Psychology*, 1975, 5, 54–67.
- Mehrabian, A. Inference of attitudes from the posture, orientation, and distance of a communicator. *Journal of Consulting and Clinical Psychology*, 1966, 32, 296–308.(a)
- Mehrabian, A. Relationship of attitude to seated posture, orientation, and distance. *Journal of Personality and Social Psychology*, 1988, 10, 26–36.(b)
- Mehrabian, A. Nonverbal betrayal of feeling. *Journal of Experimental Research in Personality*, 1971, 5, 64–73.
- Mehrabian, A., & Friar, J.T. Encoding of attitude by a seated communicator via posture and position cues. *Journal of Consulting and Clinical Psychology*, 1969, 33, 330–336.
- Mehrabian, A., & Ksionzky, S. Categories of social behavior. *Comparative Group Studies*, 1972, 3, 425–430.
- Milburn, T.W. The management of crises. In C.F. Hermann (Ed.), *International crises: Insights from behavioral research*. New York: Free Press, 1972, 259–277.
- Moses, E.R., Jr. A study of word diversification. *Speech Monographs*, 1959, 26, 308–312.
- Murray, E.J. A case study in a behavioral analysis of psychotherapy. *Journal of Abnormal and Social Psychology*, 1954, 49, 305–310.
- Osgood, C.E., & Walkur, E. Motivation and language behavior: A content analysis of suicide notes. *Journal of Abnormal and Social Psychology*, 1959, 59, 58–67.
- Paige, G.D. *The Korean decision*. New York: Free Press, 1988.
- Paige, G.D. Comparative case analysis of crisis decisions: Korea and Cuba. In C.F. Hermann (Ed.), *International crises: Insights from behavioral research*. New York: Free Press, 1972, 41–55.
- Panek, D.M., & Martin, B. The relationship between GSR and speech disturbances in psychotherapy. *Journal of Abnormal and Social Psychology*, 1959, 58, 402–405.
- Ponder, E., & Kennedy, W.P. On the act of blinking. *Quarterly Journal of Experimental Physiology*, 1927, 18, 89–110.
- Raskin, A. Observable signs of anxiety or distress during psychotherapy. *Journal of Consulting Psychology*, 1962, 26, 389.
- Rosenblatt, P.C. Origins and effects of group ethnocentrism and nationalism. *Journal of Conflict Resolution*, 1968, 8, 131–146.

- Rosenfeld, H.M. Instrumental affiliative functions of facial and gestural expressions. *Journal of Personality and Social Psychology*, 1966, 4, 65–72, (a)
- Rosenfeld, H.M. Approval-seeking and approval-inducing functions of verbal and nonverbal responses in the dyad. *Journal of Personality and Social Psychology*, 1986, 4, 597–605. (b)
- Russell, P.O., & Snyder, W.U. Counsellor anxiety in relation to amount of clinical experience and quality of affect demonstrated by clients. *Journal of Consulting Psychology*, 1963, 27, 358–363.
- Salnsbury, P. A method of recording spontaneous movements by time-sampling motion pictures. *Journal of Mental Science*, 1954, 100, 742–748.
- Sanisbury, P. Gestural movement during psychiatric interview. *Psychosomatic medicine*, 1955, 17, 450–469.
- Sauer, R.E., & Marcuse, F.L. Overt and covert recording. *Journal of Projective Techniques*, 1957, 21, 391–395.
- Schlenker, B.R., & Miller, R.S. Egocentrism in groups: Self-serving biases or logical information processing? *Journal of Personality and Social Psychology*, 1977, 35, 755–764.
- Selye, H. *Stress without distress*. New York: Signel, 1975.
- Siegmán, A.W., & Pope, B. Effects of question specificity and anxiety producing messages on verbal fluency in the initial interview. *Journal of Personality and Social Psychology*, 1965, 2, 522–530.
- Siegmán, A.W., & Pope, B. Ambiguity and verbal fluency in the TAT. *Journal of Consulting Psychology*, 1966, 30, 239–245.
- Siegmán, A.W., & Pope, B. The effects of ambiguity and anxiety on interviewee verbal behavior. In A. W. Siegmán & B. Pope (Eds.), *Studies in Dyadic Communication*. New York: Pergamon, 1972, 29–88.
- Snyder, M. Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, 1974, 30, 526–537.
- Sorensen, T.C. *Kennedy*, New York: Harper and Row, 1965.
- Stagner, R. Judgments of voice and personality. *Journal of Educational Psychology*, 1936, 27, 272–277.
- Starkweather, J.A. Variations in vocal behavior. In D. McK. Riach & E.A. Weinstein (Eds.), *Disorders in communication*, Baltimore: Williams and Wilkins, 1964.
- Strauss, G. Direct observation as a source of quasi-sociometric information. *Sociometry*, 1952, 15, 141–145.
- Thompson, J.D., & Hawkes, R.W. Disaster, community organization and administrative process. In G. W. Baker & D.W. Chapman (Eds.), *Man and society in disaster*. New York: Basic Books, 1962.
- Thomson, J.C., Jr., How could Vietnam happen? An autopsy. *Atlantic Monthly*, 1988, 221, 47–53.
- Weintraub, W., & Aronson, H. The application of verbal analysis to the study of psychological defense mechanisms: Methodology and preliminary report. *Journal of Nervous and Mental Disease*, 1962, 134, 169–181.
- Weintraub, W., & Aronson, H. The application of verbal behavior analysis to the study of psychological defense mechanism. IV: Speech pattern associated with depressive behavior. *Journal of Nervous and Mental Disease*, 1967, 144, 22–28.
- White, R. K. Misperception and the Vietnam war. *Journal of Social Issues*, 1966, 22, 1–164.
- Weigele, T.C. *The psychophysiology of elite stress in five international crises: A comparative test of a voice measurement technique*. Unpublished manuscript. Northern Illinois University, 1977.
- Wiener, M., & Mehrabian, A. *Language within language: immediacy, a channel in verbal communication*. New York: Appleton-Century-Crofts, 1968.
- Wortman, C.B., Costanzo, P.R., & Witt, T.R. Effects of anticipated performance on the attributions of causality to self and others. *Journal of Personality and Social Psychology*, 1973, 27, 372–381.

## The Nature and Conditions of Panic<sup>1</sup>

**E.L. Quarantelli**

**Source:** *American Journal of Sociology*, 60 (1954): 267–275.

On the basis of a comparative and analytical examination of specific instances of panic, the following discussion attempts to do two things: to present a systematic social psychological view of the nature of panic and to outline the conditions associated with it.

### Current Conceptions about Panic

The fragmentary and scattered sociological and social psychological literature<sup>2</sup> on panic is almost completely nonempirical. With a few exceptions<sup>3</sup> it consists of: deductions from pre-existing theories of personality or social life which were developed quite independently of any firsthand study of panic; or unsystematic remarks based upon everyday preconceptions and unverified notions of what supposedly transpires when panics occur; or *ad hoc* statements representing impressionistic reflections on a few sparsely detailed accounts by observers of any one of the variety of activities that in popular parlance are termed panic. The lack of concrete, sufficient, and adequate empirical data (the gathering of which admittedly presents great practical and methodological difficulties) has prevented the setting up of a set of propositions about panic that have any implications for social theory, that are particularly useful for guiding research, or that have much value for social control.

Underscoring the inadequate understanding of the phenomenon is the lack of agreement as to what the term “panic” means. The referent at times may be covert personal or collective moods and feelings; at other times overt individual or group actions and undertakings. Thus, basically dissimilar occurrences and events, such as a single individual’s pathological anxiety and the institutionalized activities of a collectivity, are labeled and discussed as panic.<sup>4</sup>

As striking as the absence of a single referent is the lack of a set of distinctive criteria for distinguishing between panic as such and other related phenomena. To characterize panic, as is frequently done, as irrational, antisocial, impulsive, nonfunctional, maladaptive, inappropriate – apart from the hindsight evaluation and stereotypic imagery it implies – is of little assistance in classifying a particular individual or mass act. Such general terms are not criteria with which one can positively identify a concrete instance of behavior.

There is also wide disagreement on the conditions which produce or facilitate panic. Seldom is the same aspect even mentioned by more than a few students of the phenomenon. Consequently there is a great divergency in emphasis concerning which factor or set of factors is responsible for panic.<sup>5</sup>

The inadequacy of knowledge about conditions underlying panic is particularly emphasized by two facts: the failure to maintain levels of analysis and the lack of specificity in the factors advanced. Physical, physiological, biopsychological, psychological, and sociological factors are all discussed as if they were one. They are treated as if they were at a same general and interchangeable level of analysis rather than being incommensurable and logically belonging to distinct and distinguishable planes of phenomena. Moreover, almost all of the diverse factors noted could just as well be stimulative conditions for phenomena that no one would seriously call panic.

The following analysis of panic, while based on empirical data, should be considered but a first step in an attempt to set panic behavior within existing theoretical conceptions and to provide observations and propositions for guidance and testing in future research.

### **Sources of Data**

The data have been gathered from two sources. The main body of it is from the tape-recorded, nondirective type of interview gathered by the Disaster Team of the National Opinion Research Center. For the purposes of this study over 150 of these interviews, averaging about an hour and a half in length, were analyzed. Almost all of them were gathered in connection with disasters in which the writer participated in the field work and personally obtained a number of the interviews. Three events provided the bulk of the data. These were: a series of house explosions in Brighton, New York, September 21, 1951; a plane crash into a residential area in Elizabeth, New Jersey, February 11, 1952; and an earthquake in Bakersfield, California, August 22, 1952. The rest of the analyzed interview data was drawn from such disasters as tornadoes in Arkansas and Minnesota, a coal-mine explosion in West Frankfort, Illinois, a plane crash into a crowd in Flagler, Colorado, hotel and rooming house fires in Chicago, two other plane crashes into residential districts in Elizabeth, New Jersey, and a plant explosion in Minneapolis. This primary source of data was supplemented by carefully evaluated material found in documentary sources dealing with individual and group behavior in dangerous situations. A case-study analysis was made of over two hundred participant and eyewitness accounts of crises in many of which panic had occurred.

### **The Nature of Panic**

**Overt features.** The outstanding feature of panic, so far as outward observation is concerned, is flight. While such behavior is not peculiar to panic, it is nonetheless an ever present feature of the phenomenon whenever it occurs. It most frequently takes the form of actual physical running. However, it may also be manifested in varying activities such as driving vehicles, swimming, crawling, riding horses, rowing, climbing, jumping, digging, etc. This variety in the expressions of flight is possible because most socially learned and culturally ingrained motor patterns of action continue to be available to individuals in panic. Participants in such behavior do not revert or regress to acting in infantile

or purely biologically patterned ways. However, since the majority of situations wherein panics occur do not lend themselves to nonrunning activities, panic flight is generally manifested in running.

The flight behavior is always oriented with reference to a threatening situation; that is, people in panic flee from a general locale, such as a collapsing building or a gas-filled house. Usually this involves movement away from specific perilous objects: panic participants thus run away from, for example, that section of a building which is on fire. However, if a perilous object lies between presumed safety and the endangered persons, the flight may be in the direction of a specific peril. Thus, people in panic may run toward danger objects if escape from the threatening situation lies in the same direction (e.g., toward sheets of flame if the only known exit from a building is on the other side). Much panic fleeing which from an outside observer's viewpoint appears to be blind fleeing into danger is probably of this nature. At any rate, panic flight is not random or helter-skelter; the participants do not run every which way but instead take their general orientation for flight from the threatening situation.

In the determination of the particular direction of flight (e.g., which exit an individual will attempt to escape through) two factors are often involved. These are (1) a habitual pattern and (2) the course of the interaction among individuals following the definition of the situation as dangerous. The former factor is exemplified by the cases of some housewives at Brighton who fled out of the frequently used but more distant back door, rather than the infrequently used but nearer front door of their homes. The latter factor is typified in the remarks of a worker after a plant explosion. Upon regaining consciousness he noted: "There was a gush of flame and smoke coming up the elevator shaft. I just started running. Lots of other people were running too. That's how I knew where to go." This interactional factor, however, is operative and influential only within the confines of the actual physical setting participants find themselves in at the time of crisis. Thus if there is only one apparent or known exit, it is in that direction that people will flee. Only when the physical setting presents possible alternative opportunities to escape can social interaction influence the particular direction of flight.

The general and directional orientation of panic flight to a threatening situation is related to the fact that in panic behavior there is no overt attempt to deal directly with the danger itself. Instead, the only overt action taken is escape or personal removal from the threat. No attempt is made to control the danger, to act toward it, or to manipulate it in any way. As one housewife who went to investigate a hissing she heard coming from a heating unit stated it: "As soon as I realized the gas was escaping from the hot-water heater I thought my house was going to blow up. I just picked up and ran out."

Frequently the flight of panic is the most adaptive course of action that could be undertaken in a particular situation. Thus, to flee from a building whose walls are tottering from an earthquake is on most occasions the most appropriate and effective behavior possible. In such instances the panic flight is functional, if functionality under such circumstances is thought of as activity which from an objective point of view is appropriate to survival. Similarly, not all panic behavior is collectively maladaptive. There are occasions where flight simultaneously engaged in by a number of people not only is appropriate in itself but also has no antisocial consequences. For example, the mass fleeing of the separated householders

from their gas-filling houses at Brighton was no hindrance to the fleeing of any other person. There was no bodily contact of a destructive sort on the part of the individuals running out of their homes. The flight behavior there, as it is in many and probably most panics, was personally functional and in no way socially maladaptive to the situation. It is only in the very rare instance that panic takes the form of a crowd of individuals trampling over one another like animals in a wild stampede.

Panic, rather than being antisocial, is nonsocial behavior; ordinary social relationships are disregarded and pre-existent group action patterns fail to be applied.<sup>6</sup> This disintegration of social norms and cessation of action with reference to a group or institutional pattern sometimes results in the shattering of the strongest primary group ties and the ignoring of the most expected behavior patterns. Thus, there is the case of the woman who, thinking a bomb had hit her house, fled in panic, leaving her baby behind, and returned only when she redefined the situation as an explosion across the street. As she stated it, the explosion

shook the house. The first thing I thought of was a bomb. I just felt it was a bomb and I ran out. I was in my bathrobe. You don't think of anything save to get out – just to get out. I ran out and the house over there was flames from the bottom to the top so I ran back and grabbed the baby out of his crib.

This nonsocial aspect may be short-lived but it is this feature which, –even at an overt level, distinguishes many cases of panic from controlled withdrawal behavior. In the case of controlled withdrawal, confused, random, ill-co-ordinated activity may be manifested, but the normal social bonds and the conventional interactional patterns are not totally disregarded. Thus, when a plane hit an apartment house in Elizabeth, most families evacuated as units, neighbors were warned, alternative courses of action were discussed, etc. People were running around and there was much confusion and partially unorganized activity but the whole structure of social relations normally guiding human behavior did not collapse as it does when full panic flight occurs.

Thus, panic flight represents very highly individualistic behavior. It involves completely individual as over against group action in coping with the problem of escape from a danger. In the case of panic there is no unity of action, no co-operation with others, no joint activity by the members of the mass; there is a total breakdown of corporate or concerted behavior. In short, panic flight is the very antithesis of organized group behavior.

**Covert features.** Panic participants invariably define the situation as highly and personally dangerous. Whether this be arrived at individually or collectively, panic participants always perceive a direct threat to physical survival. This experiencing of extreme danger to bodily safety is exemplified in the following remarks by a man who looked up and saw a flaming plane diving toward the street where he was pushing a wheelbarrow:

This thing seemed to me as if it was coming right at me. I ran like a scared rabbit across the street. My pushcart – I abandoned that to save my neck. I was scared. This thing went up in a big puff of flame and gasoline. It exploded. All I was thinking was that this big ball of gasoline was coming

down on top of me and I was making a run in order to get away from it. I was running pell-mell across the street. I was looking at this big ball as I was running like a scared rabbit for fear it was going to pounce on my head, you know. The only thing I was thinking as I was running across and I was looking up at this big ball of fire, I was thinking to myself, I wonder if any part of this is going to hit me?

Furthermore, as the above quotation indicates, the orientation of attention of panic participants is always to the future, to what subsequently may be endangering. Attention is never directed to what had already happened. Rather it is focused on what may happen. Thus, during an earthquake a panic participant perceives that (to paraphrase many) "if I stay here I will be killed." It is always anticipatory rather than retrospective perceptions of danger that accompany panic activity.

Panic participants see the potential threat as very immediate and survival dependent on a very rapid reaction. A laborer caught in a plant explosion who fled in panic said, after he recovered consciousness: "When I came to, the dust and minerals and everything was crashing all around. My first thought was that something would fall on me and finish me. My main thought was to figure a way to get out."

Not only do panic participants know what they are immediately afraid *for* (which is their own physical safety), but they also are aware of what they are afraid *of*. The fear<sup>7</sup> that is experienced in panic is of something specific, of something which can be designated. The covert reaction of the individual in panic is never in regard to the unknown or the incomprehensible as such. It is always of a specific threat, the particularization of which may be arrived at individually or through social interaction.

Related to this is that in defining the situation panic participants see the threat as associated with a definite place. In fact, individuals will continue to flee in panic only to the extent they believe themselves within a danger area and still exposed to the consequences of the threat. As one worker who fled after a factory explosion expressed it: "My idea was to get away from the building because I had in mind it might fall. At the time I knew I was in danger of death but after I got out of the building I felt I was out of danger." This individual only stopped running after he had removed himself from inside the building which he had defined as the place of danger. (However, in panic the threat is not necessarily associated with being inside a structure. Any open area during a machine-gun strafing, for example, may be viewed as a place of danger.) But whether it be inside or outside, panic participants always see the threat as present at or quickly reaching the place where they are or will be.

Now people do not usually flee in panic from a threatening situation. Individuals may feel extreme fear and yet engage in a variety of nonpanic behavior including, for example, direct action against the danger. To the extent they do so it is because they check their fear, i.e., their impulse to run from the threatening situation.<sup>8</sup> Self-control is maintained.

Conversely, in panic there is a collapse of existing curbs on the impulse to flee. The participant is the individual who has lost self-control over his fear. For example, one woman expressed her feeling of fear just before she fled in panic as follows:

You wanted to just get away. I felt I wanted to go. I wanted to run. Get away. Get away. I thought if that house goes the one next to me is going to go too and I'd be in the center of it. I heard the crash, the house went up [i.e., exploded] and I went.

A concomitant of the loss of self-control is that the orientation of activity of the panic participant becomes highly self-centered. The fleeing individual thinks only of saving himself. This egocentric attitude is a counterpart of the individualism of the overt flight behavior previously noted. Subjectively it involves a complete focusing upon the idea of getting one's self out of the threatening situation: "All I thought about was getting out of there," said a girl who fled in panic from a building during an earthquake.

The focusing of thought, however, does not mean that the participant acts only reflexively or instinctively and is totally unaware of anything else. If the individual is going to engage in flight at all there has to be sufficient awareness to perceive *and* to continue to define a situation as a highly threatening one. A certain minimal awareness is also indicated by the fact that he does not run blindly into a wall; he heads for a door; and he goes around objects and obstacles in his path rather than attempting to crash through them. Moreover, when fleeing in a collective panic, the participant is at least partially aware of the presence of others although he may not directly respond to their activities.

However, to state that panic flight involves a degree of awareness on the part of participants is not to suggest in any way that it is a highly rational activity. It certainly does *not* involve the weighing of alternative lines of action. As a woman who fled in panic during an earthquake said: "The first thought you have is to run. I had that thought. I ran." On the other hand, panic flight does not involve irrational thought if by that is meant anything in the way of faulty deductions from certain premises. From the position of an outside observer this may appear to be the case but, from a participant's viewpoint, given his limited perspective of only certain portions of the total situation, no such interpretation of irrationality can be made. For the fleeing person, his action appears to him quite appropriate to the situation as he perceives it at that time.

Actually, rather than being rational or irrational, panic behavior is nonrational. Panic participants focus on the idea of fleeing but they do not take into account the consequences of their action (which may be even more dangerous than the panic-inducing threat itself). Faced with the immediate possibility of personal annihilation they do not consider possible alternative lines of action to flight.

To summarize: panic can be defined as an acute fear reaction marked by a loss of self-control which is followed by nonsocial and nonrational flight behavior. Covertly there is an acute fear reaction, i.e., an intense impulse to run from an impending danger. Panic participants are seized by fear of a specific object defined as involving an immediate and extreme physical threat. The most striking overt feature is flight behavior which, while not necessarily nonfunctional or maladaptive, always involves an attempt to remove one's self physically. Thus panic is marked by loss of self-control, that is, by unchecked fear, being expressed in flight. Two other prominent features are nonrational thought and nonsocial behavior: panic participants do not weigh the social consequences of their flight and are highly individualistic and self-centered in their actions with reference to one another. There is no consideration of alternative courses of action to flight.



Thought being focused on the removal of one's self from danger, the ordinary social norms and interactional patterns are ignored and there is no possibility of group action.

### Conditions for Panic

Panics occur following crises<sup>9</sup> in which the danger is defined as an immediate and potential threat to the bodily self. However, panic flight is only one possible outcome in such situations. In the face of a threat, the potential courses of action available range from direct attack to movement away from the danger object.<sup>10</sup> If self-control is maintained there may be controlled withdrawal. That is, fear impulses may be curbed to the extent that the usual social bonds and relationships are maintained while physical separation from the danger is effected in conjunction with others. What then are the specific conditions under which movement away from threat during a crisis will change into panic flight? When does self-control break down in a dangerous crisis?

**Specific conditions for the development of panic.** The most important condition for the occurrence and continuance of panic is the feeling on the part of a participant that he may be unable to escape from an impending threat. Whether it be individually or collectively reached, this feeling of possible entrapment predominates from the first and prevails throughout panic flight. As one person stated it: "I didn't even think anything except getting myself out. From the time I left my bed to the door that's the only thing I could think of – am I going to get out? Am I going to be trapped?"

The important aspect is the belief or feeling of *possible* entrapment. This is reiterated again and again in the remarks of panic participants. It is not that affected individuals believe or feel they are definitely trapped. In such instances panic does not follow, as in the case of the woman who said: "I felt like I was trapped. I really knew there was trouble but I didn't know where to run." The flight of panic arises only when being trapped is sensed or thought of as a possibility rather than an actuality.<sup>11</sup>

The feeling of possibly being trapped does not necessarily (although this is most frequently the case) involve actual physical obstacles to movement. War refugees caught in the open by strafing planes can develop as acute a sense of potential entrapment as individuals inside a building during an earthquake who see all exits becoming blocked by falling debris.

Furthermore, it is only when actual or presumed blockage of escape to safety is related to immediate consequences that the feeling of entrapment plays a part in the generation of panic flight. Coal miners entombed by a collapsed tunnel who recognize they will have sufficient air till rescuers can dig through to them do not panic. Only when being trapped is seen as something that is going to involve immediate personal danger will it possibly initiate flight behavior. Such occurred in the following instance related by an individual who was on the top story of a factory shattered by an explosion: "Six or eight of us became panicky when we found the stairways blocked by chunks of concrete. The dust, which looked like smoke, made us think that the building was in flames below us." In this particular instance the behavior evolved into only rudimentary collective panic. The important point, however, is that the behavior started to take that form because the men thought

themselves possibly trapped atop a burning building. As in all instances of panic, they reacted to the immediate dangerous consequences of possible entrapment (i.e., being burned, etc.) rather than to being trapped as such.

Most frequently the feeling of possible entrapment arises in the course of interaction with other persons in the same situation. Yet it may be individually arrived at, especially in the face of a very sudden and highly dangerous crisis such as a sharp earthquake. However, the more progressive the crisis, the greater the possibility that interaction with others will lead to a definition of the situation as one involving potential entrapment.

The other specific condition which is necessary although not unique to the occurrence and development of panic is a feeling of great helplessness. This condition has two components: a feeling of impotency or powerlessness and a sense of "aloneness."

Faced with a necessity of acting, the individual feels he may be unable to prevent the consequences of the impending danger from occurring. This feeling of powerlessness has nothing to do with the capability of a fear-stricken person to flee. Thus, a woman reported:

When I realized the gas was escaping from the hot-water heater I knew it wasn't anything to monkey with, something not to play with. I *knew* that an accumulation of gas would blow up. I mean water you could cope with, dumping it out or something, but with gas I don't know anything. I thought my house was going to blow up. I was really scared. I ran out.

Persons in panic feel powerless to bring the threat itself under control but they do not despair of getting out of danger by fleeing.

Very often the feeling of personal powerlessness is greatly reinforced by social interaction. At first individuals may feel individually powerless and be greatly afraid. Yet they may expect or hope others will be able to cope with the danger. When the responses of the others, however, indicate that they, too, are powerless or have even suffered the consequences, panic becomes probable. As an individual caught in explosions in a factory stated it: "I can truthfully say when I heard the moaning and crying of the others I did get quite panicky. I was rather anxious to see which way I could get out." More frequently there is verbal communication about the potential danger.

The other important aspect of the sense of helplessness is the feeling of isolation or "aloneness" It is the realization that one has to act and to depend upon one's self alone to find a way to safety. As a woman who was working in a plant with a number of other women when an earthquake struck said:

When it started shaking so bad I noticed that I was there by myself. I felt even more scared. When you're by yourself in something like that and there's nobody to depend on. There was nobody around. I don't know where they disappeared to. I didn't see nobody. I ran out.

In all cases of panic, this feeling of "aloneness" or sole dependency on one's own action is present to some degree.

**Contributory panic conditions.** One of the most important contributory conditions is the existence of a social or group predefinition of a crisis as one

that is likely to eventuate in panic flight. Of some crises, people have certain pre-conceptions of their dangerousness because of the probable behavior of others in the circumstances.<sup>12</sup> The simplest example is the belief that a fire in a crowded place is especially dangerous because, among other things, panic is probable. Any such predefining of a situation as potentially panic-producing can have a direct effect on a participant's interpretation of the behavior of others, as well as on his own behavior. He may start to withdraw in order not to get caught in the expected panic. If many of those present do the same, the withdrawing of each person reinforces the like belief of everyone else that what they feared is actually happening. Thus, ordinary withdrawal can become panic flight.

Another contributory condition to panic is a previous crisis that leaves those who have experienced it highly sensitized to signs indicative of a recurrence. This often leads them to prepare to flee immediately upon noting any cues indicative of a possible recurrence of the threat. As one resident of Brighton stated a few days after the widespread gas explosions:

Every time we smell a little smoke or we think we smell a little gas or hear noises, such as probably everyday noises that we never noticed before – because everybody is on the alert now – we're all ready to get out of the house.

However, perceptual hypersensitivity is not in itself generally determinative of panic behavior. Whether flight will occur or not depends upon the interaction following the initiation of the crisis; "panic-ripeness" is not enough.

To summarize: panic develops as a result of a feeling of possible entrapment, a perception of collective powerlessness, and a feeling of individual isolation in a crisis situation. Important in the generation, emergence, and persistence of these factors is social interaction. Without such interaction, panic is not impossible, especially if there is a very sudden crisis situation, but it is much less likely to occur. The chances for the development of the above conditions, which form the basis for the loss of self-control, are considerably enhanced when agitated individuals in a dangerous situation are interacting with one another.

However, this does not mean that panic in a particular crisis excludes the concurrent existence of other forms of behavior. An individual may be in panic when the man next to him is not: any widespread dangerous situation will usually evoke a full range of noninstitutionalized to routinized or habitual behavior.

The frequency of panic has been over-exaggerated. In the literature on disasters, for example, so much emphasis is placed on it that one easily gets the impression that it is the most common and important immediate reaction to such crisis situations. This is not the case. Compared with other reactions panic is a relatively uncommon phenomenon.

## Notes

1. Acknowledgment is made to the National Opinion Research Center for permission to use the interview data on which this article is in part based and from which all the quotations cited were taken. The research by NORC was undertaken under a contract with the Army Chemical Center, Department of the Army. However, the opinions and conclusions expressed

in this article are those of the author and do not necessarily represent the views of NORC, the Army Chemical Center, or the Department of the Army.

The author is also indebted to Rue Bucher and Charles Fritz for valuable criticisms of a draft of the manuscript.

2. For reviews of the literature see E. L. Quarantelli, "A Study of Panic: Its Nature, Types, and Conditions" (unpublished Master's thesis, Department of Sociology, University of Chicago, 1953), pp. 1–39; Anselm L. Strauss, "The Literature on Panic," *Journal of Abnormal and Social Psychology*, XXXIX (1944), 317–28.
3. See, for example, Paul B. Foreman, "Panic Theory," *Sociology and Social Research*, XXXVII (1953), 295–304; and Irving L. Janis, *Air War and Emotional Stress* (New York: McGraw-Hill, 1951), pp. 26–41, 43, 93–94, 161–62, 192–95. The discussions of both authors, especially the former, are considerably superior to most of the panic literature. Discussions based on experimental productions of so-called "panic" are presented by Alexander Mintz, "Non-Adaptive Group Behavior," *Journal of Abnormal and Social Psychology*, XXLVI (1951), 150–59 and John French, Jr., "An Experimental Study of Group Panic," *Journal of the Elisabeth Mitchell Scientific Society*, LVII (1941), 195. For a better than average nonempirical discussion see Richard LaPiere, *Collective Behavior* (New York: McGraw-Hill, 1938), pp. 437–61.
4. Almost every kind of socially disorganizing or personally disrupting type of activity has been characterized as panic. The range includes everything from psychiatric phenomena to economic phenomena (e.g., the "panics" involved in bank runs, stock-market crashes, depressions, etc.). Thus, in one recent book there are cited as instances of panic such phenomena as lynching mobs, suicidal epidemics, individual and collective anxieties, plundering troops, spy hysterias, military retreats and surrenders, social unrest, war, psychotic behavior, mass hysteria, animal stampedes, confused voting behavior, orgiastic feasts, the activities of war refugees, and group tensions. See Joost Meerloo, *Patterns of Panic* (New York: International Press, 1950). For one comparison of the typically diverse ways in which the term "panic" is used by different writers, see the various articles contained in *Transactions of the Conference on Morale and the Prevention and Control of Panic* (New York: New York Academy of Medicine and the Josiah Macy, Jr. Foundation, 1951).
5. The causative conditions specified by various writers include such diverse factors as: the presence of crowd conditions, the state of the weather, deficiency in the organism of a specific vitamin, psychological isolation, mental contagion, fatigue, suggestion and heightened imitation, social unrest, hunger, the shattering of group solidarity or group bonds, the presence of predisposed personalities, lack or loss of leadership, emotional instability, poor group morale, lack of critical ability, fear, mimicry, emotional tension, crisis situations, lack of personal and collective discipline, uncertainty, anxiety, etc. For one listing and an insightful discussion of the inadequacy of the "causes" of panic as advanced by seventeen primarily military writers see Strauss, *op. cit.*
6. This does not mean that social interaction does not sometimes occur among participants at the height of panic flight. However, such interaction as does take place is at a very elementary level. It does not involve responding to other individuals in their usual social roles.
7. Fear, rather than anxiety, is the affective component of the panic reaction. Along one dimension, at least, fear and anxiety may be thought of as poles of a continuum. This is in regard to the specificity of a threat from the viewpoint of the individual. The fear-stricken individual perceives some highly ego-involved value greatly endangered. The threat is something that can be labeled, localized in space, and therefore potentially can be escaped from. The threat is specific. In contrast, there is no such recognition and judgment by the anxiety-stricken person. Anxiety is marked by an inability to designate any object in the environment to account for the diffuse sense of foreboding or even dread the individual is experiencing. This inability prevents any attempts at flight, for physical withdrawal requires a specific object or situation from which an orientation can be taken. See Kurt Riezler, "The Social Psychology of Fear," *American Journal of Sociology*, XLIX (1944), 489–98; and Rollo May, *The Meaning of Anxiety* (New York: Ronald, 1950), pp. 46–58.
8. Young notes that "for human subjects to designate an experience as *fear*, the presence of an escape impulse is required." See Paul T. Young, *Emotion in Man and Animal* (New York: John Wiley & Sons, 1943), p. 197.
9. Broadly conceived, a crisis is produced by an interruption of an habitual or on-going line of action. The interruption need not be of a violent nature. Any crisis, however, is marked

by a focusing of attention on the introjected stimulation and attempts at adjustive behavior. From its very nature it necessitates some reorientation of activity on the part of involved individuals. See W. I. Thomas, *Source Book for Social Origins* (Boston: Gorham, 1909), pp. 17–18.

10. It may be noted that, generally speaking, except among the military where the group response has been highly conventionalized, there exist no institutional patterns for meeting such situations. In the somewhat special area of military panic, a number of case-study analyses were made in the course of our study. However, relatively little material suitable for analytical treatment could be found. The bulk of the not inconsiderable theoretical literature on military panic (especially in French and German sources) is highly speculative and abstract in nature and generally of a summarizing rather than analytical nature. For one such recent summary statement on panic by military men see John Caldwell, Stephen Ransom, and Jerome Sacks, "Group Panic and Other Mass Disruptive Reactions," *U.S. Armed Forces Medical Journal*, II (1951), 541–67. Actual descriptions of military panics either by participants or eyewitnesses are difficult to find. See, however, the excellent firsthand accounts given in Jack Belden, *Still Time To Die* (New York: Harper, 1943), esp. pp. 141–46, 163–67. Most of the secondhand or generalized accounts that are available are of limited research usefulness because of the inaccuracy and/or inadequacy of the materials. See, however, C. T. Lanham, "Panic," *Infantry Journal*, XLIV (1937), 301–8.

In so far as any statement can be made on the basis of the scanty reliable data, it would seem that military panics are the same in nature and development as panic in general. Consideration of the data suggests, however, the necessity of one precondition for the emergence of military panic. Normally, military groups function collectively and effectively as a matter of routine in the face of very extreme personal dangers. Only where there is an absence or breakdown of this normal military group solidarity is panic possible. For a further discussion of this point see Quarantelli, *op. cit.*, pp. 110–20.

11. This conclusion was arrived at by the author prior to his knowledge that Foreman had also reached a very similar but differently approached conclusion. In his words, "panic develops only when possible avenues for escape become evident" (*op. cit.*, p. 303). This idea that panic arises only when entrapment *and* escape are perceived as possible runs quite counter to one of the most dominant notions about the genesis of panic behavior, i.e., that it arises when a person is completely trapped in a dangerous situation.
12. Alfred Lindesmith and Anselm Strauss note that individuals "become panicked in situations which have previously been linguistically defined as fearful or terrifying." See their *Social Psychology* (New York: Dryden, 1949), p. 332.

## Organizational Adaptation to Crises: Mechanisms of Coordination and Structural Change

**Russell R. Dynes and B.E. Aguirre**

**Source:** *Disasters*, 3(1) (1979): 71–74.

### Introduction

Much of social life is so structured that behaviour occurs rather routinely. Most of the time, established and standardized procedures are followed, manifesting themselves in the habitual behaviour of individuals and/or the traditional actions of groups. At times however internal and/or external factors generate enough stress to make it possible to think of responding entities as being in a state of crisis. Crises require the reworking of established and standardized procedures or the creation of new means as well as of organizations for carrying them out. In a large part, the direction of response of groups and organizations is for certain aspects of emergent behaviour to be combined with elements of routinized organizational behaviour.<sup>1, 3</sup>

This paper seeks to extend the explanation of these types of adaptation by using existing organizational theory. In particular it looks at the mechanisms whereby organizations are co-ordinated and shows how crises produce certain structural modifications, which have implications for co-ordination. The intent is to provide sociological explanations for what is traditionally described as emergent phenomena. It argues that much of what has been called emergent can be explained by: (1) the heightened necessity for organizational co-ordination during crises; (2) the conditions which make for changes in the communication patterns within emergency organizations; and (3) the consequences the changes in communication patterns have for organizational co-ordination. These changes can be explained using standard organizational variables which are applicable to a wide range of types of organizations, not just organizations in emergencies. After establishing that theoretical orientation, we will come back to its application in crises.

### Theoretical Orientation

The theoretical orientation used here was derived from Hage *et al.*<sup>7</sup>, in which organizational co-ordination is related to the internal structure of an organization. It argues that the predominant type of co-ordination in an organization is determined by its diversity and its internal distribution of non-disaster context, the types of variables specified are particularly significant in changes which occur in the crises context.

One central concern in organizations is co-ordination. Co-ordination can be seen as the degree to which there are adequate linkages among organizational

parts, i.e. among specific task performances as well as among sub-units of the organization, so that – organizational objectives can be accomplished.<sup>7</sup> Organizations can be co-ordinated by plan and by feedback. The former is based on pre-established schedules and programmes directing and standardizing the functioning of organizations, while the latter is centred on the transmission of new information so as to facilitate the mutual adjustment of parts.

The two types of co-ordination are based on different assumptions about the nature of conformity to organizational objectives. In co-ordination by plan the activities of organizational members are seen as regulated externally by a system of rewards ensuring social control. If there is a clear blueprint for action, departures are obvious and sanctions can be applied with little ambiguity. In co-ordination by feedback errors detected in task performance are corrected by the provision of new information. Social control is seen as the result of internalized standards of professional excellence among the personnel brought about by occupational peer group pressures. In summary, co-ordination by plan relies on external control over organizational members while co-ordination by feedback is more dependent on internal control.

Clearly, these two types of co-ordination are ideal constructs. In reality, complex organizations use a mixture of the two. It is possible, however, to identify organizational variables which would be associated with one or the other mechanisms of co-ordination. Hage *et al.*<sup>7</sup> identify three: (a) uncertainty of tasks; (b) diversity, or the relative number of different occupations in an organization and their degree of professional specialization; and (c) the distribution of power and status within organizations. They argue that organizational co-ordination through feedback is more probable as the diversity of occupations and the variety and uncertainty of tasks increases. In the former case no one standard set of administrative guidelines and sanctions can regulate the activity of professionals appropriately and entirely. The latter puts a premium on the rapid exchange of information among organizational personnel. The growth of the volume of information and its directional diversification, with horizontal communication increasing as a result of these changes, renders co-ordination via planning improbable.

The probability of co-ordination via planning increases, however, with greater differences in power and status in organizations the greater the hierarchical positional distance among personnel the less the extent of communication among them. External environmental factors such as homogeneity and stability are important determinants of internal structural variation. Previous studies would suggest<sup>9, 10, 13, 16</sup> that stability of environment leads to routine technology and co-ordination by plan.

To summarize, the following propositions as suggested:

1. The greater the diversity of organizational structure, the greater the emphasis on co-ordination by feedback.
2. The greater the difference in status and power within an organization, the greater the emphasis on co-ordination through planning.
3. The greater the uncertainty of an organizational environment, the greater the emphasis on co-ordination by feedback.

### Research on Organizational Behavior in Crises

The analysis of the activities of groups and organizations in crises have centered so far on the notion of emergence. Initially, this was a reaction against the prevailing views of social structure, which were too static to capture the behaviour which was observed in the field. Many organizational theories had as a focus some notion of bureaucratic structure where the organization was seen as an entity with clear cut boundaries, definite membership, formal roles, established lines of authority and specific tasks. This was too static a notion to describe organized behavior in emergency.

Dynes and Quarantelli<sup>2</sup> derived a typology of group and organizational behaviour in crises from a cross classification of the (a) nature of the disaster tasks undertaken by groups and organizations and (b) their emergency period structure. They identified four types<sup>1</sup> of group behavior.

		TASKS	
		Regular	Non-regular
Structure	Old	Type I (Established)	Type III (Extending)
	New	Type II (Expanding)	Type IV (Emergent)

**Figure 1:** Types of group behavior in disasters

These two key variables point to differences in emergency operations when some group tasks may be old, routinely assigned, everyday ones of, on the other hand, the tasks may be new, novel, assumed or unusual ones. In addition some groups and organizations operate in the emergency with an existing structure in which organizational members stand in definite kinds of pre-disaster relationships with one another in reference to work, as opposed to those who operate with a new crisis-developed structure.

The typology has been useful to account for the admixture of institutionalized and non-institutionalized behavior observed in emergency situations. It has been used to discuss the mobilization and recruitment of these groups and to identify types of problems such groups experience in task accomplishment, communication, authority and decision making (Reference 3, Ch. 7). In addition, the types have been used by Quarantelli and Brouillette (1971) as a basis for indicating what types of patterned variations occur in the adaption of bureaucratic structures to organizational stress. They suggest that complex bureaucracies may exhibit all four patterns in a given situation. That is, some segments of it may operate as an established group while other segments may be involved as an emergent group with non-regular tasks. This is seen as a specific example of the debureacratization process Einsenstadt (Reference 4, pp. 302–320) and others have described.

While the typology has been useful as an explanatory device, it is necessary to provide other lines of explanation for adaptations to crisis either between or within groups and organizations. The typology depends much on the notion of emergence of new structures and tasks as a major factor in these adaptations.



The identification of emergence, however, without providing for some sociological explanation, often leads to the conclusion that while the behavior of established organizations can be explained sociologically, emergent phenomena cannot. Emergent phenomena are often treated as atypical and asociological. We now turn to emergence adaptations within organizations. Others have analyzed emergence adaptations at the individual<sup>8, 17</sup> and group levels.<sup>5, 6, 11, 14, 15</sup>

### **Application of the Theoretical Orientation to Previous Conceptualizations of Emergence Adaptation in Organizations**

The theoretical orientation presented here has certain implications for organizational functioning in crisis. In general, crisis conditions cause organizational structure to move in the direction of co-ordination by feedback and away from co-ordination by plan. Moreover, crisis produces the conditions whereby the rate of communication increases as does the proportion of horizontal task communication.

Disaster creates extreme environmental uncertainty for organizations. The major variables used in the previous typology centre around new tasks and new structures. Either the acceptance by organizations of new tasks or of new personnel, or both, creates greater organizational diversity. Also, a number of observers of emergency situations<sup>3</sup> have commented on the status leveling effect of disaster. In effect, then, all of the conditions and consequences of functioning of organizations during the emergency period tend to move toward co-ordination by feedback and away from co-ordination by plan.

While usually described simply as emergent phenomena, organizational adaptation in crisis contexts seem to be accounted for by rather standard sociological variables. It is not by chance that Type IV in the typology is often illustrated by a group whose function is purely one of co-ordination. These factors also suggest the great difficulty of Type I (established organizations) in maintaining their pre-disaster co-ordination structure, since it is usually co-ordination by plan. Co-ordination by plan characterizes many of the traditional emergency organizations, such as police and fire departments. This schema explains why such organizations often “refuse” non-traditional tasks in disaster situations and usually have great difficulty in utilizing volunteers. In effect, their pre-disaster model of co-ordination would not “allow” such changes. Rather than increase their capabilities to meet the increased demands, such organizations tend to accept only those demands which are within their present capabilities. With continuity of regular structure and tasks, such organizations are able to keep their previous co-ordination patterns intact. On the other hand, rejected demands by some organizations have to be absorbed by others within the community, and they are more likely to be effectively handled by emergent groups or by those organizations which co-ordinate by feedback.

Established organizations experience organizational strain. When most of the organizations in emergency operations are moving toward co-ordination by feedback, established organizations are, in many ways, “out of step”. There is a discontinuity in their attempt to maintain internal co-ordination by plan when the conditions relating to the emergency period are such as to move most other organizations further toward co-ordination by feedback. Such a discontinuity,

in turn, creates significant problems in the attempt of the community system to provide overall co-ordination.

In sum, then, the structural conditions of the emergency period make for uncertainty, diversity, decreased formalization and decentralization. These changes increase communication. The non-routine nature of disaster tasks and the increased complexity of organizations require co-ordination by feedback. These shifts have been traditionally described as emergent but now they can be explained as being conditioned by those sociological factors which affect co-ordination.

### **Implications for Policy**

Research and conceptualization in organizational response to crises is one area which has rather direct policy implications. It is useful to make a note of an interesting paradox when the findings suggested here are compared with current policy with reference to emergency planning. In the United States, emergency planning is predominantly the responsibility of local government units. While it is somewhat diverse, there is great consistency in the direction taken by emergency planning. Most is orientated toward increasing the centralization of authority and the formalization of procedures. In other words, co-ordination by plan is considered to be normative. This mode of co-ordination is seen as most appropriate, since a military model of organizational functioning in crises is assumed to be most effective in such circumstances. In addition, planning is directed toward the development of social control mechanisms, i.e. rewards and punishments, to implement this mode of co-ordination. These assumptions of emergency planning are seldom questioned, since many individuals engaged in such planning are recruited on the basis of their previous military experience or come from municipal agencies, which operate routinely by co-ordination by plan.

On the basis of what has been described here, the dominance of a normative planning model which emphasises co-ordination by plan is, at best, questionable. The crisis event itself creates the conditions where co-ordination by plan is inappropriate. This inappropriateness, however, is not likely to be challenged in post-disaster critiques of organizational functioning, because the norms used to judge organizational effectiveness are such as to lead to negative evaluations of organizations which utilize co-ordination by feedback. The tremendous increase in communication is taken as a failure of co-ordination, not a condition necessary for it. While this is currently a widespread paradox, it does not have to be perpetuated. Emergency planning can also be directed toward improving and facilitating co-ordination by feedback, since it is likely to be the dominant mode in emergency conditions.

### **Note**

1. Type I is an established group carrying out regular tasks. This is exemplified by a city police force directing traffic around the impact zone after a tornado has struck a community. Type II is an expanding group with regular tasks. The group frequently exists on "paper," not as an ongoing organization prior to the disaster event, and would be illustrated by Red Cross volunteers running a shelter after a hurricane.

Type III is an extending group which under takes non-regular tasks. This is illustrated by a construction company utilizing its men and equipment to dig through debris during rescue operations.

Type IV is an emergent group which becomes engaged in non-regular tasks. An example is an *ad hoc* group made up of the city engineer, county civil defense director, local representative of the state highway, department and a Colonel from the Corps of Engineers who co-ordinate the overall community response during a flood.

## References

1. Brouillette John & Quarantelli E.L., Types of patterned variations in bureaucratic adaptations to organizational stress, *Sociological Inquiry* 41 (Winter), 39–46 (1971).
2. Dynes R. & Quarantelli E.L., Group behavior under stress: a required convergence of organizational and collective behavior perspectives, *Sociology and Social Research* 52, 416–429 (1968).
3. Dynes R. & Quarantelli E.L., *Organised Behavior in Disaster* (D.C. Heath, Lexington, 1970).
4. Eisenstadt, S.N., Bureaucracy, bureaucratization and debureaucratization *Admin. Sci. Q.* 4, 302–320 (1959).
5. Forrest T. R., Needs and group emergence developing a welfare response, Disaster Research Center Reprint 77. This article is also available in *American Behavioral Scientist* 16(3), 413–425 (1973).
6. Forrest T.R., Structural differentiation in emergent groups, Disaster Research Center Report Series, No 15 (1974).
7. Hage J., Aiken M. & Marrett C., Organizational structure and communication, *American Sociological Review* 36 (October), 360–371 (1971).
8. Kearney M., Uncoordinated collective response: the Buffalo Creek Hollow Dam break disaster of February 26, 1972, Disaster Research Center Working Paper 45 (1972).
9. Lawrence P. & Lorsch J., *Organization and Environment* (Graduate School of Business Administration, Boston, 1967).
10. March J. & Simon H., *Organizations* (Wiley, New York, 1958).
11. Parr A. R., *Group emergence in community crises: a study of conditions conducive to the development of collective behavior*, unpublished manuscript, Disaster Research Center Library 10.38 P367 (1969).
12. Parr A.R., Organizational response to community crises and group emergence, *American Behavioral Scientist* 13 (3), 423–429 (1970).
13. Perrow C., A framework for the comparative analysis of organizations, *American Sociological Review* 32 (April), 194–208 (1967).
14. Perry R.W., Gillespie D.F. & Mileti D.S., System stress and the persistence of emergent organizations, *Sociological Inquiry* 44, 111–119 (1974).
15. Teuber E.B., Emergence and change of human relations groups, Disaster Research Center Reprint 74. This article is also available in *American Behavioral Scientist* 16 (3), 378–390 (1973).
16. Thompson J., *Organization in Action* (Knopf, New York).
17. Wolf C., Group perspective formation and strategies of identity in a post-threat situation, *The Sociological Quarterly* 16 (Summer), 401–414 (1975).

## The Bureau-Politics of Crisis Management

**Uriel Rosenthal, Paul 't Hart and Alexander Kouzmin****Source:** *Public Administration*, 69 (1991): 211–233.**1. Introduction**

One of the key challenges in contemporary public administration concerns the capacity of government to cope with extraordinary events and calamities of diverse kinds. As recent experiences in Great Britain and many other countries have shown, emergencies do have an important impact on communities, political institutions and administrative agencies. Examples in Britain include the UK inner-city riots, the Herald of Free Enterprise ferry disaster, the King's Cross Station fire, the Piper Alpha oil platform fire, the Hillsborough Stadium disaster, the Thames boat disaster, and the Winter 1990 storms and floods (Cook 1989). Internationally, recent high-profile crisis events include industrial catastrophes such as Bhopal, Chernobyl, and the Sandoz fire, the Challenger Space Shuttle explosion, the Heysel Stadium disaster, the dismantling of the Berlin Wall, the subsequent dissolution of the GDR, and the Gulf crisis and subsequent war. Allegations of unpreparedness and mishandling of emergencies impact on public trust in government. Investigation reports emerging in the wake of calamities also seriously question established routines, functions, policy proposals, and bureaucratic prestige; witness the final Taylor report (1989, 1990) on the Hillsborough tragedy and the consequent discrediting of the government's identity-card scheme for football spectators.

Different types of crisis events include natural and technological disasters, civil disturbances, terrorist actions, acute international conflicts and nuclear threats. Crises refer to serious threats to basic social, institutional and organizational interests and structures. Moreover, fundamental values and norms can also be threatened. From an administrative point of view, crises necessitate critical decision-making under conditions of time pressure and considerable uncertainty (Rosenthal, 't Hart, Charles 1989, p. 10).

Conventional wisdom would expect government authorities to take effective and coordinated action in coping with crises as they occur. Further, conventional wisdom in public administration has it that, under crisis circumstances, government officials and public agencies put aside parochial interests to generate unanimity. Crises are supposed to provide a suitable context for the self-imposition of centralization, concentration of power and authority; crises generate the pre-conditions for constitutional dictatorship (Coleman 1977; Jackson 1976; Kouzmin 1980b, pp. 135–6; Linz and Stepan 1978; Rosenthal 1990, p. 403). Serious threat, uncertainty and acute time pressures are conditions adverse to routine processing of information, compliant behaviour, and functionally divided responsibilities (Hewitt 1983, p. 10; Lentner 1972; Rosenthal 1986; Rosenthal, 't Hart and Charles 1989, pp. 4–5). Similarly, under crisis conditions, concepts such as 'comprehensive'

or 'integrated' disaster planning and emergency management (Perry 1985) and clichés such as 'the war against terrorism' become seductive. These propensities can easily lead to an uncritical support for excessive concentration of power within unitary governments or coercive coordination (Wilson 1975) as the only effective ways to cope with crises.

The argument here is that this does not fit with more sophisticated notions of crisis and what crisis management involves. Regarding the notion of threat, what some might perceive to be a self-evident crisis, may, in fact, be an event perceived differently by other agencies, actors and interest groups. If one accepts such a multi-actor perspective, the analysis of the nature and content of threat assumes a more complex and differentiated picture. In a simpler form, this amounts to the argument that a severe threat to a key actor or an agency, may, in fact, be an important opportunity for other actors, agencies and 'crisis victims'. With respect to time pressure, a multi-actor perspective accommodates diverging perceptions of the necessity for prompt action. With regard to reactions to uncertainty, or indeed surprise, a multi-actor perspective renders more complex typical crisis information-processing. A typical pathology in this regard is the 'crying-wolf' syndrome (Betts 1981, 1982); the neutralizing effect of repeated warnings about a surprise attack. Well-documented historical evidence bears out this phenomenon with examples such as the German invasion of the Netherlands in May 1940 (Mason 1963; Vanwelkenhuyzen 1982); the Japanese invasion of Pearl Harbor in December 1941 (Janis 1982; Wohlstetter 1962); and the Yom Kippur War of October 1973 (Ben-Zvi 1977; Handel 1976).

Having differentiated the key elements of crisis situations, due attention should be paid to the bureau-politics of crisis management. There is little evidence for the validity of the continuing normative assumption of overriding consensus, unanimity and solidarity amongst actors or agencies involved in managing crisis events. Bureau-political activity, it is argued, may be associated with a concern for self-interest, institutional power or overzealousness in pursuit of what is defined by different agencies as the 'common cause'.

It will be argued that a bureau-political approach to crisis management is necessary. First of all, it is indispensable for empirically understanding governmental crisis management. In addition, a critical analysis of the functions and dysfunctions of bureaupolitics in crisis contexts makes it clear that the prevailing and pervasive negative evaluation of bureau-politics in crisis management is unfounded. It is argued that crisis management thinking needs to reconsider mechanistic notions of mono-centric, top-down government intervention, and acknowledge, amongst others, the problem-solving potentialities of polycentric approaches stressing interagency checks and balances. A crucial problem, however, remains the control of bureau-political processes; they may easily escalate to intense and sustained rivalry, producing endless turf battles, permanent stand-offs, and 'minimal' compromises, which diminish governmental coping capabilities.

## 2. Bureaupolitics

The long-standing separation between 'politics' and 'administration' (Weber 1947; Wilson 1887) has contributed to the prominence of an ideology of administration in which civil servants and government departments or bureaus are depicted as

competent and politically neutral officials administering the implementation of policy decisions. 'Administration' is about neutral competence; 'politics' is the domain of policy, conflict and ideology (Rosenthal 1990, pp. 392–5).

Policy analysis and public administration research have turned this conventional assumption around and have begun to recognize competing paradigms of organization and administration, including the reality of bureaucratic politics. In the last thirty years, empirical observations of policy making in government, as well as research into the political roles and functions of civil servants, have challenged the long-prevailing image of government bureaucracy as machinery of unitary, organized action (Gray and Jenkins 1985). In fact, bureau-politics does not pretend to be a 'new' perspective on government and bureaucracy. Political economists have acknowledged for some time that strategic behaviour by bureaucrats occurs, and that it might be better understood as self-interested utility-maximizing (Bendor and Moe 1985; Breton and Wintrobe 1982; Downs 1967; Niskanen 1971; Tullock 1965; Weiss 1987).

Even within organizational theory functional rationality has become less dominant. 'Garbage-can' theory (Cohen, March and Olsen 1972) and paradigm debates (Barrel and Morgan 1979) indicate how far organizational thinking has moved from the mechanistic and rationalistic traditions of eighteenth-century political theory, which had been recapitulated into classical organizational theory. The foundations of organizational theory are historically linked with the search by political theorists for order (Bacharach and Lowler 1980; Kouzmin 1980b, pp. 134–5; Pfeffer 1981; Rosenthal 1990; Waldo 1948; Wolin 1960). Organization is synonymous with order, but order and complexity can be expressed in different ways (Wilson 1975). As Wilson argues, a theorist's view of complex structure in organizations as coercive or normative can make a significant and predictable difference to the way in which analysis of organizational dynamics proceeds. Adapted to the field of administration, this recognition highlights the fact that monocentrist models continue to accept the myth that hierarchy and authority are indispensable for coordination (Kouzmin 1980a, pp. 74–5). On the other hand, polycentrist models of administration increasingly acknowledge the importance of conflict, diversity of interests and the need for negotiation and reciprocity in administration (Brown 1978; LaPorte, 1975; Ostrom 1974; Toonen 1983).

Given these developments, a bureau-political approach to public administration seems to be more appropriate. Indeed, it has recently been recommended that polycentrist and even bureau-political perspectives be used as more realistic frameworks for the restructuring and management of the governance process. This contrasts markedly with the conflict-free, comprehensive, rationalistic and top-down reform blueprints so long *en vogue* among students of public administration (Chisholm 1987; Kouzmin and Scott 1990; March and Olsen 1983; Rosenthal 1988, pp. 30–7).

#### Analysing Bureau-Politics

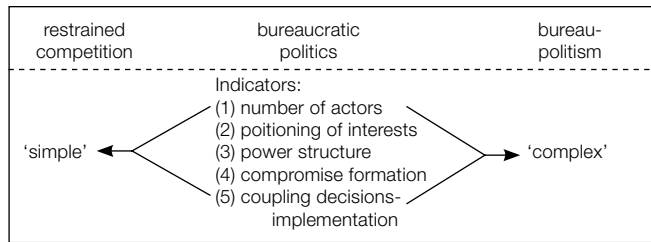
Bureau-political 'models' try to integrate research data from very different disciplinary perspectives on government policy making. A bureau-political analysis presupposes a detailed breakdown of the policy process in order to identify key players in that process. It also acknowledges the fact that bureau-politics occurs in inter-organizational and intra-organizational settings. Competitive relations are not restricted merely to the interagency domain. Tensions do exist between

departments, units or bureaus within a given focal organization, even if not directly observable, and as exemplified in the making of departmental budgets (Dunleavy 1989; Hillsman 1986; Niskanen 1971; Schilling 1962; Wildavsky 1984).

The bureau-political perspective draws attention to the strategic dimensions of relations within and across government organizations. It alerts analysts to the pervasiveness of interest-driven behaviour (Downs 1967) and multiple lines of conflict which exist within executive branches.

In a generic sense, bureaucratic politics is characterized by the following components: (1) there are many actors in the policy-making arena; (2) actors have diverging and conflicting interests; (3) no one actor has overriding influence; (4) decisions are inherently compromises; and (5) these decision outcomes tend not to anticipate the requirements for effective implementation.

The *degree* to which bureaucratic politics pervades a policy decision-making process is variable (see Figure 1); if characteristics (1), (2), and (3) have high values, the 'resultant' formation of compromises (4) will be extremely difficult and there will be a large discrepancy between policy making and implementation (5). Such an extreme combination of variables is usually dysfunctional and could be labelled 'bureau-politism' (Rosenthal 1988, p. 8).



**Figure 1:** Degrees of bureaucratic politics

### Bureau-Politics: Empirical Criticism

Several criticisms have been made of the bureau-political model as an analytical tool for understanding policy-making and administrative processes. First, it is argued that bureau-politics focuses narrowly on the government bureaucracy and ignores the impact of many other actors: political authorities, members of parliament, pressure and interest groups, mass media and mass publics. Other theories are better equipped to incorporate this broader perspective on policy formation; for instance agenda-building approaches (Cobb and Elder 1975; Kingdon 1985). Secondly, bureau-political models are said to lack institutional sophistication. More advanced theories of inter-organizational relations and policy networks appear to be more comprehensive frameworks for explaining multi-actor policy dynamics (Hanf and Scharpf 1978; LaPorte, ed., 1975; Peres 1968; Tuite, Chisholm and Radnor, eds., 1972). Thirdly, some critics contend that the bureau-political perspective is based on a narrow interpretation of organizational interests, which lends itself to circular interpretations:

Unfortunately, the definition of 'organizational interests' is so expansively drawn in the bureaucratic politics approach that it yields a heuristic proposition which is exceedingly difficult, if not impossible, to disconfirm – and, hence, one which is all too readily accepted as dogma . . . It fails to

maintain a distinction between an organization protecting its interests and one performing its assignments (Hafner 1977, p. 327).

Finally, in specific cases, the explanatory potential of bureau-politics vis-à-vis more traditional 'rational actor' models has been put into question. Cornford (1974, p. 235–7, 241–2), for instance, has argued that the explanatory potential of the rational actor model has been seriously underestimated in Allison's (1971) analysis of US decision making during the Cuban missile crisis.

Clearly, there is a need for precise demarcation of the bureau-political model within broader multi-perspective approaches to explaining policy making (Dunleavy 1990; Linstone 1984; Steinbruner 1974). When doing so, there may be a case for subsuming, for instance, agenda-building within a more broadly defined *governmental* politics model (Allison 1971, model III; Dunleavy 1990), which includes actors other than bureaucrats (such as political authorities) acting in or impacting upon the administrative policy process. Indeed, the process of societal problem perception, mobilization and agenda-formation is more strongly influenced by bureaucracies and bureaucrats than assumed in rather static input-output perspectives underlying conventional agenda-building theories (Page 1985, pp. 166–8).

One way to put bureau-politics into perspective has been suggested by Rosati (1981). In his view, the nature of policy-making processes is dependent upon the decision structure (degree of individual, organizational and political-executive involvement) and the decision context (the critical or non-critical nature of the issue in the broader external setting). He then hypothesizes that bureau-politics is most likely to emerge in middle-range issues, where moderate issue salience causes executive involvement to be low, and, as a consequence, many bureaucratic actors will enter the decisional arena (Rosati 1981, pp. 245–51). Taking this view, crises would not appear to be suitable environments for bureau-politics as they tend to trigger top-level involvement.

#### Bureau-Politics: Normative Reactions

The bureau-political approach has raised normatively grounded controversies over the desirability and effectiveness of top-down managerialist, versus participatory and more heterogeneous, modes of administration. It also legitimates the reality of conflict (Coser 1956; Dahrendorf 1968) in the face of a dominant managerial predisposition towards consensus and harmony (March and Simon 1958). The approach also re-opens the long-standing debate in organizational design between functionally divided activities as against the requirements of coordination. Contrary to conventional wisdom, duplication and overlap are highly functional in non-routine and complex administrative situations. Departmentalism tends to ignore the considerable benefits accruing from more ambiguous allocations of responsibilities (Kouzman 1979, pp. 53–8; Landau 1969; Lerner 1986; Thompson 1967, pp. 52–3). Many students of public administration, focusing exclusively on routine situations, have for too long sought to 'design out' elements of overlap, redundancy and conflict. The bureau-political perspective recognizes the possibility that a *degree* of fragmentation and competition within, and across, government agencies enhances rather than detracts from decision quality ('t Hart 1990; Lerner 1986). It is, therefore, clear that a more refined analysis of bureau-politics in policy making and administration should include a number of specifications



to deal with differing combinations of bureau-political variables (see Figure 1). These variables are important in sharpening understanding of the conditions for, and expressions of, bureau-political activity. They also help to separate out the dysfunctions of bureau-politics, which is particularly important with regard to understanding the key elements of crisis management.

From the normative point of view, several objections inspired by traditional ideologies of administration have been brought to bear against bureau-politics. First, bureau-politics is said to undermine the fundamental tenets of democratic administration (Krasner 1972). It would seem to invite activities on the part of bureaucrats that should be reserved for elected politicians and authorities. Where policy making is divided between numerous players with differing perceptions and interests, nobody seems to be ultimately responsible for the compromises that finally emerge (Bovens 1990; Thompson 1980). Secondly, it is contended that bureau-politics seems to reinforce the already strongly inward-looking orientation of bureaus and bureaucrats. The need to be alert in defending one's interests against those of other bureaus may absorb attention to the point that bureaucratic players will become isolated from actors and information outside the bureaucratic game. In this sense, bureau-politics would seem to be an obstacle in the way of bureaucratic responsiveness to its clients (Breton and Wintrobe 1982). Thirdly, the gaming connotation of bureaucratic politics seems to suggest a disregard for proper administrative procedures (Bobrow 1972). Finally, the more intense forms of bureau-political competition, labelled 'bureau-politism' in our model, would seem to foster either the inability to achieve any consensus at all (bureau-politist *paralysis*), an inordinate amount of time and effort needed to arrive at compromises (bureau-politist *inefficiency*), or a consensus that is only vaguely related to the requisites of the situation (bureau-politist *incompetence*). A most serious pathology occurs when bureaucratic politics and conflict amount to segmentation and non-contact. According to Coser (1956), this is even worse than a high degree of open conflict, as it indicates that conflict has become institutionalized and rigidified to the extent that hope for mitigation or productive side-effects will have dissipated.

### 3. The Bureau-Politics of Crisis Management

The relevance of the bureau-political model can be extended to include policy making during crisis episodes. Thus, crisis management and crisis decision making involve many actors in the political-administrative sphere. At first sight it may look as though crises are the domain of an exclusive group of politicians. But it will soon be clear that bureaus and bureaucrats also have an important role to play. As a matter of fact, under critical circumstances, the lines between political and administrative roles and activities tend to be blurred.

Secondly, although conventional wisdom stresses the prominence of the 'strong man' in crisis decision-making, available data point to influence being spread among quite a number of interested parties. The spotlight may focus on small crisis teams or policy centres, but, while staying in the background, many advisers (police chiefs, fire chiefs, psychiatrists, chemicals experts, media consultants) may advance into positions of power and influence (Rosenthal, 't Hart and Charles 1989, pp. 17–18; Rosenthal, Charles, 't Hart, Kouzmin and Jarman 1989, pp. 456–8).

Thirdly, crisis decision-making often involves the same kind of give-and-take compromise as routine administration. Indeed, many crisis events seem to pose acute dilemmas for choosing between equally defensible courses of action; often represented by different agencies involved in crisis events. Riots may compel decision makers to find a balance between toughness and accommodation; terrorist assaults may invite trade-offs between emphasizing the rule of law and resolute deterrence; disasters may force the decision makers to choose between sending resources to the then-known epicentre or waiting for additional information on the impact of disaster in other areas not in communication with crisis decision-making units.

Fourthly, it is true that crisis decision-making is characterized by urgency and relative promptness. Once a decision has been made, there will not be time for protracted reappraisal. Crises do not lend themselves to the politics of implementation. Nevertheless, it would be naive to think that, under critical circumstances, the implementation of decisions invariably takes place in a mechanistic way. Information overload and time pressure in the decisional centres may give rise to serious flaws in monitoring the execution of decisions, and, for that reason, to new rounds of bureau-politics.

It should be stressed that these observations do not support Rosati's (1981) suggestion that bureau-politics is most likely to dominate the policy-making process for issues that do not require the undivided attention of presidents or prime ministers. Crises do intrude into the daily schedules of the chief executives. But this does not mean that, consequently and invariably, chief executives will exercise sovereign power over the process of crisis decision-making. In one sense, then, bureaucratic agencies appear to think that crises are too important to be left to presidents and prime ministers alone. Furthermore, Rosati ignores the fact that during crises intense conflicts may develop over operational issues; and those conflicts can have a significant spillover into more strategic levels of policy making. To illustrate the occurrence of bureau-politics during crisis management, several case examples are presented.

#### Empirical Explorations

It is appropriate now to illustrate, and subsequently specify, the empirical dimensions of crisis-related bureau-politics. A comparative overview is presented of the nature and extent of bureau-politics in a series of crisis management situations recently analysed (Rosenthal, Charles, 't Hart 1989; Rosenthal and Pijenburg 1990). Summarized in Figure 2, these cases embody several dimensions of crisis-related bureau-politics. First, a distinction is made as to the administrative level of action', that is the main focus of bureau-political processes (strategic policy decisions, involving senior policy makers and operational decisions, involving field services and operational agents). Secondly, the extent to which bureau-political processes dominate crisis management is differentiated in Figure 2. Following the distinction between bureau-politics and bureau-politism of the preliminary model (see Figure 1), we have distinguished between functional and dysfunctional degrees of bureau-political interaction in managing crisis events (in terms of reported effects on speed and quality of crisis management efforts). In addition, four of the cases identified in Figure 2 are discussed in greater detail in order to amplify the argument and provide insights into the substance of bureau-politics in crisis management.

	<i>functional: bureau-politics</i>	<i>dysfunctional: bureau-politism</i>
Strategic policy decisions	Mississauga toxic incident: coordination (Scanlon 1989)	Dutch defence planning 1939–40 (’t Hart 1990)
	San Salvador earthquak: national reconciliation (Comfort 1989)	Heizel stadium tragedy: planning match (’t Hart and Pijnenburg 1989)
	South Moluccan terrorism: coordination (Rosenthal and 't Hart 1989)	Iran rescue mission 1980: planning (Gabriel 1985)
	Zeebrugge ferry disaster: media information policy (Pijnenburt and Van Duin 1991)	Ethiopian famine relief (Khondker 1989)
operational crisis management	Holland flood disaster 1953: civil-military responses (Rosenthal 1986)	Post-Brixton riots responses (Jacobs 1989)
	Mount St Helens volcano: operational responses (Bradford <i>et al.</i> 1988)	Three Mile Island reactor: response (Cantelon and Williams 1982)
		Heizel stadium tragedy: disaster action (’t Hart and Pijnenburg 1989)
		Post-Hillsborough tragedy: blaming (Jacobs and ’t Hart 1990)
		Iran rescue mission 1980: operations (Gabriel 1985)
	KAL airliner incident: soviet action (settle 1989)	
	San Salvador earthquake: rescue teams (Comfrot 1989)	
	Tasmanian bushfire 1967 (Kouzmin and jarman 1989)	

**Figure 2:** The bureau-politics of crisis management: comparative overview

**Classical pattern: San Salvador earthquake** On 10 October, 1986, the Salvadorean capital of San Salvador was struck by an earthquake that left 1,000 people dead, 10,000 wounded, and 125,000 homeless (Comfort 1989). In this major urban disaster, large parts of the city’s vital infrastructures were severely damaged, including four of the six major hospitals. The disaster response, initiated at the local level, became a national operation with major international assistance. As there was virtually no pre-disaster planning for such large-scale operations, crisis management was a matter of complete improvization. The multi-agency, multinational setting of disaster response gave rise to typical patterns of crisis-induced bureaucratic conflict at both the operational and strategic levels of action.

A vivid example of ‘battling Samaritans’ at the *operational* level concerns the coordination of search-and-rescue efforts on the part of the teams sent by no less than 14 nations in response to a call for help by the Salvadorean President. Their efforts were focused on one single site, the Ruben Dario building, where nearly three hundred people were trapped inside at the time of the earthquake. The first team to arrive was Guatemalan, working like the Salvadoreans, mainly with shovels and bare hands. Next, the United States’ team arrived with sophisticated

equipment and searchdogs. They worked for two and a half days non-stop and brought out 32 people alive. Then a Swiss team arrived with 50 men, 15 dogs and a satellite communications unit that allowed them direct contact with their headquarters in Berne. When they took over the rescue efforts, their operating style differed markedly from those of the other teams. Misunderstandings and conflicts about how to conduct the operation developed. An accident occurred on site, injuring a worker from a Mexican Team. The arguments between the various rescue groups escalated to the point that the work was halted on the fourth day and the Salvadorean Minister of the Interior had to intervene.

At the *strategic* level, the Salvadorean President seized the disaster as an opportunity for national reconciliation between different segments of society embroiled in the civil war. He formed a National Emergency Committee representing major government organizations, business, labour and the military. The urgent need for cooperation in the face of disaster did provide sufficient impetus for *ad hoc* reconciliation between these groups, albeit briefly. However, another major actor in the local policy community, the Catholic Church, had been left out of the committee. Hence, the 'routine' struggles for power and legitimacy between different institutions in Salvadorean society continued during the crisis. These bureau-political tensions at the top level manifested themselves very clearly when a shipment of disaster relief supplies sent by the Archbishop of San Francisco to the Archbishop of San Salvador was delayed at the airport for several critical days, presumably by order of the government.

**Bureau-politism: the Heizel Stadium tragedy** An example of the most intense form of bureau-political competition and rivalry can be found with the soccer tragedy at the Heizel Stadium in Brussels of 29 May 1985 (t Hart and Pijnenburg, 1989). Bureau-political tensions were present throughout every stage of the tragedy. There were two groups of actors deeply involved in bureau-politics: order-maintenance and emergency-relief agencies. The order-maintenance bloc consisted largely of municipal police forces and gendarmerie. The emergency-relief bloc comprised the fire brigade, the Red Cross, and medical services.

During the *planning* period of the match between Liverpool and Juventus, bureau-political tension within and between these blocs manifested itself in two forms: subdued competition and non-contact (i.e., a mutual neglect of potential bureaucratic 'opponents'). Disagreement arose between the Brussels municipal police and the Brussels district of the Belgian Gendarmerie (the national police service) with regard to who would play the major role in security and order-maintenance at the match. The outcome of these jurisdictional skirmishes was that the two agencies divided the stadium in two diagonal halves, so that each agency would control its own section. That this division of labour was anathema to established principles of unity of command and unity of terrain did not seem to have mattered. That this arrangement was not complemented with effective coordination arrangements between the two services, was equally unimportant in the competitive setting that prevailed at the time.

An example of non-contact concerns the virtual exclusion of emergency services' representatives from most of the planning sessions throughout the month of the match. Emergency services were simply not informed of formal and informal meetings and, thus, were required to make their own preparations. The reasons for this non-contact were clear. First, disaster planning and emergency relief

did not enjoy a high status in the administrative setting of Brussels at the time. Secondly, the emergency services' disaster assistance plan for Brussels, launched in January 1985, was seen by the police services as an attempt to by-pass them in this area. In the plan, police services were required to coordinate with the emergency services, with a leading role for the fire brigade. This went against the informal status hierarchy as perceived by the police services. Hence, during the planning of the Heizel match, no attention was paid by them to emergency planning and coordination.

Inter-agency rivalries and strife grew more intense during the *crisis period*, when Liverpool supporters attacked Italian fans in the Z-section of the stadium and people were crushed. For example, when reinforcements for the Gendarmerie and the rescue and relief agencies arrived at the major entrance to the disaster area, a serious confrontation over priority access between the respective commanders ensued. Similarly, fire-brigade officers could not persuade the Gendarmerie to provide adequate protection for the emergency medical zone located adjacent to the stadium. Consequently, doctors, while caring for injured victims, were harassed by agitated reporters, panic-stricken spectators, and cavalry reinforcements of the Gendarmerie entering the stadium.

Bureau-political non-contact was exemplified in this phase by the fact that the Gendarmerie preferred to call in its own command car instead of sharing the emergency services' mobile communications unit already present – and subsequently refusing to share information with the other agencies involved in disaster management. Similar forms of bureau-political-driven non-contact during crisis operations occurred during the disaster with the Herald of Free Enterprise; two separate clusters of communications systems developed that never shared any information during the night of the disaster (Pijenburg and Van Duin 1990).

**Crisis-induced blaming: Hillsborough disaster** On 15 April 1989, 95 people lost their lives and more than 400 were taken to hospital following a crush on the overcrowded stands of Hillsborough football ground on the eve of the FA cup semifinal soccer match between Liverpool FC and Nottingham Forest FC (Jacobs and 't Hart 1989, 1990). The disaster was not a direct consequence of confrontations between rival hooligans, but was instead in large part caused by a series of factors and failures regarding crowd control in the preparation of the event. Ironically, the Hillsborough disaster could, in part, have occurred, because the local authorities, the host stadium management and the South Yorkshire police force were so thoroughly committed to preventing hooligan disturbances. However, they partly ignored the unintended consequences of the preventive measures they had undertaken. For instance, the smaller stand in the stadium was allocated to Liverpool, the club with the largest following, because this would facilitate the pre- and post-match separation of supporters' groups; the implication not sufficiently anticipated was obvious, thousands of Liverpool fans without tickets would turn up at the match, augmenting the total number of people to be 'processed' around the stadium and near the entrances.

Although mistakes had been made, Hillsborough cannot be compared to the Heizel tragedy where administrative incompetence was predominant. Nevertheless, the South Yorkshire police came under serious attack following the disaster (the *post-crisis* phase). This started an intense bureau-political stand-off between various groups. First of all, within the South Yorkshire police, serious differences

of recollection and interpretation of the events came to light during the official inquiry. In particular, senior police officers proved to be very defensive witnesses, in marked contrast to junior officers and constables. The former were evasive and attempted to put the blame on the allegedly drunken and aggressive Liverpool fans, while the latter were much more open and self-critical. Indeed, Lord Justice Taylor who conducted the investigation concluded that 'I must report that for the most part the quality of . . . evidence was in inverse proportion to . . . rank' (Taylor 1989, para. 279). While such hierarchical differences in performance evaluation may be expected, the second line of bureaucratic conflict following Hillsborough was more surprising, and, to some, disquieting.

When some South Yorkshire police officers publicly stated that the Liverpool fans were at the root of the tragedy, a heated debate followed – in the tabloid press, in the political arena, and also between different police forces. The Merseyside police, policing the Greater Liverpool area, openly questioned the veracity of the South Yorkshire statements. It stressed the need for the Taylor inquiry to 'uncover all the facts'. The controversy was remarkable in that it brought to the surface disagreements within the ranks of the police at the national level. The different interpretations went beyond professional differences of opinion. They were regionally inspired attempts to shift and re-allocate blame for the occurrence of crisis. The bureaucratic agencies, in this sense, represented their own local 'constituencies': the South Yorkshire officers wanted to save their force from disgrace; the Merseyside police expressed the predominant emotions among the local population and politicians. With this bureaucratic conflict came different 'mythologies' about what had really happened on the day of the disaster. These collectively held beliefs proved to be very resistant to discrepant information emerging during the inquiry. Post-crisis accusations escalated to the point that the Home Secretary had to intervene and ask the several parties to calm down.

**Functional bureau-politics: Moluccan hostage takings** In 1975, 1977 and 1978, South Moluccan activists staged dramatic hostage-takings in the Netherlands (Rosenthal and 't Hart 1989). In 1975, a passenger train was seized, to be followed two days later by the Indonesian consulate in Amsterdam. In 1977, another train was seized, as well as – this time tightly coordinated – an elementary school in Bovensmilde. In 1978, the terrorists, in a renewed attempt to force the Dutch government to use its influence with the Indonesian government to obtain Moluccan independence, seized the provincial authority building.

While each of these cases differs in terms of its specific course of events, duration and outcomes, the administrative responses show some marked similarities. One of these constitutes the in-built tensions between *judicial* and *public-order* perspectives and between *local* and *national* policy centres. In Dutch anti-terrorism provisions, it is prescribed that during hostage takings, three different centres operate: a command centre for the operational police and military services close to the site of the events; a local policy centre, to be headed by the Prosecutor-General; and a ministerial crisis centre in the capital, the Hague. Major strategic decisions concerning government responses are made by the crisis centre, with major advisory input from the local policy centre.

In the 1975 and 1977 cases, there were marked differences in perspective between these two centres. Local officials felt the ministers in the Hague were physically, and therefore also mentally, too distant from the events to grasp

the subtleties and pressures of the situation. At the ministerial crisis centre, there were constant worries that local officials became over-involved with the situation and that their advice might be unbalanced. Within each of these centres, officials taking a broad public-order perspective faced representatives from the penal orientation that emphasized the criminal nature of terrorist activities; the latter were much more inclined to take an uncompromising stance.

Although such inter-agency and inter-local tensions were marked and produced deep frustrations among individual participants, they were instrumental in the resolution of these crises. The differing perspectives provided a richer information basis for decision. As the various bureaucratic competitors interacted within overarching units, information-sharing took place. Differing policy perspectives caused these actors to make different inferences from identical pieces of information. This encouraged critical debate about the interpretation of the facts and the nature of the appropriate responses. This came out especially during 1977, when the crisis centre finally decided to terminate the hostage takings by military action. Inter-agency heterogeneity, reinforced by interpersonal differences between cabinet members in the crisis centre, produced rigorous debate about the costs and benefits of the various options available. The decision to intervene was sound, and would have been able to withstand critical scrutiny even if the resulting military operation had failed. Inter-agency overlap and multiplicity of command centres worked to enhance the quality of crisis management. A crucial intermediate factor was the availability of decision time: the 1975 and 1977 crises lasted more than two weeks, with early ultimatums soon replaced by long periods of waiting and procrastination. Under time-pressure, as during the early days of the 1975 hostage-takings, the multiple-layered structure was much less appropriate in producing quick decisions and flexible adaptation.

#### Causes of Bureau-Politics in Crisis Management

From these case studies of crisis management, four main causes for the occurrence of bureau-politics during crisis episodes can be identified.

First, in crisis situations government authorities and public agencies definitely do not lose interest in the ranking order of power and prestige. For crisis-relevant organizations, the actual moments of crisis are the very moments their continued existence may be at stake. Indeed, by definition, their rationale, legitimacy and even funding may derive from their performance in critical situations. The history of crisis management provides rich evidence for this reality. The mining disaster of Lengede (Western Germany 1962), for example, gave rise to inter-agency conflicts later captured under the disquieting notion of 'the battle of the good Samaritans'. There is considerable evidence to show that inter-service rivalries within the armed forces do not fade away the moment international tensions become really serious. For example, the failure of several US post-Vietnam military missions was, in part, due to the imposition of sub-optimal arrangements up to and including crucial matters of operational security. A dramatic example of this concerns the planning of the failed Iran rescue mission (1980), where all four services demanded a part in the rescue operation. In the bureaucratic bargaining that followed, the Marines ended up providing helicopter pilots unfamiliar with the Navy-supplied machines that were to be used in the mission. This proved to be a critical flaw

(Gabriel 1985). Similarly, a commanding factor in the genesis of the Brixton riots of 1981 was the inability of the Metropolitan police to make up its mind about its approach towards the local community, resulting in different styles of policing being applied to the community in a short period of time and a notable failure to establish an adequate police-community liaison (Jacobs 1989).

Secondly, authorities and agencies involved in the process of crisis decision making may coolly anticipate the re-allocation of personnel and budgetary resources in the aftermath of the crisis. They may be well aware of the extended effects of their performance during a crisis. They will know that acute changes in the inter-organizational allocation and distribution of resources in periods of severe crisis, such as during the oil crises of the 1970s or during episodes of dramatic budgetary cutbacks, often prevail after the restoration of routine administration (Hirschorn 1983; Jarman and Kouzmin 1991; Rosenthal and Scholten 1977; Rubin 1977). Anticipation of such post-crisis developments and realignments makes crisis and crisis-relevant agencies very keen on 'being there' during the hectic moments.

It should be noted also that, occasionally, quite different patterns will mark the costs and benefits in the aftermath of crisis. For instance, there is the ironic fact that failure in crisis decision-making may make for post-crisis success. Thus the Belgian Gendarmerie turned their bad performance during the Heysel stadium tragedy into a successful claim for budgetary growth. One might take this as evidence that the bureau-politics of crisis management go beyond the critical moments of severe threat so as to include the sometimes protracted phases of postcrisis conflict and negotiations.

Thirdly, bureau-politics may result from the confrontation between authorities and agencies that are not used to working together. As Quarantelli has put it, in crises, inter-organizational coordination often is the problem rather than the solution (Quarantelli 1988). Crises dramatically change the usual organizational chart. In a way, the critical quality of the situation imposes itself upon authorities and agencies which have little inter-organizational experience: these include civilian and military organizations; central and local branches; routine and typically crisis-oriented agencies (Brouillette and Quarantelli 1971; Stallings 1978; Wright 1978). This is markedly illustrated by the example of international aid operations, such as during the famine crisis in Ethiopia and Sudan (Khondker 1989). As the series of riots in Britain in the 1980s shows, it may indeed take a crisis to make a particular category of authorities or public agencies understand the need for coordination (Benyon 1984; Benyon and Solomon 1987; Jacobs 1989). The belated appearance of a key actor in the arena of crisis decision making may produce irritation with other interested parties which, by that time, may already have taken the responsibility for a number of critical decisions.

This third consideration does not imply sheer self-interest on the part of the various agencies. Part of the intensified bureau-political tension during crises is simply due to the psychology of the unknown and may indeed be reinforced by organizational stress. The combination of threat, uncertainty and unfamiliarity is fertile ground for miscommunications and misunderstandings. During the critical development of the emergency in the Heysel Stadium, for example, the municipal police tried to warn the Gendarmerie, under whose jurisdiction that part of the stadium resided, no less than nine times. Yet, as a consequence of the



prevailing tensions between the two police forces, the possibilities for inter-agency communications were strictly limited. As a consequence, of the nine warnings sent out by police commanders, only three reached the Gendarmerie commander back at his Brussels headquarters.

Fourthly, in a crisis setting, bureau-politics may flourish for the very reason that all parties concerned are convinced that they can make a positive contribution to the public cause. This situation fosters bureaus and bureaucrats insisting upon their interpretation of what would be the most effective, if not the only, way to avert threat. This kind of bureau-political conflict will often be found as a byproduct of the so-called 'mass assault' on the site of a disaster (Barton 1969). It will, for example, ask for unusual wisdom on the part of the authorities of a Third-World country afflicted by a massive disaster, to coordinate or arbitrate competitive offers for assistance from national and foreign agencies (Comfort 1988; Cuny 1983).

#### **4. The Bureau-Politics of Crisis Management: A Balanced Assessment**

As illustrated in the example of the South Moluccan hostage-takings, it would be a mistake to view bureau-politics as entirely dysfunctional to crisis management and crisis decision making. It would also be misplaced to exaggerate the tension between bureau-politics and normatively 'good' crisis management. There are a number of considerations to be taken into account when arriving at a more balanced view of the costs and benefits of administrative competition during critical situations.

##### Functional Perspectives

From a formalist or institutional perspective, bureau-politics must be dysfunctional in a crisis context. Under critical circumstances, the usual patterns of political competition and conflict would seem to be counter-productive and might even give way to a temporary 'abdication of democratic authenticity' (Linz and Stepan 1978, pp. 1–65). Executive authority tends to be granted considerable leeway. The moderation of the political temper during episodes of severe threat is best reflected by the evocation of governmental discretion: 'Let the government govern.'

Of course, the tendency, in crisis situations, to do away with institutionalized or party-based politics will be even stronger in relation to the bureaucratic setting. It already takes considerable effort to plead the case for bureaucratic competition in day-to-day administration. It would, then, seem to be outrageous to argue that bureau-politics has a positive function in managing crises. The analysis thus far, however, does hint at some key functions of bureau-political competition and rivalry.

A first function of bureau-politics in crisis management may be *to put crisis and crisis-relevant agencies to the test*. It would hardly be an achievement on the part of such agencies to operate satisfactorily within a self-contained and exclusive domain or jurisdiction. The quality of their performance under critical circumstances will, for a large part, be assessed according to their capacity to manage inter-agency pressures. For instance, the way in which a public agency handles uninvited offers for assistance from others will have a definite impact on its effectiveness. It takes

great strategic and tactical skill for crisis and crisis-relevant agencies to withstand that test.

In a sense, this function of bureau-politics extends to a willingness, in the aftermath of a crisis, to evaluate and reconsider the role of all agencies involved. A sound judgement of performance in the inter-agency domain may help to bring about necessary changes to jurisdictional power, in the allocation of resources as well as to the rules guiding inter-agency processes and negotiations.

Bureau-political defensiveness looms large when besieged decision makers, faced with overwhelming uncertainty and problems of crisis management, engage in attempts to shift the burden of responsibility to others. Indeed, crises may evoke centrifugal tendencies (Kouzmin 1983) or administrative regression and dissociation (Kouzmin 1979), leaving the job of handling those crises which seem to entail a low hope of successful resolution to competitors in the bureaucratic network.

A second function of bureau-political competition in crisis situations is to prevent *single-mindedness and groupthink* (Janis 1982; 't Hart 1990). During crises, there are often strong political and media pressures for quick and forceful administrative reactions. In response, administrative actors may be motivated to live up to these requirements and hence try and brush aside differences of opinion in order to maintain the momentum. The norms of centralized and forceful action may be used to 'superimpose' administrative consensus. In the face of crisis, who would want to be the one breaking through this consensus? Such a dilemma, for instance, was faced by CIA director Turner during the planning of the rescue mission that was to free American embassy personnel held in Teheran. For months, President Carter had procrastinated, yet in March 1980, he was coming around in favour of the mission. Turner, however, had received secret CIA-estimates that the chances of success for the operation were very slim. Yet he did not mention this during the final sessions of the crisis committee, as he did not want to disturb the action mood that had finally been established: 'doing something' was considered better than carefully calculating the odds ('t Hart 1990, pp. 230–1).

One of the unintended consequences of bureau-political competition is to produce a setting where different views on what needs to be done will be heard and, for the sake of competitiveness, be taken into account. Under some circumstances, the need to take a critical decision promptly will be deemed to be more vital than processual or procedural considerations. More often than not, however, crisis management and crisis decision making benefit from the competitive exchange of views and the encounter of agency interests put forward by the agencies at hand. This is as true for agencies intervening in the crisis decision-making process as it is for those with distinctly operational responsibilities.

Too often, operational services tend to act upon the premise that they can do the job on their own and that their standard operating procedures prevent them from making mistakes. They do not always perceive the intricate differences between the consecutive crises they are to manage. Unaware, or uncertain, of the nature and ramifications of a current crisis, they attempt to reduce uncertainty by relying on crude analogies between past crises and present events, which, in turn, may lead them to simply adopt 'yesterday's' solutions to current situations that may be superficially comparable (Jervis 1976; Neustadt and May 1986). It is functional for problem solving to be confronted with rival or even antagonistic opinions, interests, and activities.

A dysfunctional effect of heterogeneous and adversarial processes may occur *within* each of the participating agencies. When agencies become involved in external conflicts over what is to be considered appropriate crisis management, internal pressures to conform to an official position can become quite high. Stereotyped images of out-groups (notably bureaucratic competitors) may come to prevail over a clear diagnosis of the costs and benefits of courses of action proposed by other agencies. This may, in turn, trigger the development of 'hard cores' within departments or agencies whose members share an unshakeable perception of the situation and a rigid view of how to handle the crisis, thereby paralyzing the decision process. For example, during the critical months preceding the German invasion of the Netherlands, intense civil-military and centre-field tensions prevented the development of a much-needed consensus about preparations for war ('t Hart 1990, pp. 343–50; Mason 1963).

A third function of bureau-politics brings about the potential relevance of *open strategies* of crisis management. Bureau-political competition may serve to open up the process of crisis management. This may help to improve the quality of governmental and bureaucratic intervention. Although the notion of centralized and closed crisis response is the dominant one in many prescriptions for crisis management, there is no reason to assume that closure of the decisional arena will invariably lead to better solutions (*contra* Dror 1986). The role of the media in crisis management provides a key test of this argument. Bureau-politics provides the basis for fertile sources of information, if need be, for information leakage. To the extent that the media abuse vital information, as has happened during several episodes of international terrorism, bureau-political competition and attendant flows of information will be quite dysfunctional (Kelly 1989). At the same time, however, the effectiveness of crisis management usually depends to a large part on the active, and successfully managed, role of the media. For instance, modern disaster management cannot succeed without the assistance of fully informed media. If, in this context, bureau-political competition contributes to the free flow of information, so much the better.

The converse of this argument can be found in the empirical fact that crises seem to invite top-level closure, small group decision making, and a reliance upon 'trusted, liked sources' (Milburn 1972). When tensions rise, outsiders and critically oriented advisers tend to be excluded. More often than not, the media are considered to be harmful to the needs of the crisis agencies searching so hard for satisficing solutions. Indeed, crises may trigger a strong, even obsessive, concern with secrecy that is often used by key actors to exclude bureaucratic competitors or representative institutions from the making of key decisions. To be sure, the planning of anti-terrorist measures presupposes very stringent security rules. When, however, these are being misused to avoid criticism and public scrutiny, the inter-agency context rather than the terrorist threat itself emerges as the leading motivation on behalf of the decision-makers concerned. This outcome may have dire consequences, as evidenced by the Iran rescue mission (Gabriel 1985; Sick 1985), the Iran-Contra affair ('t Hart 1990), the ill-fated investigation of Deputy Chief Constable Stalker into alleged misconduct of the RUC in Northern Ireland (Stalker 1988), and – from another area – the Belgrano affair during the Falklands war (Ponting 1985).

### **Conclusion: Some Normative Perspectives**

Crisis management and crisis decision making provide a good empirical basis for a firm rebuttal to the normative objections raised about bureau-politics. In a number of ways, our unorthodox orientation to crisis management upholds, under critical conditions, liberal-democratic political processes and the 'public interest'.

Bureau-politics may well constitute the next-best route to *democratic control* in processes of crisis management and crisis decision making. It is often the case that the starting point in crisis-related politics is to declare democratic control a luxurious burden. Bureau-political competition, then, may serve to produce the checks and balances and countervailing forces which, otherwise, would be lacking in situations lending themselves to authoritarian decisions. Bureau-political conflicts would also constitute an indispensable source of information when the only channel for communication would seem to be the authorized press releases of the public affairs division of the official crisis centre (Pijenburg and Van Duin 1991).

It would, of course, be desirable for crises to give rise to a balance between the situation-bound requirements of effective decision making and democratic control. Satisfactory solutions are hard to find. The practice in Germany of giving the Opposition in the Bundestag its full share of information about, and involvement in, the dealings of anti-terrorist crisis centres, seems to derive from a need for shared responsibility rather than from a need for democratic control. A similar conception of broadening the constituency of crisis decisions underlies the habit of informal consultation of opposition leaders in many democratic countries. Ultimately, in crisis situations, bureau-political competition and rivalry may be among the more effective safeguards for accountability and, ultimately, democratic control.

There are potential counter-acting tendencies as well. Bureaucratic rivalry may serve to impede democratic control of the policy process. This may happen when bureau-political needs for secrecy offset the open flow of information that results from bureaucratic interchanges. This happened during the Iran-Contra affair, when a core 'group' of interested and committed officials from NSC and CIA conspired to keep not only the State and Defense departments, but also congressional intelligence committees, in the dark about the arms deals with Iran ('t Hart 1990).

Another normative asset of bureau-politics assumes a very special quality in crisis situations. It is often said that one should cherish the willingness and capacity of citizens and public agencies to *stand firm* against pressures to comply for compliance's sake. Crises demand a substantial amount of authentic courage on the part of public agencies and their officials to withstand the tremendous pressures for an engineered consensus, unanimity and 'mechanistic' compliance associated with the orthodox responses of crisis management. It is not an easy task to cope with accusations of defending bureaucratic turf when the dominant mood points to a nation at risk. To be prepared in times of crisis and to stand up for one's interpretation of the public interest may be the ultimate test of strength and institutional leadership (Selznick 1957). Needless to say, the most difficult part of this view is to convince other agencies and the public that all this does actually serve a common cause.

A final and far-reaching evaluation of the bureau-politics of crisis management involves both functional and normative considerations. As already suggested, a growing number of academics and, to a lesser extent, practitioners recognize that the prescriptive processes of consensus-oriented, rationalistic and monocentric administration do not conform with empirical reality. Nor do they sit easily with the ideological canons of liberal democracy (Thompson 1983; Urban 1982). The advantages of complexity, redundancy, duplication, overlap and conflict (Kouzmin 1979; Kouzmin and Jarman 1989; Landau 1969; Lerner 1986) are now elaborated, and the notion of polycentrism is not only being tolerated but increasingly being insisted upon as a possible alternative to centralist and coercive bureaucratic administration (Chisholm 1990; Kouzmin and Scott 1990; Ostrom 1974; Toonen 1983).

It is tempting to apply such ideas to the domain of crisis management. The question then arises as to whether crises, with their inherent bias toward a monocentric perspective, could lend themselves to a similar kind of revisionist approach. It would be indeed daring to proselytize for duplication, overlap and negotiation, when political pressures unequivocally point to clarity, simplicity and the undisputed determination of 'tough' decisions. It is difficult to imagine a crisis centre which, in making up its collective mind about a hijacked plane or train, would have to find its way through a myriad of cross-cutting and overlapping jurisdictions. The world of centralized crisis management would be turned upside down. But such a 'revisionist' approach to bureau-politics does have something to offer to the theory and practice of crisis management. It is not far removed from the already fashionable ideas about multiple scenarios, mixed scanning procedures, competitive brainstorming and preparatory sessions (George 1980; Janis 1989; Nutt 1989; Rosenthal and Pijenburg 1990). Bureau-political competition and conflict fit this line of thinking. It is time that they lost their exclusively dysfunctional connotations.

## References

- Allison, G. T. 1971. *Essence of decision: explaining the Cuban Missile Crisis*. Boston: Little, Brown.
- Bacharach, S. B. and E. J. Lawler. 1980. *Power and politics in organizations*. San Francisco: Jossey Bass.
- Barton, A. H. 1969. *Communities in disaster*. Garden City: Doubleday.
- Bendor, J. and T. M. Moe. 1985. 'An adaptive model of bureaucratic politics', *American Political Science Review* 79, 755–74.
- Benyon, J. (ed.). 1984. *Scarman and after*. Oxford: Pergamon.
- Benyon, J. and J. Solomos (eds.). 1987. *The roots of urban unrest*. Oxford: Pergamon.
- Ben Zvi, A. 1977. 'Misperceiving the role of perception: a critique', *Jerusalem Journal of International Relations* 13, 2, 74–93.
- Betts, R. K. 1981. 'Surprise despite warning: why sudden attacks succeed'. *Political Science Quarterly*, 95, 551–72.
- . 1982. 'Analysis, war and decision: why intelligence failures are inevitable', *World Politics* 34, 62–89.
- Bobrow, D. 1972. 'The relevance potential of different products', *World Politics* 24, 2, 206–12.
- Bovens, M. A. P. 1990. 'The social steering of complex organisations', *British Journal of Political Science* 20, 1, 91–117.
- Bradford, J. K., B. Pasarello and J. Pasarello. 1988. 'The eruption of Mount St. Helens', in M. T. Charles, J. C. Kim (eds.), pp. 151–77. in *Crisis management: a casebook*. Springfield: Charles Thomas.

- Breton, A. and R. Wintrobe. 1982. *The logic of bureaucratic conduct: an economic analysis of competition, exchange and efficiency in private and public organizations*. Cambridge: Cambridge UP.
- Brouillette, J. R., and E. Quarantelli. 1971. 'Types of patterned variation in bureaucratic adaptations to organizational stress'. *Sociological Inquiry* 41, 1, 39–45.
- Brown, R. H. 1978. 'Bureaucracy as praxis: towards a phenomenology of formal organizations', *Administrative Science Quarterly* 23, 3, 365–82.
- Burrell, G. and G. Morgan. 1979. *Sociological paradigms and organizational analysis*. Heinemann: London.
- Cantelon, P. L. and R. C. Williams. 1982. *Crisis contained: the Department of Energy at Three Mile Island*. Carbondale: Southern Illinois UP.
- Chisholm, D. 1987. 'Ill-structured problems, informal mechanisms and the design of public organizations', pp. 77–93 in J. E. Lane (ed.), *Bureaucracy and public choice*. London: Sage.
- . 1990. *Coordination without hierarchy: informal structures in multiorganizational systems*. Berkeley: California UP.
- Cobb, R. W. and C. D. Elder. 1975. *Participation in American politics: the dynamics of agenda-building*. Baltimore: Johns Hopkins UP.
- Cohen, M. D., J. G. March and J. P. Olsen. 1972. A garbage can model of organizational choice, *Administrative Science Quarterly* 17, 1, 1–25.
- Coleman, F. M. 1977. *Hobbes and America: exploring the constitutional foundations*. Toronto: Toronto UP.
- Comfort, L. (ed.) 1988. *Managing disaster: strategies and policy perspectives*. Durham: Duke UP.
- . 1989. 'The San Salvador earthquake' in U. Rosenthal, M. T. Charles and P. 't Hart (eds.), pp. 323–39 in *Coping with crises: the management of disasters, riots and terrorism*. Springfield: Charles Thomas.
- Cook, J. L. 1989. *An accident waiting to happen*. London: Unwin.
- Cornford, J. L. 1974. 'Review article: the illusion of decision', *British Journal of Political Science* 4, 2, 231–43.
- Coser, L. 1956. *The functions of social conflict*. New York: Free Press.
- Cuny, F. L. 1983. *Disasters and development*. New York: Oxford UP.
- Dahrendorf, R. 1968. *Essays in the theory of society*. London: Routledge and Kegan Paul.
- Downs, A. 1967. *Inside bureaucracy*. Boston: Little, Brown.
- Dror, Y. 1986. *Policymaking under adversity*. New Brunswick: Transaction.
- Dunleavy, P. 1989. 'The architecture of the British central state, part I: framework for analysis', *Public Administration* 67, 3, 249–75.
- . 1990. 'Reinterpreting the Westland affair: theories of the state and core executive decision making', *Public Administration* 68, 1, 249–75.
- Gabriel, R. T. 1985. *Military incompetence: why the American military doesn't win*. New York: Hill and Wang.
- George, A. L. 1980. *Presidential decision making in foreign policy: the effective use of information and advice*. Boulder: Westview.
- Gray, A. and B. Jenkins. 1985. *Administrative politics in British government*. Brighton: Wheatsheaf.
- Hafner, D. L. 1977. 'Bureaucratic politics and "those frigging missiles": JFK, Cuba and US missiles in Turkey', *Orbis* (summer) 2, 307–32.
- Handel, M. I. 1976. *Perception, deception and surprise: the case of the Yom Kippur War*. Paper No. 6. Hebrew University: Davis Institute.
- Hanf, K. and F. Scharpf (eds.) 1978. *Inter-organizational policymaking*. London: Sage.
- Hart, P. 't. 1990. *Groupthink in government: a study of small groups and policy failure*. Amsterdam: Swets and Zeitlinger.
- Hart, P. 't and B. Pijnenburg. 1989. 'The Heizel stadium tragedy', pp. 197–224 in Rosenthal *et al.* (eds.) op cit.
- Hewitt, K. (ed.) 1983. *Interpretations of calamity*. Boston: Allen and Unwin.
- Hillsman, R. 1986. *The politics of policymaking in defense and foreign affairs: conceptual models and bureaucratic politics*. New York: Prentice Hall.
- Hirschhorn, L. (ed.) 1983. *Cutting back: retrenchment and redevelopment in human and community services*. San Francisco: Jossey Bass.

- Jackson, R. J. 1976. 'Crisis management and policy making: an exploration of theory and research' in R. Rose (ed.), pp. 209–35 in *The dynamics of public policy: a comparative analysis*. London: Sage.
- Jacobs, B. D. 1989. 'The Brixton riots: London 1981' pp. 340–66 in Rosenthal *et al.* (eds.), *op. cit.*
- Jacobs, B. D. and P. 't Hart. 1989. 'Disaster at Hillsborough stadium: a comparative analysis'. Paper presented at the International Workshop on Crisis Management: Flood Hazard Research Centre, Middlesex Polytechnic, October 3–5. To be published in D. Parker and J. Handmer, eds., *Integrated Emergency Management*, to be published mid-1991.
- Jacobs, B. D. 1990. 'Bureaupolitical conflict and the Hillsborough crisis'. Unpublished manuscript.
- Janis, I. L. 1982. *Groupthink* (2nd rev. ed.). Boston: Houghton Mifflin.
- . 1989. *Crucial decisions: leadership in policymaking and crisis management*. New York: Free Press.
- Jarman, A. and A. Kouzmin. 1991. 'Decision pathways from crisis: a contingency-theory simulation heuristic for the Challenger shuttle disaster', pp. 123–58 in U. Rosenthal and B. Pijenburg (eds.), *Crisis management and decision making: simulation-oriented scenarios*. Dordrecht: Kluwer Publishers.
- Jervis, R. 1976. *Perceptions and misperceptions in international politics*. Princeton: Princeton UP.
- Kelly, M. J. 1989. 'The seizure of the Turkish embassy in Ottawa: managing terrorism and the media' pp. 117–38 in Rosenthal *et al.* (eds.). *op. cit.*
- Khondker, H. H. 1989. 'The 1984–85 Ethiopian famine' pp. 278–99 in Rosenthal *et al.* (eds.), *op. cit.*
- Kingdon, J. W. 1985. *Agendas, alternatives and public policies*. Boston: Little, Brown.
- Kouzmin, A. 1979. 'Building [Australia's] new Parliament House: an Opera House revisited?' *Human Futures* 3, 1, 51–74.
- . 1980a. 'Control in organizational analysis: the lost politics', in D. Dunkerley and G. Salaman (eds.), pp. 56–89 in *1979 International yearbook of organizational studies*. London: Routledge and Kegan Paul.
- . 1980b. 'Control and organization: towards a reflexive analysis', in P. Boreham and G. Dow (eds.) pp. 130–62 in *Work and inequality: volume 2, Ideology and control in the capitalist labour process*. Melbourne: Macmillan.
- . 1983. 'Centrifugal organizations: technology and "voice" in organizational analysis' in A. Kouzmin (ed.) pp. 232–67 in *Public sector administration: newer perspectives*. Melbourne: Longman Cheshire.
- Kouzmin, A. and A. Jarman, 1989. 'Crisis decision making: towards a contingent decision path perspective', pp. 397–435 in Rosenthal *et al.* (eds.). *op. cit.*
- Kouzmin, A. and N. Scott (eds.). 1990. *Dynamics in Australian public management: selected essays*. Melbourne: Macmillan.
- Krasner, S. D. 1972. 'Are bureaucracies important? (Or Allison Wonderland)', *Foreign Policy* 7, 159–79.
- Landau, M. 1969. 'Redundancy, rationality and the problem of duplication and overlap', *Public Administration Review* 29, 3, 346–58.
- LaPorte, T. R. (ed.). 1975. *Organized social complexity: challenge to politics and policy*. Princeton: Princeton UP.
- Lentner, H. H. 1972. 'The concept of crisis as viewed by the US Department of State', in C. F. Hermann (ed.), in pp. 112–35 *International crises: insights from behavioral research*. New York: Free Press.
- Lerner, A. W. 1986. 'There is more than one way to be redundant: a comparison of alternatives for the design and use of redundancy in organizations', *Administration and Society* 18, 3, 334–59.
- Linstone, H. and associates. 1984. *Multiple perspectives for decision making*. Amsterdam: North-Holland.
- Linz, J. J. and A. Stepan (eds.). 1978. *The breakdown of democratic regimes*. Baltimore: Johns Hopkins UP.
- March, J. G. and H. Simon. 1958. *Organizations*. New York: John Wiley.
- March, J. G. and J. P. Olsen. 1983. 'Organizing political life: what administrative reorganization tells us about government', *American Political Science Review* 77, 281–96.

- Mason, H. L. 1963. 'War comes to the Netherlands: September 1963–May 1940', *Political Science Quarterly* 78, 4, 548–81.
- Milburn, T. 1972. The management of crisis', pp. 259–80 in C. F. Hermann (ed.), op. cit.
- Neustadt, R. and E. May. 1986. *Thinking in time: the uses of history for policy makers*. New York: Free Press.
- Niskanen, W. A. 1971. *Bureaucracy and representative government*. Chicago: Aldine.
- Nutt, P. 1989. *Making tough decisions*. San Francisco: Jossey Bass.
- Ostrom, V. 1974. *The intellectual crisis in American public administration*. Alabama: Alabama UP (rev. ed.).
- Page, E. C. 1985. *Political authority and bureaucratic power: a comparative analysis*. Brighton: Wheatsheaf.
- Peres, L. 1968. The resurrection of autonomy: organizational theory and the statutory organization', *Public Administration* (Sydney) 27, 4, 361–70.
- Perry, R. 1985. *Comprehensive emergency management: evacuating threatened populations*. Greenwich, Conn.: JAI Press.
- Pfeffer, J. 1981. *Power in organizations*. Marshfield: Pitman.
- Pijnenburg, B. and M. J. van Duin. 1991. The Herald of Free Enterprise ferry disaster: elements of an information and communication processes scenario', pp. 45–74 in U. Rosenthal and B. Pijnenburg (eds.), op. cit.
- Ponting, C. 1985. *The right to know: the inside story of the Belgrano affair*. London: Sphere.
- Quarantelli, E. 1988. Disaster crisis management: a summary of research findings', *Journal of Management Studies* 25, 3, 373–85.
- Rosati, J. A. 1981. Developing a systematic decision-making framework: bureaucratic politics in perspective'. *World Politics* 33, 234–52.
- Rosenthal, U. 1986. 'Crisis decision-making in Netherlands', *The Netherlands' Journal of Sociology* 22, 103–29.
- . 1988. *Bureaupolitiek en bureaupolitisme: om het behoud van een competitief overheidsbestel*. Alphen aan den Rijn: Samsom.
- . 1990. 'Politics and administration: Max Weber and the quest for democratic order'. pp. 392–408 in Kouzmin and Scott (eds.), op. cit.
- Rosenthal, U. and G. H. Scholten. 1977. *Crisis en continuïteit: Economische Zaken, de oliecrisis en andere turbulenties*. Alphen aan den Rijn: Samsom.
- Rosenthal, U., M. T. Charles and P. 't Hart, (eds.) 1989. *Coping with crises: The management of disasters, riots and terrorism*. Springfield: Charles Thomas.
- Rosenthal, U. and P. 't Hart. 1989. 'Managing terrorism: the South Moluccan hostage takings', pp. 367–94 in Rosenthal *et al.* (eds.), op. cit.
- Rosenthal, U., P. 't Hart and M. T. Charles. 1989. The world of crises and crisis management', pp. 3–33 in Rosenthal *et al.* (eds.), op. cit.
- Rosenthal, U., M. T. Charles, P. 't Hart, A. Kouzmin, and A. Jarman. 1989. 'From case studies to theory and recommendations: a concluding analysis', pp. 436–72 in Rosenthal *et al.* (eds.), op. cit.
- Rosenthal, U. and B. Pijnenburg (eds.) 1990. Special issue on multiple scenarios for crisis management and decision making, *International Journal of Contemporary Crises* 14, 4, Dec. 1990.
- Rubin, I. 1977. 'Universities in stress: decision making under conditions of reduced resources', *Social Science Quarterly* 58, 2, 242–54.
- Scanlon, J. 1989. Toxic chemicals and emergency management: the evacuation of Mississauga, Ontario, Canada', pp. 303–22 in Rosenthal *et al.* (eds.), op. cit.
- Schilling, W. R. 1962. The politics of national defense: fiscal 1950', in W. R. Schilling, P. T. Hammond and G. H. Snyder (eds.), *Strategy, politics, and defense budgets*. New York: Columbia UP.
- Selznick, P. 1957. *Leadership in Administration*. New York: Harper and Row.
- Settle, A. K. 1989. 'Korean airline disaster: the tragic flight of KAL 007', pp. 66–91 in Rosenthal *et al.* (eds.), op. cit.
- Sick, G. G. 1985. *All fall down: America's tragic encounter with Iran*. New York: Penguin.
- Stalker, J. 1988. *Stalker*. Harmondsworth: Penguin.
- Stallings, R. A. 1978. The structural patterns of four types of organizations in disaster', pp. 87–103, in E. L. Quarantelli (ed.), *Disasters: theory and research*. Beverly Hills: Sage.
- Steinbruner, J. D. 1974. *The cybernetic theory of decision*. Princeton: Princeton UP.



- Taylor, Lord Justice. 1989. *The Hillsborough stadium disaster, 15 April 1989. Inquiry by the Rt. Hon. Lord Justice Taylor* (Interim report; final report January 1990). London: HMSO.
- Thompson, J. D. 1967. *Organizations in action: social science base of administrative theory*. New York: McGraw Hill.
- Thompson, D. 1980. 'Moral responsibility of public officials: the problem of many hands', *American Political Science Review* 74, 4, 905–16.
- Thompson, E. 1983. 'Democracy, bureaucracy and mythology', pp. 57–77 in Kouzmin (ed.), op. cit.
- Toonen, T. A. J. 1983. 'Administrative plurality in a unitary state: the analysis of public organisational pluralism'. *Policy and Politics* 2, 3, 247–71.
- Tuite, M. R. Chisholm and M. Radnor. 1972. *Interorganizational decision making*. Chicago: Aldine.
- Tullock, G. 1965. *The politics of bureaucracy*. Washington: Public Affairs Press.
- Urban, M. E. 1982. *The ideology of administration*. Albany: SUNY Press.
- Vanwelkenhuyzen, J. 1982. *Les avertissements qui venaient de Berlin, 9 octobre-10 mai 1940*. Paris-Gembloux: Duclot.
- Waldo, D. 1948. *The administrative state: a study of the political theory of American public administration*. New York: Ronald Press.
- Weber, M. 1947. *The theory of social and economic organization*. New York: Free Press.
- Weiss, J. A. 1987. 'Pathways to cooperation among public agencies', *Journal of Policy Analysis and Management* 5, 94–147.
- Wildavsky, A. 1984. *The politics of the budgetary process*. Boston: Little Brown.
- Wilson, H. 1975. 'Complexity as a theoretical problem: wider perspectives in political theory', pp. 281–331 in T. R. LaPorte (ed.), op. cit.
- Wilson, W. 1887. 'The study of administration' *Political Science Quarterly* 2. 197–22, reprinted in 56, 1941, 481–506.
- Wohlstetter, R. 1962. *Pearl Harbor: warning and decision*. Stanford: Stanford UP.
- Wolin, S. 1960. *Politics and vision*. Boston: Little, Brown.
- Wright, J. E. 1978. 'Organizational prestige and task saliency in disaster', pp. 199–213 in E. L. Quarantelli (ed.). *Disasters: theory and research*. Beverly Hills: Sage.

## Contingent Coordination: Practical and Theoretical Puzzles for Homeland Security

**Donald F. Kettl**

**Source:** *American Review of Public Administration*, 33(3) (2003): 253–277.

The September 11, 2001, terrorist attacks were a chilling warning of the new challenges facing public administration. Firefighters rolled from their stations throughout New York with only a dim sense of the full fury they would face. Emergency workers in Arlington, Virginia, watched in horror as a jet exploded into the Pentagon's west wall. When anthrax contaminated offices in Florida, New York, and Washington – and the home of a 94-year old widow in Connecticut – first responders across the nation mobilized. They not only had to cope with the contamination of these buildings but also with thousands of reports across the country that flowed in from citizens worried about mysterious white powder. The news media were filled with a single, sharp message: Everything had changed.

Changed – except that public administrationists recognized familiar puzzles in these new problems. At its core, homeland security is about coordination – developing some new tools, to be sure, but weaving together, far more effectively, the nation's existing experts and resources. It is a matter of doing new things, doing many old things much better, and doing some old things differently. However, it fundamentally is about the ageless problem of coordinating administrative work.

The public administration literature is full of theory – and arguments – about coordination. As Harold Seidman (1998) pointed out, coordination is the philosopher's stone of public administration. "If only we can find the right formula for coordination, we can reconcile the irreconcilable, harmonize competing and wholly divergent interests, overcome irrationalities in our government structures, and make hard policy choices to which no one will disagree" (Seidman, 1998, p. 142). Coordination is, at once, the diagnosis of the homeland security problem and the diagnosis of its failures. Identify what must be linked together; do so, and the problems will be solved.

A critical question is this: Can one proceed deductively from existing theory to generate propositions about coordination for homeland security? How well do these propositions match the policy map of homeland security? Where are there gaps between the propositions and the problems that homeland security presents?

In part, this is a way of asking how much of homeland security is truly a new problem. In part, this is a way of putting public administration theory to the acid test. And in part, this is a way of grounding the instinctive response to homeland security problem in theory: Do we know enough to improve the odds of framing a successful governmental strategy? Or is the effort doomed to ad hocery, with responses whipsawing with the headlines?

Existing theory provides a strong foundation for homeland security coordination. However, it also contains a large number of important holes. Plugging them effectively lies beyond the capacity of any one existing theory and, indeed, beyond the leading theories cobbled together. The problem demands a sophisticated approach that builds on existing administrative structures and policy capacity but which pulls them together, effectively, when they are needed, as they are needed. In this article, I call that approach *contingent coordination*.

### Coordination for Homeland Security

Coordination is the diagnosis of September 11's problems and the prescription to resolve them. At the broadest level, coordination for homeland security presents issues of staggering difficulty.

#### Coordination at the Pentagon

American Airlines Flight 77 caused massive damage when it crashed into the Pentagon on the morning of September 11, 2001. Engineering experts estimated that it penetrated 310 feet in less than a second ("Forests of columns," 2003). An after-action report assessing the response of local officials called it exemplary – "ordinary men and women performing in extraordinary fashion" (Titan Systems Corporation, 2002, p. 9).

Arlington County's coordination on September 11, 2001, was "a model that every metropolitan area should emulate," (Titan, 2002, p. 10). The county's fire department worked closely with the FBI. The fire chief of neighboring Alexandria sent a battalion chief to the Arlington command post to say, simply, "Anything you need, you've got." The coordination was simply extraordinary, the consultants concluded. The success built on the leaders of the county's emergency services, strong and competent officials who found ways to solve the problems because they had laid the foundation through hard work in the years leading up to the crisis – and their on-site, hands-on work that morning. "Leadership isn't learned in a day, it is learned everyday" (Titan, 2002, p. 10).

Among other things, Arlington County officials had carefully framed an emergency response plan built on an integrated command structure, mutual aid agreements with surrounding communities, a solid emergency team, an assistance program to back up employees amid the incredible stress of their work, and constant drilling in the years leading up to the terrorist attack. The response, the consultants said, "was successful by any measure." Loss of life was minimized, and "Had it not been for the heroic actions of the response force and the military and civilian occupants of the Pentagon, clearly the number of victims would have been much higher" (Titan, 2002, pp. 12–13).

#### Coordination at the World Trade Center

In contrast, the after-action report on New York City's response to the attacks on the World Trade Center was far less rosy (McKinsey and Company, 2002). Commanders in the lobbies of the two towers lacked reliable information about what

was happening. Communications inside were sporadic. Intelligence at the lobby command centers about what was happening outside – especially about what was happening to the towers – was almost nonexistent. In fact, television viewers across the world knew more about the progression of the fires than the commanders, because the commanders had no access to the television reports. The New York City Police Department (NYPD) had a helicopter circling overhead, but the fire chiefs had no link to the police assessments. In fact, there were no senior NYPD personnel at the fire department's command posts – and vice versa. Desperate to help their brothers, some firefighters went directly up the stairs without waiting for orders. Department officials had a hard time keeping track of who was at the scene.

The New York City Fire Department (FDNY) had no established process for establishing whether mutual aid was needed from surrounding communities and no formal method of requesting it. Because one half of the department's companies were dispatched to the scene, the lack of clear mutual aid agreements left the rest of the city at risk. In particular, almost all of the city's special operations units (such as the hazardous materials and rescue teams) were at the World Trade Center site. Add to that the problem of integrating other emergency units, including those from the Port Authority's own police force (which had primary responsibility for the World Trade Center facility), and the coordination problems multiplied. The city's consultant, McKinsey and Company (2002), noted that the FDNY had previously considered many strategies for improved coordination "but never fully brought them to fruition." However, "recommendations and processes will only go so far. Success will be predicated on managers, civilian and uniformed, who are committed to bringing about profound change, are capable of leading all personnel by example and are eager to embrace full accountability for their own performance" (McKinsey and Company, 2002, p. 13).

In fairness, the two local situations were far different. The New York attacks involved two buildings, not one. The fires were fueled by crashes of far larger planes, and the design of the World Trade Center towers created a far more difficult evacuation problem than at the Pentagon. As the Pentagon's consultants found, the building's design provided additional protection from the progressive collapse that caused the two towers to pancake. Any emergency system would have struggled with the sheer scale of the New York attacks – and, by the views of many experts, New York's emergency system is perhaps the best in the world.

It would therefore be a huge mistake to suggest these were somehow best-versus worst-case responses. Rather, they underline two more-fundamental points: that such homeland security crises are, at their core, issues of coordination; and that coordination problems differ according to the incident. Indeed, homeland security takes many of the traditional problems of organizational coordination, multiplies them enormously, and vastly raises the stakes for success and failure. It also introduces new elements that must somehow be incorporated into the old. Effective homeland security response requires tailoring coordination to the special nature of homeland security problems – and to the fact that the problems rarely emerge in routine fashion. Each incident requires a special response tailored to the special needs it presents.

## The Homeland Security Problem

Homeland security, in fact, presents five different problems of coordination.

1. *Matching place and function.* Homeland security problems – terrorist events – affect specific places, such as the World Trade Center, the Pentagon, and the home of the 94-year old widow killed by anthrax. The agencies charged with responding to these problems are, by long tradition, functionally organized. Effective homeland security requires a close match of function with place, but public administration theory has long recognized the coordination of area and place as one of the field's fundamental tensions. How can we link place-based problems with functionally organized systems, for problems with enormous stakes?
2. *Defining a floor.* Terrorist events can occur anywhere, and people everywhere expect at least a minimum level of protection. The U.S. political tradition has long celebrated local self-government and individual choice. However, is there a national interest in ensuring at least a minimum level of local preparedness to ensure that some citizens are not exposed to unacceptable risks because of where they happen to live?
3. *Building a reliable learning system.* Effective coordination depends on establishing routines, and effective routines depend on learning from mistakes. However, with luck, terrorist events occur rarely and unpredictably, and previous events might provide few clues about future problems. New theories and approaches provide few opportunities for operational testing. How can we learn when there are few opportunities for doing so?
4. *Balancing the old with the new.* Meeting the homeland security challenge requires doing new things, as well as continuing to do old things well. The Department of Homeland Security (which came into existence in 2003) faces the challenge of building new capacity and of maintaining old missions, ranging from protecting the president to providing relief following natural disasters. How can government agencies continue to meet existing missions, excel at the new ones, integrate them both – and do so without causing the size or spending of government to swell?
5. *Meeting citizens' expectations in a fragmented system.* The September 11, 2001, attacks stirred new worries among Americans. How could the government make them safe against threats that were, at once, unpredictable and potentially devastating? Those worries raised fundamental questions about what government can – and cannot – do. It framed puzzles of transforming the culture of governmental organizations to equip them for their new challenges. It focused enduring questions of federalism, including the potential of the fragmented intergovernmental system to act on coherent fashion. Can the U.S. system be strengthened to improve the odds of success – but without fraying the fabric of fundamental civil rights and civil liberties?

The scholarly literature has quite a lot to say about coordination – what works, what does not, and why. In many places, however, the literature leaves gaps that homeland security problems lay bare. Charting homeland security problems

systematically against elements of theory can go a long way toward providing sharper understanding of the problems – and shaping a more effective response, in theory and practice.

### Matching Place and Function

Theorists and political leaders have traditionally relied on organizational structure to solve coordination problems. The scientific management approach to public administration lays out a clear prescription: break down complex jobs into their component parts; structure those parts so that they have the capacity to do hard things well, and to do them well on a regular basis; and maintain the organization so that doing the complex well becomes predictable. For traditional public administration, coordination is, at its core, a structural problem, to be solved by organizational design. For political leaders, public organizations also have an important symbolic purpose: Creating, maintaining, and sometimes changing bureaucracies can send citizens signals about what the leaders value – and that they are taking action on those values (Christensen & Lægreid, 2001).

#### Organization Theory and Bureaucratic Structure

The classic view builds on Luther Gulick's (1937) work in *Papers on the Science of Administration*. Gulick lays out a fundamental model of organizational structure that is, at once, deceptively simply and remarkably prescient:

Wherever many men are thus working together the best results are secured when there is a division of work among these men. The theory of organization, therefore, has to do with the structure of co-ordination imposed upon the work-division units of an enterprise. Hence it is not possible to determine how an activity is to be organized without, at the same time, considering how the work in question is to be divided. Work division is the foundation of organization; indeed, the reason for organization. (p. 1)

In short, accomplishing tough jobs requires the division of work among workers. Gulick goes on to argue that organization is about dividing work and establishing coordination among the pieces. There are four – and only four – ways of organizing: purpose, process, person, or place; and organizational leaders must choose one – and only one – of the four.

This might seem rather pedestrian, but Gulick's three arguments are, in fact, quite profound. In part, this is because he argues that a leader's choices are limited to four – and only four. In part, this is also because Gulick contends that none of the choices are ideal. Each has its own advantages and disadvantages. So a leader makes the necessary choice of one alternative, with the knowledge that the choice brings clear benefits – and certain costs.

Governments generally have chosen organization by function. It represents what people think government does – put out fires, arrest criminals, build roads, provide drinking water. It brings together the experts responsible for accomplishing such functions. Gulick (1937) concluded that it was most often the best choice because “purpose is understandable by the entire personnel down to the last clerk and inspector” (p. 22). The argument flowed from Frederick W. Taylor's (1911)

pursuit of scientific management, his focus on division of labor, and his emphasis on organizing by function. When organizations had a difficult time finding highly skilled people to accomplish difficult jobs, his answer was not to search for better workers. It was, rather, to change the job, focus it more carefully on a narrower set of skills, and increase the number of people who could accomplish it (see also Kanigel, 1997).

By the time Gulick wrote his paper in 1937, generations of analysts had framed the basic management strategies. Their research, coupled with research into scientific management, had identified organization by function as the basic building block of organizations. Indeed, Gulick's paper was important not so much because it was a theoretical breakthrough but because it so cogently captured conventional wisdom at the time.

Gulick recognized that organization by function carries with it fundamental problems. It is usually hard to divide work neatly. That inevitably creates gaps and overlaps that produce service problems and inefficiencies. It tends to strengthen top-down managers, whose job it is to define functions and allocate responsibilities. That can blind managers to citizens' views and feedback from employees who could suggest important improvements. It also can create organizational tunnel vision, where the mission and only the mission matters. It can insulate managers from other managers in other organizations. Ultimately, Gulick warns, it can drift "very easily into an attitude and complete independence from all other activities and even from democratic control itself" (p. 23).

Given these problems, why would leaders choose a functional system? Because it matches so well with government's mission and the way that citizens expect government to pursue it – and because the other three strategies of organization bring their own, even more difficult, problems. Indeed, that is precisely what drove congress to create the new Department of Homeland Security. President Bush resisted the initial plans for the new department. He did create a new Transportation Security Administration to take over airport screening and invest more money to strengthen federal agencies. However, when congressional investigations showed that warnings from FBI field officials produced no response, senate Democrats aggressively pushed the creation of a new department. Rather than risk being pushed aside in the fray, Bush quickly embraced the new department and pursued options most to his liking, including substantial personnel flexibility. The new department did little to tackle the most fundamental coordination issues that surfaced in the wake of the terrorist attacks, especially problems in coordinating the FBI and the CIA. However, with the symbol of a new department, Bush and the Democrats could claim they had taken strong action to thwart future terrorist events.

Analysts have called the new department the biggest federal government restructuring since the creation of the Department of Defense in 1947. In fact, it is the most complicated restructuring in U.S. history. It combined 22 federal agencies with 165,000 employees, into a new superagency charged with securing the U.S. homeland. The change swamps other restructurings, such as the creation of the Departments of Education, Energy, and Veterans Affairs. Moreover, the new department is not dedicated simply to the mission of securing better coordination among the agencies' existing programs. It seeks to maintain and strengthen each of those programs and add an additional layer – in program, mission, and leadership – of homeland security to what they are already doing.

As Christopher Hood (1998) pointed out, when disasters occur, a common response is to suggest that “the problem (whatever it was) could have been averted if only there had been more co-ordination, better procedures, more planning and foresight, clearer assignment of authority, more general ‘grip’ on the part of experts, professionals, or managers.” The typical solution: “To tighten up the rules and authority structures to prevent a recurrence” (p. 25).

The thrust of classical theory has been immersed in a major intellectual battle since the 1940s, with the structuralists getting the worst of it (see Dahl, 1947; Simon, 1947). However, that has scarcely prevented elected officials from resorting to structural solutions to complex problems; in part, because of a deep-seated conviction that better structure will, in fact, produce better results; and in part because restructuring produces a strong and visible symbol of action on hard problems, even if the new structures fail to solve the old problems and sometimes introduce new problems of their own.

Out of the debate, however, comes a clear message from Simon’s work. He recognizes that coordination is a contingent problem. What it is, how it works, and how best to perform it depends on the nature of the issue, the nature of the organization, and the nature of its employees. Structures rarely adapt easily and quickly enough to meet the challenges that hard problems present. Thus, rather than seeking coordination through structure, Simon argues for coordination through decision making.

#### Coordination, Structure, and Decision Making

The events of September 11, 2001, powerfully reinforce Simon’s argument about the need for contingent coordination. For example, New York City had long divided its public protection functions into the traditional functional lines of police and fire. Over time, functional rivalries had delayed the implementation of new coordination systems, such as improved radio communication in high-rise buildings. Management was so centralized that, when the buildings collapsed, they destroyed the operations grid that told fire commanders which crews were working where in which building, so it took hours to determine who was missing and where they might be found. The fire and police commanders did not coordinate their operations, so that warnings from the police helicopter overhead never reached the fire commanders.

On the other hand, the Arlington County commanders had developed more finetuned coordination mechanisms. They had recognized the potential gaps that a functionally based system could create during a serious disaster, and they worked in advance to bridge those gaps. Their response to the attack on the Pentagon represented the launch of pretested coordination plans, not an effort to rig a new coordination system on the spot.

The New York City effort was heroic by any standard, amid one of the largest and most complex emergency service crises any force has ever faced. The Pentagon scene was, by contrast, far smaller and more manageable. However, Gulick’s analysis suggests why, at the core, such coordination was so hard to manage: It required the linkage of strong functionally organized bureaucracies to solve a place-based problem. The more intense the crisis, the harder that coordination was to ensure. Gulick (1937), in fact, wondered, “Are there limits to co-ordination? Is mankind capable of undertaking activities which though interrelated are beyond man’s power of systemic co-ordination?” (p. 39).



The simple answer is that there are limits to coordination that organizational structure can achieve. Many of the key coordination puzzles of homeland security, in fact, require nonstructural approaches, including interorganizational networks (such as mutual aid agreements among fire departments), improved information technology, and stronger political leadership. In political terms, restructuring was the natural and predictable response to the problems of September 11, 2001. In administrative terms, it was a necessary but insufficient condition for improved coordination.

### Defining a Floor

The Arlington and New York emergency response systems rose to the enormous challenges that came with the September 11, 2001, attacks. The systems responded well because these were two of the best-prepared jurisdictions in the United States. The tremendous devastation in these two attacks hinted at how much worse things might have been had they occurred in less-prepared communities.

#### Variations in Local Preparedness

Systematic studies that compare the preparedness of local governments are virtually nonexistent. The studies that do exist are quick sketches that are not based on accepted methodologies. One analysis compiled by CNN (“How prepared is your city?”, 2002), for example, rated cities from most prepared (New York) and well prepared (including Atlanta, Austin, Baltimore, Charlotte, Columbus, Jacksonville, Kansas City, Miami, Phoenix, San Antonio, San Diego, and Washington) to less prepared (Boston, Detroit, Las Vegas, Milwaukee, New Orleans, and Philadelphia). The empirical work assessing local homeland security is fragmentary, at best. Experts – and officials of these communities – will surely disagree on which communities belong in which categories.

However, even on the basis of truly rudimentary evidence, two conclusions are clear. First, local governments vary widely in their emergency preparedness. Washington-area governments calculated long ago that their streets were lined with terrorist targets, and al Qaeda in 1993 had successfully attacked the World Trade Center. That prompted agencies to begin sophisticated planning. Other communities – faced with a less-direct threat, tight budgets, and leaders with different goals – have chosen to invest their energy and resources in other areas, and many communities clearly are less well prepared.

Second, this variance rests on differences in their capacity to coordinate. On one level, local preparedness hinges on providing the right equipment, from radios that operate effectively in high-rise crises and on supplying hazardous materials suits that can be used when officials suspect an anthrax attack. However, on a deeper level, it depends on making sure that the different elements of the system – local police and fire departments, local officials and federal agents – work together seamlessly when a crisis occurs. That requires designing and testing systems so that, as occurred at the Pentagon on the morning of September 11, 2001, they are ready to go.

State and local governments have long criticized federal programs for failing to provide adequate funds to secure coordination. Local officials have also complained

that the federal terrorism warnings have proven so vague as to make it impossible to do anything different, except to be careful everywhere that, they contended, only raised anxiety without increasing security. Too often, they complained, they were left on their own.

For their part, federal officials have pointed to problems in state and local preparedness and capacity to respond (Dalton, 2002; Falkenrath, 2000). Federal officials have quietly suggested that some local officials have failed to take the homeland security threat seriously enough. For example, a CNN reporter concluded that, when the federal government raised the alert status to orange, issued on February 7, 2003, “Some cities say they are already at a high security level and don’t anticipate many changes” (Meserve, 2003). In other cities, “Many cities did nothing in response because they didn’t have the resources or didn’t feel they were in danger” (Meserve, 2003). The federal government’s call to action was met with widely varying state and local response. Moreover, as the Federal Emergency Management Agency’s (FEMA) inspector general (2001) pointed out, state management of federal emergency programs is often highly uneven:

States often do not monitor and accurately report on subgrant financial and performance activities, States do not always make or close out projects in a timely manner, and financial status reports provided to FEMA are often incorrect or untimely. In addition, States do not always maintain adequate documentation to support their share of disaster costs and other financial requirements. Finally, States do not always have adequate practices to account for equipment purchased with Federal funds. FEMA needs to take the initiative to assist the States in developing reliable grant management systems. (p. 9)

#### Federal Control and Local Discretion

At the core of the problem are two issues: America’s historical tradition of local self-government, which has limited (in political and practical terms) federal dictate of state and local policy; and the technical difficulty of setting and enforcing standards, for intergovernmental programs in general and emergency services in particular.

The federal government could define basic standards, but the very nature of the problem precludes any one agency from controlling it. Homeland security necessarily involves multiple federal agencies, complex partnerships with state and local governments, and intricate ties between the public and nongovernmental sectors. This complex structure multiplies objectives and responsibilities – what government seeks to do and who is charged with doing it.

Without baseline goals and standards, it is impossible to determine how much money ought to be spent on which programs. Homeland security, by its very nature, is a diffuse problem – one that produces unending demands for money, no good way to know what the money buys, and no way of knowing when to stop (Falkenrath, 2000). However, homeland security is also, by its nature, one woven deeply into the fabric of U.S. federalism, where it is impossible for any player to define objectives and measures authoritatively for the other players.

This focuses, with painful sharpness, a basic question of U.S. federalism. Should state and local flexibility be encouraged, so that the states can indeed be

laboratories of democracy (Osborne, 1988)? Should the nation follow Alice Rivlin's (1992) prescription that the key to better government in a globalizing world is "restoring a cleaner division of responsibility between the states and the national government" (p. 31). Or is there a national interest in ensuring at least a minimum level of preparedness and response for all citizens, with the federal government defining and financing it and with state and local governments implementing it? John Donahue (1997) has warned, "Enchanted by the advantages of state [government] autonomy, we are rushing to abandon the far grater advantages of a continent-scale common front with which to face the coming century's economic pressures" (p. 169). In fact, he contended, if we fail to assert common goals, "State boundaries may become fault lines along which the American commonwealth will fracture" (p. 169). If one substitutes homeland security for economic pressures, his argument proves even more telling and persuasive.

U.S. federalism does not demand uniformity on all fronts. However, just as there are matters of individual rights and civil liberties on which Americans rightly expect equal treatment, there are problems of security on which they expect equal protection. Americans will not accept variations in risk because of the town through which they happen to be passing.

This poses a tough problem for which theory has no answer. We have an intergovernmental system in which the boundaries between the levels are fuzzy and shifting. We have an almost religious devotion to devolution. We face a problem that demands strong and concerted action, whose effectiveness depends on coordination among governments and the guarantee of at least a minimum level of protection. The system has faced other policy challenges (such as civil rights, welfare, and highway construction) in which the federal government has set and enforced minimum standards. In some policy areas, such as civil rights, the courts have provided the primary enforcement. In other areas (such as welfare and highways), the federal government has used financial leverage as an inducement to uniform services.

Homeland security raises the challenge of securing civil-rights – such as uniformity through highway-grant-like tools. It implies strong federal standard setting and local reporting on performance. That suggests, in turn, a level of federal influence over local policy that fits few existing patterns. In addition, given the stakes of homeland security – the nation can ill afford even a single jurisdiction unprepared to contain smallpox and other public health problems, for example – it is an area that requires timely and careful work.

### **Building a Reliable Learning System**

Coordination is about making the complex and difficult both straightforward and routine. In part, that is a matter of organizational design: breaking problems down to manageable chunks, and then connecting the chunks to make the system work. In part, this is also about testing and exercising the system to discover its weak spots, possible strategies for reinforcement, and whether the patches work. It is about performance improvement through repetition. By its nature, therefore, coordination is primarily backward looking. It seeks to identify possible sources of future system failure from past problems.

## Protecting the Future by Looking to the Past

Homeland security, however, poses a tough challenge to this approach, for four reasons. First, terrorists seek to identify and exploit weak spots in the system and are rarely likely to try the same thing twice. After all, they know that governmental systems will try to shore up areas that previous attacks identified as vulnerable. Second, with luck, terrorist events are rare, so they provide relatively few opportunities for learning. Third, in looking forward, planners cannot anticipate every possible threat. Fourth, should a terrorist event occur, the costs – in human lives and in property damage – could be huge, so the system must be devised to be as safe as possible.

## Redundancy: Advantages and Gaps

How can a system guard itself against unpredictable, rare, high-cost, events? Analysts have long accepted, even celebrated redundancy in their systems. In his famous article, Martin Landau (1969) argued that redundancy and overlap were a bureaucratic insurance policy, one that paradoxically increased efficiency by promoting duplication. Multiple programs and organizations provide defense in depth – if one agency misses a problem, the odds of catching it improve if there is another whose jurisdiction overlaps.

Critics have long complained about the redundancy approach. It celebrates the advantages of duplication, but it does not provide a clear guide about just where duplication ought to be installed, how much is enough, and how much is too much. Taken to its logical extreme, redundancy is little more than a justification for massive inefficiency. That is the case in spades for homeland security, where the threats by definition are uncertain and unpredictable and where, therefore, massive redundancy could seem comforting.

The problem with this approach, of course, is that threats in fact are unpredictable and resources are limited. Random redundancies could, in fact, open the door to well-planned attacks. If resources are scarce – as, in fact, they always are – redundancies are likely to appear randomly – or in response to bureaucratic politics and interest-group pressures. These gaps could, in fact, increase – not decrease – homeland security. The airline security system on the morning of September 11, 2001, for example, focused on matching picture identification with airline tickets and on preventing guns from being carried on board. It did not seek to keep small, sharp blades off planes, and the terrorists exploited that gap to devastating effect.

## Zero Tolerance for Error

Homeland security is different from most government programs in that there is zero tolerance for mistakes. A system that provides 99% protection against terrorist attacks leaves 1% maneuvering room for terrorists, and any opening can prove catastrophic. Of course, no system can be foolproof, but the goal of the homeland security system is to seek the most protection possible. Homeland security is not alone in the search for zero error tolerance. Fighters landing on an aircraft carrier, the space shuttle returning from orbit, the operation of nuclear

power plants – all must operate at very high levels of reliability. Indeed, these systems must perform well because of two interrelated features they share: Any problem in performance can create huge risks, and the risks that can result are unacceptable.

LaPorte and his colleagues have crafted a theoretical proposition to solve this problem. They have written extensively about high-reliability organizations, and this theory provides a strong foundation for understanding the theoretical constructs of the homeland security problem (Frederickson & LaPorte, 2002; LaPorte, 1996; LaPorte & Consolini, 1991; LaPorte & Thomas, 1996). Frederickson and LaPorte (2002) have studied the management of such zero-error-tolerance systems and have developed a theory about how best to increase reliability. Drawing on broader theory, they posit that complex systems can suffer from two kinds of errors. Type I errors are false positives, in which the system falsely signals error. Managers invest resources to prevent the error from occurring. Because there is no error, their efforts waste resources. By contrast, Type II errors are false negatives, in which managers fail to detect errors. They do not expend extra resources, but the system suffers from the error (Frederickson & LaPorte, 2002).

This formulation, they demonstrate, provides a powerful framework for understanding the management of homeland security. Managers want to prevent attacks and to minimize the damage should attacks occur. The ideal situation is to minimize Type I errors (resources wasted on situations that are not problems) and Type II errors (problems that sneak through the system). Type II errors obviously have the potential for catastrophe, so managers worry most about eliminating them. The process, however, frames a tough trade-off. Minimizing Type II errors means risking more Type I errors, by investing more in the system and allowing more disruptions to maximize security. By contrast, accepting more Type I errors – reducing investment in homeland security or failing to manage it carefully – risks more Type II errors – which could prove devastating.

#### Finding the Balance

The fundamental question, then, is how best to find the balance. At some point, greater investment to avoid Type I errors will not produce any reduction in Type II errors. At some point, for example, further investment in airline screening will not improve airline safety. Where should the balance be set? Over time, policy makers are likely to conclude that the absence of Type II errors – terrorist attacks – means that the system is properly calibrated. They might even conclude that they have invested too much in the system and that they could reduce investment without risking homeland security. As Frederickson and LaPorte (2002) point out, “Because no system is entirely efficient, there always will be type I errors” (p. 41).

That points to several inherent tensions in the homeland security system. First, there is the problem of information. Complex, high-risk systems (such as aircraft carriers) often provide many opportunities for testing new tactics and for gathering feedback. However, because terrorist attacks are rare and because skillful terrorists constantly seek new opportunities to exploit the system, it is hard for system managers to learn. That makes it difficult – perhaps impossible – to know just how to set the balance between Type I and II errors.

Second, there is the risk of backsliding. LaPorte's analysis suggests that, to minimize homeland security risks, we are likely to have to accept more Type I errors than we might like, so we can reduce the Type II errors that we cannot accept. The system thus is likely to be plagued constantly by complaints about over-spending, inconvenience, and excessive intrusion into civil rights and civil liberties. As time elapses without attack, pressures to reduce Type I errors are likely to grow – to shift homeland security spending to other areas, to reduce inconvenience, to lessen the invasion of civil rights and civil liberties. That risks increasing Type II errors: terrorist attack.

LaPorte's analysis of high-reliability organizations provides keen insight not only about how homeland security is likely to work but also about the key risks from which it is most likely to suffer. It does not – indeed, it cannot – provide clear guidance on how to calibrate the system. However, it implicitly warns that we might have to be willing to accept higher costs than might seem warranted to secure the level of protection we desire. That will come as little surprise to homeland security managers, but it does raise stark warnings for policy makers and citizens alike.

### **Balancing the New with the Old**

Homeland security, of course, is not a new problem, even if the label was new to most people after September 11, 2001. Public health workers have long worked to reduce the threat from biological, chemical, and nuclear weapons. Fire, police, and medical workers for years have drilled to reduce the risks of and damage from attacks. Indeed, that helps explain the extraordinary response of the emergency workers in Arlington, Virginia, and New York City. In many ways, national planners aimed to increase the capacity and response of workers across the country to that level.

#### Layering Missions, Matching Cultures

For all governments however, this was not a new mission. It was an expanded mission layered on top of existing missions. Local emergency workers needed to maintain their capacity to respond to fires and traffic accidents, bank robberies, and heart attacks. At the federal level, FEMA needed to maintain its ability to respond to hurricanes, tornadoes, floods, and earthquakes. The Secret Service was expected to maintain its ability to protect the president from more traditional threats. Boaters in trouble still expected the Coast Guard to come to their rescue, even as homeland security planners counted on the Coast Guard to provide stronger homeland defense at the nation's ports.

In all such likelihood, each of these other problems will occur far more often than terrorist attacks. That frames a central dilemma for government. If terrorist attacks threaten or occur, it must be prepared to prevent or respond to them as effectively as possible. However, the government cannot dedicate large agencies specifically to the homeland security challenge; that would waste resources and expand duplication and overlap. By expanding the mission of existing agencies, however, it challenges agencies to balance their current missions – from cleaning

up oil spills (the Coast Guard) to promoting immunization against childhood diseases (local public health departments) – with their new responsibilities.

That is a difficult trade-off. FEMA, for example, regularly copes with natural disasters. Major disasters, such as Hurricane Andrew (1992) and California's Loma Prieta earthquake (1989), immediately become the agency's top priority. If FEMA's fundamental mission is homeland security, pursuing that mission would cause tension with its existing job of responding to natural disasters. If natural disasters dominate, FEMA, in fact, would change little, and that would raise again the problem of integrating homeland defense. Homeland security is not a matter of doing something new. Rather, it is a matter of doing more – to continue what was being done, to add new functions that need to be done, to integrate these elements without undermining any of them, and to do so within a new structure.

The new federal homeland security department, meanwhile, brought together agencies with profound different cultures. The Secret Service has a paramilitary culture, which is profoundly different from FEMA's service orientation. The Coast Guard has a bit of both, with cutters charged with interdicting drug smugglers and rescue craft charged with saving sailors in trouble. Moreover, the department's managers face the challenge of bringing together organizations typically rated as high performing (such as FEMA and the Coast Guard) with organizations long identified as troubled (such as the Customs Service and the Immigration and Naturalization Service). Past managers of the troubled agencies, of course, had tried their best to improve their performance. Department of Homeland Security officials must succeed where their predecessors did not. They must also align the cultures and performance of the department's vast array of organizations into a strong, coherent, and high-performing organization. The challenge is daunting.

#### Managing Missions: Perspectives from the Literature

There is a substantial literature in U.S. public administration on government re-organization. Short (1923) described the history of government structure until the beginning of the 20th century. Gulick and Urwick (1937) edited the classic contribution, *Papers on the Science of Administration*, whereas Seidman's (1998) book *Politics, Position, and Power* covers more recent history. Emmerich (1971) provided an important analytical framework in *Federal Reorganization and Administrative Management*. Skowronek (1982) helped create a new historical approach to political science, one grounded in the development of government agencies, with *Building a New American State*, and scholars such as Carpenter (2001) have followed in this tradition.

This literature has woven together a richly textured story of the development of U.S. bureaucracy. It tells the story of how the ebb and flow of U.S. political traditions have shaped and reshaped American bureaucracy, in a tidal metaphor developed by Light (1997). The bureaucracy is the product of trade-offs: more of one thing (such as specialization by function) in exchange for another (such as coordination by place). Homeland security is very different, because it seeks much more of one thing (security) without sacrificing anything else (including existing missions of government agencies). There is no place else in the literature – or in the history of U.S. political institutions – where reformers merged such a wide range of large and important agencies into a new department, charged them with a broad and expansive mission, and at the same time directed them to continue

unabated with their existing responsibilities. Indeed, most of the existing literature is based on a zero-sum notion of organizational form: more of one thing means less of something else. The Department of Homeland Security is premised on demanding more of one thing (homeland security) and no less of anything else. The task is more formidable because the Bush administration pledged, at least initially, to do so without spending more money.

When new problems occurred in the past, the tendency has been to create new agencies. When problems of coordination have occurred, the tendency has been to restructure existing agencies. The creation of the Department of Homeland Security in 2002 is unprecedented in scale and scope. Neither administrative practice nor administrative theory provides much guidance for how to take on the new mission without sacrificing the old. Work by Barnard (1938) and Selznick (1957) focuses on the central role that institutions play – and how focusing an organization's culture on the mission it pursues is one of the best ways to secure coordination (Khadermian 2002). However, doing so with a problem that presents such a fundamental puzzle – important missions that present themselves daily, coupled with urgent mandates that occur only sporadically – is a challenge that lies beyond existing organization theory.

#### Meeting Citizens' Expectations in a Fragmented System

The most difficult issues about coordinating homeland security are not the managerial ones. In the aftermath of the September 11, 2001, attacks, public opinion polls showed that many Americans wanted government to play a stronger role in protecting them from further attacks (*Newsweek* poll, 2002). What kind of government role, however, varied significantly. In a poll taken a year later, Americans favored creation of a national identification by a two-to-one majority. Support for monitoring of cell phone calls, however, had dropped from 54% to 32% (Taylor, 2002).

#### Security as a Trade-Off

There are, in fact, two problems deeply buried here. One is the level of security that public officials can responsibly guarantee. Citizens, not surprisingly, expect full protection from all risks. They look to their government to do so and criticize public agencies and officials when problems occur. The revelations that FBI field agents in Minneapolis and Phoenix had identified suspicious individuals receiving flight training in advance of September 11, 2001, led to widespread criticism of the intelligence agencies and, ultimately, to the creation of the Department of Homeland Security. Government officials plan and train, budget and design, coordinate and test, but they can never cover all contingencies that might occur. However, they can never fully guarantee protection to citizens. They can only guarantee their best efforts. If problems occur, an argument that they did their best could prove a thin reed on which to rest defense of their work.

The other problem is that security cannot be pursued in isolation. It is the product of ongoing trade-offs between protection from risks and limits on freedom. Just how far are citizens willing to go to secure protection? Which freedoms are they willing to sacrifice, and to what degree? Are they willing to accept the implicit risk that comes when citizens rise up to defend their freedoms? Are their tolerances for risks and limits on freedom likely to change as time passes?



Political systems rarely tackle the implications of the choices their leaders and citizens make. Indeed, that is what helps make politics work. It runs on the subtext; new battles are the product of past victories and losses; and any deficit from one battle can potentially be made up in the next. The enormous potential losses from terrorism, however, force these implicit trade-offs much more into the open. A political system traditionally built on keeping such trade-offs under the surface suddenly has found itself grappling in the open with them.

This is, at its core, a challenge for political leaders, and it can only be solved through political leadership. The job of leaders is to define reality for others (Tucker, 1981). They help resolve ambiguity. They motivate employees and paint an organization's outward face. They build and maintain administrative capacity. Most important, they fill in the gaps that other processes and strategies leave. They are responsible for effective operation across government's complex boundaries and problems. In homeland security, that means defining what level of risk is acceptable, and how to set the balance between freedom and security that any level of risk entails.

Not only do leaders face the tough job of making choices where the trade-offs are laid far more bare than the political system comfortably can bear, they face the burden – even more daunting than usual – of accepting accountability for decisions that have profound implications, stretching to the very safety and survival of their citizens. That is a huge responsibility with equally huge political implications. The system will have to gently feel its way toward defining acceptable levels of risk and appropriate ways of holding officials accountable for securing them.

#### Intergovernmental Reliability

That also entails creating a governance system that has a high level of reliability – higher, in fact, than is typically the case for most current public programs. Although Americans complain bitterly about government waste, and reporters love to broadcast stories about misspent public dollars, the underlying reality is that they often are unwilling to accept the service reductions that come with a sustained war on waste. Waste sometimes is redundancy hardwired into the system – for political or administrative reasons – to make sure that fewer things slip through the cracks. It is almost always in the eye of the beholder, with one person's waste another's treasured public program. Agencies, programs, and budgets do not always exist to supply public services efficiently. They sometimes serve important symbolic or political purposes. We all tolerate inefficiency because we also seek other goals, from the broad-minded search for equality to the narrow-minded search for pork.

Nowhere is that more clear in the U.S. system than in federalism. We have created multiple levels of government, whose missions at least partially overlap. We tolerate the constant battles over boundaries, in part because we appreciate being able to take our complaints to multiple venues and in part because we deeply cherish local self-government, even if it often proves inefficient. Homeland security, however, puts tough new demands on the intergovernmental system. For the homeland truly to be secure, federalism will not only need to be a political system but also a tightly knit administrative structure, one that produces high levels of reliable services.

Perhaps no other issue in U.S. history has so sharply raised a question about the role and structure of federalism. To be sure, the tough battles over civil rights in last one half of the 20th century focused the puzzle of how much discretion state and local governments ought to be allowed at the expense of nationally guaranteed rights. Homeland security produces the same puzzles over national power and local discretion. However, it also does so in a context that, in an instant, could prove fatally unforgiving. That frames a deeper riddle. National defense is largely a function of the national government, although the National Guard, managed by state governments, plays a large role. Homeland security is inevitably an intergovernmental function, with the national government using intelligence to identify security risks and state and local governments fielding the forces that provide security and manage the consequences of any attacks. Homeland security therefore challenges governmental leaders to balance the political attributes of federalism with the imperative of forging state and local governments into a reliable system that, in fact, makes the homeland safer.

### **Conclusion: Working Theories, Missing Links**

It is scarcely surprising that the field's major theories prove a poor match for homeland security problems. As New York City's firefighters found on the morning of September 11, 2001, there was little that prepared them for the catastrophe they faced. Homeland security depends critically on high levels of coordination that plug vulnerabilities in the system. To mix in the metaphor so often invoked in the months after the attacks, homeland security relies on "connecting the dots." There can be little disagreement in principle about the goal. The problem lies in

- achieving coordination to prevent and respond to place-based events through functionally structured organizations
- ensuring a predictable minimum level of protection and response through the vast complexity of America's intergovernmental system
- protecting citizens from rare, catastrophic events through systems with other functions
- attending to these new missions without neglecting the old
- meeting citizens' expectations for safety, even though complete protection is impossible
- mapping these characteristics of the issue against the field's theory helps chart the vulnerabilities – in theory and practice – that homeland security raises.

How can we deal with these vulnerabilities? How can we create an effective system of contingent coordination, in theory and practice? Table 1 suggests possible solutions, in theory and practice.

#### Matching Place and Function

Classical theory relies on structural solutions to coordination problems. Reaching back to the scientific management school, it is based on the premise that workers should not be stretched to their capacity to solve hard problems. Rather, the key

**Table 1:** Dimensions of contingent coordination

<i>Issue</i>	<i>Homeland security problem</i>	<i>Theoretical tradition</i>	<i>Possible solution</i>
Matching place and function	Coordinating place-based problems through functionally organized services	Gulick: Conflict of area and function	Practice: Networks information technology, leadership Theory: Devising nonstructural approaches to coordination
Defining a floor	Ensuring minimum level of service	Federalism: Local discretion Performance: Measuring results	Practice: Performance management Theory: Integrating performance management into federalism
Building a reliable learning system	Establishing routine responses to rare events that present few opportunities to learn	Landau: Redundancy La Porte: High-reliability organizations	Practice: Assess capacity against performance Theory: Linking outputs with outcomes
Balancing new with old	Pursuing homeland security without neglecting important existing missions	Strategic planning: Setting priorities Organizational culture	Practice: Reshape organizational culture Theory: Bureaucratic leadership to balance external environment with internal capacity
Meeting citizens' expectations in a fragmented system	Defining acceptable risk and strengthening system capacity	Risk analysis Intergovernmental relations	Practice: Political leadership to shape public expectations, governmental capacity Theory: Governance approaches that link problems with institutions

lay in redesigning the system. However, structural solutions inevitably fall short of solving homeland security problems because the homeland security demands flexible capacity far past what structure can deliver.

Network approaches describe an alternative. For example, Milward and Provan have charted the role that loosely coupled systems can play in providing effective public services (Milward & Provan, 2000; Provan & Milward, 2001). This approach is more descriptive than prescriptive, but it provides a framework for bridging the gap between structural and individual approaches to public management. Simon (1947) long ago pointed to the key roles that individuals must play as decision makers. Milward and Provan chart the framework within which they can make these decisions.

Another approach (little explored in organization theory) is the potential of information technology to create *virtual restructuring* – to rely on computer-aided systems to identify and link needed organizations and allow managers to connect them, as needed, to cope with critical problems. A grave element of the homeland security problem is that no problem may repeat itself. Any restructuring based on a previous event might prove inadequate – or dangerously misdirected – in dealing with future events. The key is to create a system that is lithe and flexible. Classical administrative theory, by design, is precisely the reverse. Information systems have the potential for remedying that.

### Defining a Floor

Everyone agrees that homeland security is important. The difficult question is what level of homeland security is needed. State and local governments are not in a good position to answer that question, yet they are responsible for most of the frontline programs. Left fully to their own plans, their decisions might very well fail to fill high-risk problems identified by federal intelligence officials. The level of local preparedness is certain to vary widely. David Warm, executive director of the Kansas City-based Mid-America Council of Governments, frames the problem neatly in discussing the Bush administration's 2001 proposal to provide \$3.5 billion in grants to state and local governments: "We may just be blowing \$3.5 billion at the wall. Just dangle checks before mayors and they have no incentive to collaborate" (cited in Peirce, 2002). What would be better, he says, would be requiring governments to work with local governments through a regional planning process so they intelligently share the money "and don't just divide up the pie and buy stuff" (cited in Peirce, 2002).

One potential solution is a strategy in which the federal government identifies key goals, provides grants to state and local governments for high-priority needs, and measures their performance against the plan. Such strategic planning and performance measurement has proven difficult enough at the federal level. The intergovernmental dimensions are, at best, in their infancy. Yet, as the General Accounting Office concluded,

Given the recent and proposed increases in preparedness funding as well as the need for real and meaningful improvements in preparedness, establishing clear goals and performance measures is critical to ensuring both a successful and a fiscally responsible effort (Posner, 2002, p. 3).

### Building a Reliable Learning System

Effective management systems depend on good feedback. Collecting good feedback from rare, nonrecurring events makes effective management difficult. That is doubly true because homeland security coordination so often must be ad hoc, developed around the contingency at hand with the right collection of services pulled together to deal with the problem. It is a theoretical problem that defies a structural solution grounded in routine, because no problem is likely to be quite like the last.

How can managers create effective routines for rare events? Local emergency managers have long devised simulations and exercises to test their response to different problems. The simulations are, of course, a far cry from the real thing. The watchword of generals is that war plans go out the window with the first shot. That indeed was the lesson of September 11, 2001, especially at the World Trade Center. However, exercising plans can prove valuable not only in exploring possible weaknesses in the plan but also in building personal relationships among the key players, which in the heat of a problem can often be the most useful tool of all. In this case, networks matter – and personal networks matter most. One local official reported that one of the most valuable components of a multidepartment exercise was getting to know the local FBI field agent and learning the agent's cell phone number.

Because collecting feedback is difficult, managers need to push further. Exercises, tabletop games, and field drills can prove useful. Just as important is assessing organizational capacity against targets (Hatry, 1999). Given the slippery and hard-to-predict nature of homeland security problems, that is a tall order. The nascent literature and practice of setting performance targets against strategic plans is one step.<sup>1</sup> Setting minimal standards, if only for process (does a local government have an emergency plan for integrating public health officials into emergency response, and has that plan been tested?) can provide an important threshold.

### Balancing the New with the Old

The problem of balancing the central dilemma of homeland security – doing new things well without sacrificing doing the old things – is at its core a problem of organizational leadership. It is the task that Moore (1995) described as “creating public value,” by the leader’s balancing of outside and inside organizational demands. In part, this is a task of managing the expectations of key external constituencies. In part, this is also the job of framing and growing the most supportive organizational culture (Khademian, 2002). Since September 11, 2001, media reports have pointed to multiple problems of culture: information gathered in the field that lay undigested at the top; old patterns of behavior that frustrated coordination among agencies; security-related agencies that did not see homeland security as part of their job. Leaders not only have to deal with the external demands they face but also have to reshape their agencies, how they behave, and the problems to which they pay attention.

### Meeting Citizens’ Expectations in a Fragmented System

Homeland security is far more than a technical issue. It is more than a national security issue or a puzzle of federalism. It is, at the core, a problem of governance – of linking the elements of the U.S. system, governmental and nongovernmental – into a coordinated system of defense. It is a problem of defining what defense means, how much protection is enough, how much Americans are willing to pay for it, what sacrifices they are willing to tolerate, and how to make the system work effectively. It is, in brief, a problem of political leadership.

The leadership challenge might, indeed, turn out to be homeland security’s toughest. It is where the difficult technical puzzles and political trade-offs come together, and where the balance of costs and risks collide. Analysts and citizens alike often think of coordination as a rather dreary, technocratic problem. In homeland security, coordination is a deceptively complex and slippery puzzle. It is one that demands a skilled hand to match the demands of coordination to the contingencies that develop. In addition, it is one that demands strong and effective political leadership to shape the trade-offs that lie at its core.

## **Contingent Coordination for Homeland Security**

In short, homeland security poses stark and critical problems of coordination. That puzzle is nothing new to the study or practice of public administration and public management, but homeland security twists the traditional challenge into

a new form. It demands that managers and policy makers devise effective service systems. It also demands that they develop systems that can react – quickly and effectively – to widely different threats and problems. That means they must be adept at contingent coordination: securing collaborative work among disparate levels of government, agencies, and public servants for critical problems, which may occur rarely and may never repeat.

The serial, zero-tolerance-for-error nature of the problems, coupled with the ongoing missions of the agencies and governments involved, demand fresh and innovative approaches to public management. These approaches must be grounded firmly in the lasting ideals of the American democratic system, yet they must adapt to the shifting and unpredictable administrative problems that homeland security poses.

### Author's Note

I am indebted to my collaboration with The Century Foundation and its Project on Federalism and Homeland Security, of which I have served as executive director. The research and conversations surrounding this project have proven invaluable in framing the ideas that follow. Patricia Ingraham, Gary Wamsley, Frank Thompson, and the journal's editors provided invaluable suggestions for improving the manuscript.

### Note

1. For example, the Office of Management and Budget created in 2001 a performance assessment rating tool, which sought to integrate agency plans with performance measures. See [www.whitehouse.gov/omb/budintegration/spring.html](http://www.whitehouse.gov/omb/budintegration/spring.html)

### References

- Barnard, C. (1938). *The functions of the executive*. Cambridge, MA: Harvard University Press.
- Carpenter, D. (2001). *The forging of bureaucratic autonomy: Reputations, networks, and policy innovation in executive agencies, 1862–1928*. Princeton, NJ: Princeton University Press.
- Christensen, T., & Lægreid, P. (2001). *Administrative reform policy: The challenges of turning symbols into practice*. Paper presented at the Sixth National Public Management Research Conference, School of Public and Environmental Affairs, Indiana University, Bloomington.
- Dahl, R. (1947, winter). The science of public administration. *Public Administration Review*, 7, 1–11.
- Dalton, P. (2002). *Combating terrorism: Intergovernmental cooperation in the development of a national strategy to enhance state and local preparedness* [Statement]. (GAO-02-550T). Washington DC: General Accounting Office.
- Donahue, J. (1997). *Disunited states*. New York: Basic Books.
- Emmerich, H. (1971). *Federal reorganization and administrative management*. University: University of Alabama Press.
- Falkenrath, R. (2000). *The problems of preparedness: Challenges facing the U.S. domestic preparedness program* [BCSIA Discussion Paper 2000-28, ESDP Discussion Paper ESDP-2000-05]. Harvard University, John F. Kennedy School of Government. Available at [ksgnotes1.harvard.edu/BCSIA/Library.nsf/pubs/ESDP5Falkenrat](http://ksgnotes1.harvard.edu/BCSIA/Library.nsf/pubs/ESDP5Falkenrat)
- Federal Emergency Management Agency. (2001). *Semi-annual report: April 1, 2001–September 30, 2001*. Federal Emergency Management Agency, Office of the Inspector General, Washington, DC. Retrieved from [www.fema.gov/ig/0401\\_sar.htm](http://www.fema.gov/ig/0401_sar.htm)

- Forest of columns kept pentagon standing. (2003, January 24). CNN, Available at [www.cnn.com/2003/US/01/24/attacks.pentagon/index.html](http://www.cnn.com/2003/US/01/24/attacks.pentagon/index.html)
- Frederickson, H. G., & LaPorte, T. (2002, September). Airport security, high reliability, and the problem of rationality. *Public Administration Review*, 62, 33–43.
- Gulick, L. (1937). Notes on the theory of organization. In L. Gulick & L. Urwick (Eds.), *Papers on the science of administration* (pp. 1–45). New York: Institute of Public Administration.
- Hatry, H. (1999). *Performance measurement: Getting results*. Washington, DC: Urban Institute Press.
- Hood, C. (1998). *The art of the state: Culture, rhetoric, and public management*. Oxford, UK: Oxford University Press.
- How prepared is your city? (2002). CNN. Retrieved from [www.cnn.com/SPECIALS/2002/prepared.cities/](http://www.cnn.com/SPECIALS/2002/prepared.cities/)
- Kanigel, R. (1997). *The one best way: Frederick Winslow Taylor and the enigma of efficiency*. New York: Viking.
- Khademian, A. (2002). *Working with culture: How the job gets done in public programs*. Washington: Congressional Quarterly Press.
- Landau, M. (1969, July–August). Redundancy, Duplication, and the Problem of Duplication and Overlap. *Public Administration Review*, 29, 346–358.
- LaPorte, T. (1996). High reliability organizations: Unlikely, demanding and at risk. *Journal of Crisis & Contingency Management*, 4, 55–59.
- LaPorte, T., & Consolini, P. (1991). Working in practice but not in theory: Theoretical challenges of high-reliability organizations. *Journal of Public Administration Research & Theory*, 1, 19–47.
- LaPorte, T., & Thomas, C. (1996). Regulatory compliance and the ethos of quality enhancement: Surprises in nuclear power plant operations. *Journal of Public Administration Research & Theory*, 5, 111–139.
- Light, P. (1997). *The tides of reform: Making government work 1945–1995*. New Haven, CT: Yale University Press.
- McKinsey and Co. (2002). *Increasing FDNY's preparedness*. Available at [www.nyc.gov/html/fdny/html/mck\\_report/toc.html](http://www.nyc.gov/html/fdny/html/mck_report/toc.html)
- Meserve, J. (2003, February 8). Warnings sparked alert. CNN. Available at [www.cnn.com/2003/US/02/08/otsc.meserve/index.html](http://www.cnn.com/2003/US/02/08/otsc.meserve/index.html)
- Milward, H. B., & Provan, K. (2000, April). Governing the hollow state. *Journal of Public Administration Research & Theory*, 10, 359–379.
- Moore, M. (1995). *Creating public value: Strategic management in government*. Cambridge, MA: Harvard University Press.
- Newsweek* poll: Bin Laden to blame for anthrax. (2002, October 20). MSNBC. Available at [www.msnbc.com/news/645354.asp](http://www.msnbc.com/news/645354.asp)
- Osborne, D. (1988). *Laboratories of democracy: A new breed of governor creates models for national growth*. Boston: Harvard Business School Press.
- Peirce, N. (2002, April 7). Homeland security: Can we spend the billions better? Available at [www.postwritersgroup.com/archives/peir0401.htm](http://www.postwritersgroup.com/archives/peir0401.htm)
- Posner, P. (2002). *Combating terrorism: Intergovernmental partnership in a national strategy to enhance state and local preparedness* [Statement] (GAO-02-547T). Washington DC: General Accounting Office.
- Provan, K., & Milward, H. B. (2001, July/August). Do networks really work? A framework for evaluating public sector organizational networks. *Public Administration Review*, 61, 414–423.
- Rivlin, A. (1992). *Reviving the American dream: The economy, the states and the federal government*. Washington, DC: Brookings Institution Press.
- Seidman, H. (1998). *Politics, position, and power: The dynamics of federal organization* (5th ed). New York: Oxford University Press.
- Selznick, P. (1957). *Leadership in administration: A sociological interpretation*. Evanston, IL: Row, Peterson.
- Short, L. (1923). *The development of national administrative organization in the United States*. Baltimore: Johns Hopkins University Press.
- Simon, H. (1947). *Administrative behavior: A study of decision-making processes in administrative organization*. New York: Macmillan.

- Skowronek, S. (1982). *Building a new American state: The expansion of national administrative capacities 1877–1920*. New York: Cambridge University Press.
- Taylor, F. (1911). *Principles of scientific management*. New York: Harper and Brothers.
- Taylor, H. (2002, September 10). Harris poll #46. Retrieved from [www.harrisinteractive.com/harris\\_poll/index.asp?PID=325](http://www.harrisinteractive.com/harris_poll/index.asp?PID=325)
- Titan Systems Corporation. (2002). *Arlington County: After-action report on the response to the September 11 terrorist attack on the Pentagon*. Retrieved from [www.co.arlington.va.us/fire/edu/about/pdf/after\\_report.pdf](http://www.co.arlington.va.us/fire/edu/about/pdf/after_report.pdf)
- Tucker, R. (1981). *Politics as leadership*. Columbia: University of Missouri Press.