Understanding employee responses to disaster

by Thomas E. Drabek, Department of Sociology, University of Denver, Denver, Colorado

Introduction

During recent years, disaster preparedness and planning within private businesses has moved from being a topic that was met with smiles and little else, to a recognised managerial responsibility. For example, 'In 1989 researchers showed that less than half of the Fortune 1000 corporations surveyed had a crisis management team or had any type of crisis management plan in place to deal with a major crisis or catastrophe' (More 1998, p. 224). By contrast, more recent surveys reveal a somewhat improved picture. 'According to a recent *Contingency Planning & Management*/Ernst & Young LLP study, 95 % of companies surveyed are either developing or have some type of BCP [Business Continuity Planning] in place' (Keating 1997, p. 1). But even this survey revealed gaps and voids that suggest vulnerability to disaster. For among the companies included in the 95 percent are those who are 'developing plans' (24%) and those who have completed plans only for certain departments or divisions (32%). In short, these survey data actually documented that only 38 percent of the companies surveyed claimed to have completed the planning process although most were evidencing some progress and commitment. A 1999 follow-up validated these results and the implicit vulnerability. 'While still encouraging, the results have fallen about two percent from 1998' (1999 results based on a four page questionnaire; 10,000 mailed, 531 returned, i.e. 5%) (Van Gilson 1999, pp. 12 and 16).

But what about behavior? When impacted by actual disasters, what do employees experience? Although a great deal has been learnt over the years about human responses to disaster (Fritz 1961, Barton 1969, Dynes 1970, Drabek 1986), employee responses have not received much attention. There have been a few studies of employee responses to single events like the accident at Three Mile Island (Chisholm et al. 1983), the bombing of the World Trade Center in 1993 (Wenger et al. 1994) and Hurricane Andrew (Sanchez et al. 1995). Others have reported a few observations regarding work place behavior that were reported during household evacuation interviews (Bourque et al. 1993; Goltz et al. 1992). But *no comparative studies of employee responses to disaster have been reported*. Following brief discussion of the theory and methods that guided and bounded my study and a summary of general responses, I will describe the results of five multivariate models that best predict variations in:

- work-family tensions
- desired change in evacuation pay policies
- perceived morale change
- dissatisfaction with management disaster response
- dissatisfaction with local government disaster response.

I will conclude with discussion of employee recommendations regarding desired changes in company disaster planning and response.

Theory and method

This study was guided by the *stress-strain theoretical perspective* which has been applied in numerous disaster studies for several decades (Haas and Drabek 1970; Drabek 1990, 1994, 1996, 1999a). It is a variant of the *emergent norm paradigm* (Turner 1964; Perry 1985) and draws heavily on *bounded rationality theory* (Burton et al. 1993). In essence, this perspective assumes that when people are confronted with danger they will form emergent perceptions of risk. Multiple layers of social constraint, including various forms of structured strain, i.e. inconsistency, ambiguity, and overload, pattern these emergent perceptions of risk. Hence, when disaster warnings are issued, all employees are free to select their behavioral actions. But their choices reflect the range of options they perceive to be available. These, in turn, are limited by varied forms of social constraint that are the outgrowth of their past life experiences (Drabek 1999b).

As in everyday life, during disaster employees are forced to choose between family and work. For some the decisions are easy—they may stay at work late to place sandbags, move furniture, or whatever. For others, a series of compromises are required to reduce the strain they confront because of family expectations and needs. Understanding the behavior evoked by disaster warnings, therefore, requires examination of a complex mix of social constraints that capture the juxtaposition of both work and family expectations.

Seven disaster events were compared through field work in 12 communities:

- Hurricane Felix (August 1995) (Carteret and Dare Counties, North Carolina)
- Hurricane Fran (September 1996) (Pender, New Hanover and Brunswick Counties, North Carolina and Horry County, South Carolina)
- flood (January 1997) (Washoe County, Nevada)
- flood (January 1997) (Stanislaus County, California)
- flood (January 1997) (Sutter and Yuba Counties, California)
- flood (July 1997) (Larimer County, Colorado)
- flood (July 1997) (Logan County, Colorado) for event descriptions and analytic characteristics, see Drabek 1999, pp. 28-54.

The research design was a comparative case study (Yin 1984) wherein field observations were augmented by systematic field and telephone interviews with 406 employees who worked for 118 different businesses. The firms were selected carefully to insure balancing across two analytic design variables, i.e. size and mission. Interviews averaged 45-50 minutes although many went well over an hour especially in the high impact areas. Following each interview, I requested that a short mail back questionnaire (30 items) be completed; two-thirds (66%) returned these. Also, 23 emergency managers were interviewed; they provided contact recommendations of impacted businesses and important contextual information regarding both the disaster event and the community response.

Employee responses

When warned about these disasters, threat

denial was the initial response regardless of the information source. All employees, however, tried to confirm the information through one of several coping actions. These reflected the constraint of social status. For example, CEO's and upper management contacted local authorities with some frequency whereas line personnel turned to relatives, friends, and media outlets. Extensive discussions with co-workers were reported by most employees. The content varied, but the most frequent topics discussed were:

- the potential severity of the threat
- where to go
- when to go
- the continued relative safety of both work and home locations.

During these discussions additional warning information was received, but often inconsistencies emerged. Decisions about work and family had to be made within a context of uncertainty and ambiguity.

As the warning period continued, over two-thirds said they stayed at work to help prepare the business for impact. Again, their actions clearly reflected the powerful constraint of social status. Those in managerial positions focused on providing necessary information to other employees, while those with other jobs boarded up, created back-up computer files, and assisted customers. These firms varied in their degree of *disaster-relevance*. Some like lumber yards and retail outlets that sold emergency supplies of various types were pressed to remain open as long as possible. This too was true of some shelter providers, e.g. hotels that provided rooms to media personnel who arrived on scene to report and record the upcoming destruction.

One-half indicated that their boss provided some form of evacuation related assistance during this time. The forms of assistance varied widely both in content and the perceptions of employees.

> 'Our manager offered a room at an inland hotel for me and my family if we decided to evacuate from our home.'
>
> 'We received pay advances; normally we get paid on Thursday and that was the day the hurricane was due. So management paid everyone early to help out with people leaving.'
>
> 'They indicated that if we had problems at home we could take time off to protect our homes. I had to get a pump to get the water out of my flooded basement.'

At times offers of help that might have been made in good faith were viewed with double or negative meanings by employees. On the surface, for example, these two statements might imply only a sense of gratitude.

> 'We could stay in their home—they offered. They knew we were not comfortable staying in our trailer.'
>
> 'He offered free rooms to anyone who needed a place to stay. I asked about our six dogs and he said we had pet rooms here so I could bring them here which I did.'

While guarded and tactful—and often couched in a context of appreciation—some employees added remarks that reflected hostility. Since they were at a manager's home, or more commonly at their work site such as a structurally sound hotel, they were available to work until just prior to impact. And afterwards, they remained on-site to assist in a rapid reopening. In the disaster aftermath they now had lingering doubts about their boss's motivations. Was it just circumstance that they, and sometimes family members, were a readily available workforce when other businesses had yet to get any employees back on-site?

Emergent perceptions of risk gradually intensified prior to impact, especially among employees who:

- resided in communities wherein the least amount of disaster planning had occurred
- received warning messages they interpreted as meaning that it was mandatory for them to leave their place of residence
- resided in a mobile home or apartment

So, with, or occasionally without their bosses approval, they left work. Nearly all went straight home although a few had arranged to meet family members in other locations such as a relative's home.

Those quickest to leave work, more often:

- confronted events with a lengthy duration of impact
- had bosses with high future risk perceptions
- were female

Those quickest to leave home, more frequently confronted events with a lengthy duration of impact that was either minimal or disastrous in its impact, e.g. hurricane threatened areas that were either missed at the last minute or impacted severely. Also, these employees more frequently received initial warnings three or four days prior to impact and formed very intense emergent perceptions of risk. Although additional variables demonstrated varied aspects of social constraint, these were the qualities that had the most influence (for elaboration, see Drabek 1999b, pp. 164–166).

Although most (96%) reported that neither they nor any family members were injured, over one-fourth (27%) said they had personal property losses of some type. In contrast, only one of the 118 firms, all of which were evacuated either before or after impact, escaped without damages.

Although a few (16%) refused to disclose even a 'ballpark figure,' most CEOs (43%) estimated losses that ranged between $10,000 and $99,999. Just over one-fourth (27%) suggested that their losses were not expected to exceed $10,000. The others (29%) suffered significant impacts including six that incurred losses in excess of three million dollars.

As would be expected, when some employees (15%) tried to report back to work, they were advised that temporary office locations had been established elsewhere. In some cases these were branch locations of a larger corporate structure to which employees were reassigned temporarily, but more commonly they were new locations that were leased while repairs were made. For about one-third (37%) of the employees, such arrangements were very temporary, i.e. two days or less. For others, such disruptions were much longer, e.g. 3–7 days (17%); 8–31 days (24%). Ten percent worked in temporary locations for over a month. A near equal number (12%) were still in such a place at the time of my interview, with expectations of remaining there for another couple of months. A few projected return times of another six months or more.

Although some employees emphasised that the temporary job relocation had negative impacts on their family, most (93%) took the inconveniences in stride. Those reporting difficulties usually noted longer driving times to get to the temporary location which in turn complicated day care arrangements, school transportation, and other child related issues. But those impacted negatively consistently expressed strong sentiments toward upper management whom they believed had little awareness or interest in the enhanced family stress they experienced.

Response variations

As is clear from this brief portrait of employee responses, there were important variations that clearly reflected selected aspects of a complex mix of social constraints. Multivariate analysis techniques were implemented to examine a large number of these. Five will be

addressed in this section of this article:

- work-family tensions
- desired change in evacuation pay policies
- perceived morale change
- dissatisfaction with management disaster response
- dissatisfaction with local government disaster response.

Work-family tensions

Acute priority conflicts between work and family during these evacuations were experienced by over one in five employees (21%). And three-fourths (75%) indicated that managers of private businesses should give more consideration to such tensions when they are preparing disaster plans. Undoubtedly, all employees experience some degree of tension at times between the demands of work and family. Although the rates are lower, these results are consistent with those documented among Three-Mile Island (TMI) employees by Chisholm et al. (1983, pp. 393, 402). When compared to their comparison group, i.e. persons employed at the Peach Bottom plant of the Philadelphia Electric Company, TMI employees '. . . experienced significantly higher overall tensions on their jobs during the incident than did PB employees'. Furthermore, '. . . interrole conflict contributed importantly to TMI employees' job tension. This is apparent from the impact of "need to be in two places at the same time," because the vast majority of TMI workers (approximately 90 percent non supervisors and 75 percent supervisory) indicated conflict between being at work and at home during the incident.'

I combined responses to three interview items pertaining to work-family tensions. This index was used to ascertain the social characteristics that were associated with those employees who experienced the highest levels of work-family tension during these evacuations. Among the thirty-four variables that were significantly related were such factors as racial minority status ($F = 3.92$; $p < .01$); children within the household ($F = 15.98$; $p < .01$); and prior evacuation of the business ($F = 17.05$; $p < .01$) (see Drabek 1999, pp. 168-171, for details regarding index construction and discussion of all variables).

Examination of several combinations of the thirty-four variables, however, led to the acceptance of a nine-variable multivariate model that accounted for about 16 percent of the variance within the index. As detailed in *Table 1*, the nine social factors that comprised this model were:

- community had a disaster sub-culture
- children living in household
- relatives were notified of business closure before employee left work
- disaster had extensive scope of impact
- employee was racial minority
- prior evacuation from work
- business had received disaster planning assistance from local emergency manager
- three or more people living in household
- business was 'disaster-relevant,' e.g. lumber yard that sold plywood and other emergency items during warning period.

Interrole conflict, like that which Chisholm et al. (1983) documented among TMI workers is reflected in several of these factors including number 2 (children living in household) and 8 (three or more people living in household). Disaster frequency and expectations of high risk were reflected in such factors as number 1 (community disaster sub-culture), number 6 (prior evacuation from work) and number 7 (business had received disaster planning assistance from local emergency manager). While other issues may be reflected, more intensified work-family tensions among minority employees is consistent with numerous risk perception studies such as those reviewed by Vaughan and Nordenstam (1991, p. 46). Clearly, ' . . . ethnic minority status is associated with a greater likelihood of increased exposure to hazardous agents in a wide variety of occupational settings'. Furthermore, 'This differential exposure may account, in part, for differences in risk perception among members of ethnically diverse groups, because prior experience can influence the subsequent evaluation of risk'. Finally, employees of so-called 'disaster relevant firms' most frequently confronted bosses who truly believed that the broader community would best be served if the business remained in operation as long as possible despite increased amounts of threat information.

Model that predicted work-family tensions*

Social Factor	F	r	Beta
Community disaster subculture	12.07**	.237***	.146**
Children in household	7.07***	.214***	.134
Notified relatives of evacuation	26.41***	.255***	.131**
Scope of impact	6.89***	-.142***	-.122**
Racial or ethnic background	3.92***	.159***	.102**
Prior evacuation from work	17.62***	.208***	.104
Planning assistance by EM	7.33***	.136***	.081
Total number in household	4.89***	-.197***	.078
Disaster-relevant business	9.42***	.155***	.058

*Adjusted $R^2 = .164$; $F = 8.06$; $p < .001$; **$p < .05$; ***$p < .01$

Table 1: Model that predicted work-family tensions

Evacuation pay policies

Two interview items were used to identify employees who believed that changes should be made in the compensation policy used during the evacuation. Salaried employees typically were paid despite these short-term business closures while those paid on an hourly basis were not. Various uses were made of sick leave and vacation time to reduce pay check impacts. Also, many employees expressed appreciation for being scheduled for additional work hours during the weeks that followed to offset pay reductions that had occurred because of these evacuations. Overall, however, 30 percent of the sample said they were not paid at all for the time they missed work because of these disasters. Reflecting acceptance of the legitimacy of a 'no work-no pay' policy stance, nearly three-fourths (74%) indicated that they did not see any need for change in the policy they encountered.

So as to identify the social factors that might differentiate among those with different views on this matter, 76 hypotheses were tested. These analyses indicated that 39 social factors covaried with the compensation policy index. For example, those employees who favored a policy change, usually meaning that full or partial compensation should be made to employees who can not report to work

because of a management evacuation decision, more frequently:

- were female
- had worked for the company fewer years
- were of minority ethnic or racial background
- were younger
- had job positions at or near the bottom of the organisational structure.

Other critical factors included certain business characteristics, e.g. routine core technology and high level of vertical differentiation; community features, e.g. small population size and wide circulation of a disaster preparedness brochure; and event qualities, e.g. lengthy forewarning and very limited escape routes.

A seven variable model was discovered that predicted about one-third of the variance in employee preferences regarding changes in company policies pertaining to disaster evacuation compensation (*Table 2*). Employees who most favored change in such policies were:

- those who had high expectation of a future event that would trigger another evacuation
- resided in communities that received a lengthy forewarning of the disaster event
- employed in businesses with highly routine technologies
- minimally involved in community service organisations
- personally warned initially three or four days prior to impact
- in lower level job positions
- living in a mobile home or apartment

Model that predicted change in evacuation pay policies*			
Social Factor	**F**	**r**	**Beta**
Employee future risk perception	4.87***	-.246***	.383**
Length of forewarning	12.89***	.256***	.312**
Core technology	9.76***	.214***	.308***
Number of service org. memberships	7.28***	.331***	.304***
Time of initial warning	5.40***	.212***	.257
Job position	9.80***	-.302***	-.163
Type of home residence	7.70***	-.247***	.050

*Adjusted R^2 = .344; F = 6.16; p < .001; ** p < .05; *** p < .01

Table 2: model that predicted change in evacuation pay policies

Perceived morale change

Responses to one interview item were, i.e. 'Do you believe that employee morale was adversely impacted because of the disaster evacuation policies and procedures used by this company during this event?' Since this was one of the last questions asked, it often was placed in context by prior remarks. The perception of each employee was coded as to whether or not they believed overall company morale had remained unchanged, improved, or deteriorated. Most (65%) employees indicated that the evacuation experience had little or no impact on morale, at least as they saw it. About one in five (21%), however, provided specific examples that they interpreted as improvement. Most common were themes of bonding; the disaster had brought them and most other employees closer together. But another segment—15 percent of the total—responded quite differently. For them the impact was negative, sometimes very negative. Indeed many expressed acute tones of bitterness about the way they had been treated. While many issues were involved two were mentioned quite frequently. First, 'They should have closed this place sooner; they kept us here until the last minute just to make another buck.' And second, 'They didn't show much compassion to those of us that had damages at home; we needed time off to get things back together but they just said "no! you're needed here"'

Many who expressed such displeasure also talked of seeking future employment elsewhere and gave various evidences of harboring serious grudges. 'They think this has all blown over, but there's a lot around here that are still pissed about how we got treated. They're going to regret it someday.'

What social factors differentiated these three categories of employee? Analysis revealed 33 different factors. Those who perceived a morale shift toward the negative reflected such individual characteristics as:

- shorter community residence
- having been divorced and/or currently living with a friend, but not married
- lower family income
- absence of pets at home.

They tended to work for companies that:

- had never provided any disaster preparedness training
- were more recently founded
- were smaller.

Despite these company qualities, many of these employees lived in communities that had experienced prior disasters and, in turn, evolved extensive disaster subcultures. And within the mix of seven events studied, these employees experienced those with minimal forewarning and minimal magnitude. But their escape routes were very limited.

Extensive trials yielded the seven variable predictive model presented in *Table 3*. It documented that those employees who perceived the most negative shift in morale had received warning messages indicating that the evacuation advisory issued by local government for the geographic area where they worked was mandatory, rather than voluntary (1). They also revealed high future risk perceptions (2), i.e. when asked how probable it was that another event would occur within the next decade, they specified probability levels ranging between 75 and 100 percent. Rarely, if ever, had they been afforded any disaster training while at work (3). The company wherein they were employed had a medium level of disaster loss, i.e. between $5,000 to $100,000 (4) and had done minimal or no disaster preparedness planning (5). The CEO of their firm had a medium level future risk perception, i.e. 50 percent probability level that another disaster would trigger a company evacuation within the next ten years (6). Finally, the firm had not received disaster planning assistance from any corporate office (7).

In short, employee morale deteriorated the greatest in those businesses that had done the least to prepare their employees at all structural levels to cope with the uncertainties and challenges these events presented.

Dissatisfaction with management

Each employee was coded into one of four categories regarding their degree of satisfaction with the way company executives had handled the evacuation, i.e. 'very satisfied' to 'very dissatisfied'. These codings were based on comments made and responses to about one-half of the interview items and their answer to the following question: 'How satisfied

Model that predicted perceived morale change*			
Social Factor	**F**	**r**	**Beta**
Warning message constraint - work	14.24***	-.335***	-.279***
Employee future risk perception	5.58***	-.249***	-.151
Disaster training	16.16***	-.226***	-.145**
Estimated company dollar loss	4.53***	.210***	.136**
Extent of company disaster planning	4.17***	-.220***	-.124
CEO's future risk perception	9.34***	-.208***	.108
Planning assistance by corporation	13.03***	-.205***	-.011

*Adjusted R^2 = .185; F = 8.16; p < .001; **p < .05; *** p < .01

Table 3: Model that Predicted Perceived Morale Change*

Model that Predicted Dissatisfaction with Management*			
Social Factor	**F**	**r**	**Beta**
Management offered help	13.85***	.251***	.252***
Type of pet	5.06***	.233***	.250***
Disaster-relevant firm	4.86**	-.136**	-.128***
Disaster training	3.83**	.121	.128
Children at home	5.06**	-.138**	-.098
Racial or ethnic background	4.13**	-.106	-.086

*Adjusted R^2 = .158; F = 6.34; p < .001; ** p < .05; ** p < .01

Table 4: model that predicted dissatisfaction with management

were you with the way they (the management) handled the warning situation?'. Among the 76 hypotheses tested, only seven were accepted. When these seven variables were used in regression analyses, one (number of persons in the household) did not increase the predictive power of the model. Consequently, I accepted the six variable model depicted in *Table 4*.

Which employees were the most dissatisfied with managerial responses? First, it was those who did not receive any offers of assistance from their bosses. As noted above, one-half of those interviewed provided specific examples of how their bosses and/or other company officials extended offers of varied forms of assistance during the evacuation. Over two-thirds (67%) had some type of pet that often figured into their evacuation decision.

This constraint is one that too many community disaster planners have ignored, but recent research has documented its importance to behavior responses and emergency management policy (Drabek 1996, pp. 68-71, 281-283; Heath et al. 1997). In this case, 'type of pet' refers to a threefold differentiation. That is, employees were asked whether or not they had any pets and then what type. Three code categories were used, i.e. dog, cat, other. Forth-three percent had a dog while about twenty percent were cat owners. The 'other' category included those with multiple pets of one type, or multiple pets of different types, or in a few cases some other type of animal such as a snake or bird. Over one-third of the sample (37%) were coded in this category. It was this group that most frequently voiced intense dissatisfaction with company management.

Many employees who voiced dissatisfaction worked for 'disaster-relevant firms'. These were companies with varied missions but the key criterion used in the coding was the CEO's stated viewpoint and description of their evacuation decision making. Lumber yards, for example, like some retail firms, were defined by some managers as being 'disaster-relevant' since many in the community needed their plywood, flashlights, generators, etc., to prepare their homes for the predicted event. Some hotel executives delayed closure or even remained open during the impact period because of perceived community needs. 'Those people caught on the highway need somewhere to go for shelter.' 'The media are here in full force and need some place to stay.' Some employees bought into these logics whereas others defined them as little more than 'a rationalisation to make a quick buck'. Also dissatisfied were those who had not received any on-job disaster training. Finally, if they had children at home or were of minority background they more frequently rated the performance of company management during the evacuation in negative terms.

These results are consistent with the interpretations of Sanchez and his associates (1995, p. 504) regarding '... the effects of corporate relief efforts on employees' organisational and health-related strain'. While they recognised the complexity of such assessments due to the multitude of agencies and informal groups who responded in Andrew's aftermath, their data supported a key conclusion.

> 'Relief efforts may thus control absenteeism and workers' compensation costs, which should rise when a disaster has affected most of a work force. In addition, according to our data, such basic help may also improve attitudes like organisational commitment in the months following a disaster' (Sanchez et al. 1995, p. 519).

Dissatisfaction with Local Government

A similar interview item and procedure to that used for assessing satisfaction with management provided a basis for coding employee perceptions of the local government response. The four categories, i.e. degree of dissatisfaction, were juxtaposed with 76 social factors. Significant patterning was discovered among 42 of these. Various combinations of these were examined through regression analysis until an eight variable predictive model was identified that accounted for about one-fourth of the variance in the government dissatisfaction measure (*Table 5*).

This model documented that a very different mix of constraints molded employee views about government performance that had been operative with their own company management. Three event characteristics—uncertainty of forewarning, accessibility of escape routes, and the length of forewarning—were crucial.

Thus, when employees felt that the warnings issued were highly uncertain and relatively short, they reported less satisfaction with government performance.

Model that predicted dissatisfaction with Local Government*			
Social Factor	F	r	Beta
Uncertainty of forewarning	25.87**	.315**	-.613**
Community disaster subculture	53.33**	.425**	.460**
Length of forewarning	55.03**	.419**	.411**
Accessibility of escape routes	27.42**	-.349**	-.220**
Degree of community disaster planning	14.10**	.249**	-.117
Community population size	13.06**	.293**	.101
Precision in warnings	18.49**	.280**	.058
Prior evacuation from work	27.21**	.254**	-.050

*Adjusted R^2 = .243; F = 16.74; p < .001; ** p < .01

Table 5: model that predicted dissatisfaction with Local Government*

Although they resided in areas where escape routes were readily available, in contrast to locations like the Outer Banks of the Carolinas where bridge and roadways severely constrain traffic flows, this condition did not blunt their negative assessments. But if the warnings received were defined as being imprecise, then their dissatisfaction was intensified. Typically, they lived in larger communities, that had few or no elements of disaster subculture, wherein only minimal amounts of disaster planning had occurred.

Finally, most of these employees had never experienced evacuation from their work place. Thus, the areas of constraint that shaped their perceptions of governmental performance contrasted sharply to those that molded their views of company management.

Employee recommendations

Two-thirds (66%) of those interviewed returned a short questionnaire. These were mailed to them immediately after each interview was completed. Certain of the questionnaire items afforded these employees an opportunity to share their views regarding numerous disaster evacuation policy options. Most relevant to the matters discussed in this article are the results based on the six questionnaire items listed at the bottom of *Table 6*.

Despite reluctances expressed during some executive interviews, most employees highly favored the distribution of a brochure that outlined disaster evacuation procedures. During employee interviews, many volunteered related concerns. For example, most had no idea of any company policy regarding disaster-induced evacuations including such matters as compensation or return procedures. These and related matters should be included in such a brochure. Almost all (91%) disagreed with a management inspired objection to such a policy. These employees did not believe that a brochure of this type would make them uncomfortable or fearful of their work place. Some managers had expressed such concerns in their interviews and in previous studies (Drabek 1996, pp. 281–282).

Would an annual disaster drill be helpful? Many (27%) indicated that it would not and a sizeable number (22%) were uncertain. The others (51%), however, responded differently. Apparently, they believed that a yearly exercise would enhance the effectiveness of responses to events like these (see *Table 6*, item 3). Furthermore, two-thirds (66%) indicated that local business associations such as chambers of commerce should demonstrate more interest in disaster evacuation planning.

Initiatives by such groups have been successful in some communities, especially when coordinated with activities sponsored by local emergency management offices and others involved in disaster responses. While more (28%) were uncertain for whatever reasons, over one-half (56%) of these employees indicated that local governments should provide more disaster evacuation training for private-sector business executives. Partnership arrangements for business and industry disaster seminars and hazard awareness workshops have been implemented successfully in some communities, but the overall picture is very spotty (Drabek 1994, pp. 207–218).

Most customers expect lodging establishments to be prepared for disaster. For example, a survey of over 500 tourists and business travelers documented this expectation. Indeed, 91 percent of them either agreed or strongly agreed with this identical questionnaire item (see footnote to *Table 6*) (Drabek 1996, p. 285). As might be expected, a survey of tourist business managers indicated less enthusiasm for this policy option (36% disagree; 14 neither agree nor disagree; 50% agree; n = 97 managers from nine communities in seven states; see Drabek 1994, p. 223). Thus, while they were less enthusiastic than customers, many of these employees favored this rather controversial measure that only a few communities have tried to implement.

Out of the 266 employees who returned their policy option questionnaire, over one-half (58%) took the time to write responses to the following open-ended question: 'When this evacuation occurred, the most helpful thing that the management of the firm where I work could have done was: _____'. Of these, one-third (33%) wrote comments limited to managerial praise, e.g. 'They did a good job'. Some of these hinted at employee priorities, but all were coded as 'nothing specified,' e.g. 'Just what they did; allowed all employees that wanted to, to go home'. Remarks written by the other 103 employees provide managers with a food for thought. Seven topics were identified (the percentage listed indicates the proportion of employees whose remarks reflected each theme):

- better communication – 34%
- close earlier – 26%
- provide employee assistance – 11%
- do more preparedness – 11%
- retain more staff to implement protective actions – 7%
- establish return procedures – 7%
- provide pay for employee time off during such evacuations – 5%

In summary, the multivariate models that were discovered clearly document the potential residual costs that disasters may impose on businesses. When preparedness activities have not been a company investment, managerial leadership may be curtailed. Employee expectations will not be met and tensions been work and family priorities may be exacerbated.

Consequently, perceptions of deteriorated morale may linger in the months following recovery. Such costs can be reduced or eliminated entirely if management makes a commitment to involving employees in a meaningful disaster preparedness program. When implemented such programs may permit an actual improvement in morale and organisation commitment despite the

Policy option**	strongly disagree	disagree	neither agree nor disagree	agree	strongly agree
Company brochure	3 (7)	6 (16)	11 (28)	48 (126)	33 (87)
Brochure discomfort	47 (119)	44 (112)	6 (15)	2 (6)	1 (2)
Yearly disaster exercise	5 (14)	22 (57)	22 (56)	36 (42)	15 (38)
Business associations	1 (2)	6 (16)	27 (68)	48 (123)	18 (47)
Executive training	1 (3)	15 (37)	28 (68)	45 (110)	11 (28)
Mandate written plans	2 (9)	6 (24)	5 (21)	33 (135)	18 (72)

*The number in parenthesis is the actual number of employees who indicated the responses listed. Percentage is based on the total number who responded to each questionnaire item.

** Policy option items: 1. 'Business firms should provide all employees with a brochure that outlines their disaster evacuation procedures.' 2. 'If I ever received a hazard awareness brochure (e.g., hurricane information and response procedures) from my employer, I would not feel comfortable working there.' 3. 'The effectiveness of future evacuations could be enhanced if all business firms participated in a disaster exercise each year.' 4. 'Local business associations (e.g., chamber of commerce) should demonstrate more interest in disaster evacuation planning.' 5. 'Local governments should provide more disaster evacuation training for private-sector business executives.' 6. 'Local governments should require all firms providing lodging, including RV parks, campgrounds, etc. to have written disaster evacuation plans.'

Table 6: employee policy preferences

trauma and suffering that disasters inherently bring to communities and the social units that comprise them.

References

Barton A. H. 1969, *Communities in Disaster: A Sociological Analysis of Collective Stress Situations,* Doubleday and Company, Inc., Garden City, New York.

Bourque L. B., Russell L. A. and Goltz J. D. 1993, 'Human Behavior During and Immediately After the Earthquake', in *The Loma Prieta, California Earthquake of October 17, 1989—Public Response*, ed. P. A. Bolton, U.S. Geological Survey, Washington, D.C, pp. 3-22.

Burton I., Kates R. W., and White G. F. 1993, *The Environment as Hazard*, The Guilford Press, New York and London.

Chisholm R. F., Kasl S. V. and Eskenazi, B. 1983, 'The Nature and Predictors of Job Related Tension in a Crisis Situation: Reactions of Nuclear Workers to the Three Mile Island Accident', *Academy of Management Journal* No. 26, pp.385–405.

Drabek T. E. 1986, *Human System Responses to Disaster: An Inventory of Sociological Findings*, Springer-Verlag, New York.

Drabek T. E. 1990, *Emergency Management: Strategies for Maintaining Organizational Integrity*, Springer-Verlag, New York.

Drabek T. E. 1994, *Disaster Evacuation and the Tourist Industry*, Institute of Behavioral Science, University of Colorado, Boulder, Colorado.

Drabek T. E. 1996, *Disaster Evacuation Behavior: Tourists and Other Transients*, Institute of Behavioral Science, University of Colorado, Boulder, Colorado.

Drabek T. E. 1999a, *Disaster-Induced Employee Evacuation*, Institute of Behavioral Science, University of Colorado, Boulder, Colorado.

Drabek T. E. 1999b, 'Understanding Disaster Warning Responses', *Social Science Journal* Vol. 36: pp.515–523.

Dynes R. R. 1970, *Organized Behavior in Disaster*, Heath Lexington Books, Lexington, Massachusetts.

Fritz C. E. 1961, 'Disasters', in *Contemporary Social Problems*, ed. R. K. Merton and R. A. Nisbet, Harcourt, New York, pp. 651–694.

Goltz J. D., Russell L. A. and Bourque L. B. 1992, 'Initial Behavioral Response to a Rapid Onset Disaster' *International Journal of Mass Emergencies and Disasters* Vol. 10, pp.43–69.

Haas J. E. and Drabek T. E. 1970, 'Community Disaster and System Stress: A Sociological Perspective', in *Social and Psychological Factors in Stress*, ed. J. E. McGrath, Holt Rinehart and Winston, Inc., New York, pp. 264–286.

Heath S. E., Dorn R., Linnabary R. D., Casper J., Hooks J., and Marshall K. 1997, 'Integration of Veterinarians into the Official Response to Disasters', *Journal of the American Veterinary Medical Association* No. 210, pp.349–352.

Keating J. 1997, 'Continuity Plan Intentions Good, Implementation Lacking' *Contingency Planning & Management* Vol. 2 (April) No.1, pp. 10–12.

More E. 1998, *Managing Changes Exploring State of the Art,* JAI Press Inc., Greenwich, Connecticut.

Perry R. W. 1985, *Comprehensive Emergency Management: Evacuating Threatened Populations*, JAI Press, Inc., Greenwich, Connecticut and London.

Sanchez J.I., Korbin W.P., and Viscarra D.M. 1995, 'Corporate Support in the Aftermath of a Natural Disaster: Effects on Employee Strains', *Academy of Management Journal,* Vol. 38, pp. 504–521.

Turner R. H. 1964, 'Collective Behavior', in *Handbook of Modern Sociology*, ed. R.E.L. Faris, Rand McNally, Chicago.

Van Gilson V. 1999, 'The State of Preparedness 1999', *Contingency Planning & Management,* No. IV (Special Issue), pp.12–16.

Vaughan E. and Nordenstam B. 1991, 'The Perception of Environmental Risks Among Ethnically Diverse Groups', *Journal of Cross-Cultural Psychology,* Vol. 22, pp. 29–60.

Wenger D. E., Aguirre B. and Vigo G. 1993, 'Evacuation Under Conditions of Uncertainty: The World Trade Center Evacuation of February 26, 1993', paper presented at the XIII World Congress of Sociology, Bielefeld, Germany.

Yin R. K. 1984, *Case Study Research: Design and Methods,* Sage Publications, Beverly Hills, California.

Author's note

Revision of a paper presented at the annual meeting of the Western Social Science Association, April, 2000. Portions of this paper are based on Drabek (1999). I wish to thank Ruth Ann Drabek for her work on this paper. Partial support for the preparation of this paper was funded by NSF Grants Number CMS-9415959 and CMS-9813478. Any opinions, findings, conclusions or recommendations expressed in this paper are those of the author and do not necessarily reflect the views of the National Science Foundation.