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Networking and Disaster Planning as Influences on the Attitudes of a Small Business After a Flood

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NETWORKING AND DISASTER PLANNING AS INFLUENCES ON THE ATTITUDES OF SMALL BUSINESSES AFTER A FLOOD

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ABSTRACT

The purpose of this study is to explore the influence of disaster plans and communications networks on the level of optimism in small businesses after a riverine flood. Business survival under any conditions depends upon the application of resources to meet demands. A disaster simultaneously reduces available resources and increases demands upon businesses to such a degree that many fail. A number of factors have been shown to contribute to business survival after disaster. Managerial optimism, disaster plans, and prior contact with outside agencies have been identified as factors which are associated with improved business recovery and reconstruction.

The purpose of the present study is to explore the workings of these three factors among small businesses. The initial hypothesis is that disaster plans would be more common, and levels of outside contacts prior to disaster impact would be higher, in those businesses

whose representatives expressed more optimistic perceptions of the future of their business.

The study was conducted by a questionnaire mailed to 100 businesses in the Chesterfield Valley, which was affected by the Missouri River flood of 1993. Thirty-six completed data sheets were analyzed by *t*-test for difference of means, by *Chi*-square, and by a one-way analysis of variance. The effects of demographic groupings by size, age, and type of business were separated out from the various levels of disaster experience, and the level of managerial optimism was determined for each subgroup.

Results of the analysis were mixed. Viewpoints became more optimistic as the size and age of the business increased. Business experiences in relocation and suspending operations were not altered by either plan or contacts, nor by any of the demographic variables examined. The presence of a disaster plan was found to have an insignificant effect on managerial optimism; however, the presence of outside contacts prior to disaster was associated with a significant increase in optimism, independent of all other factors.

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TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

Of all the attention-grabbing headlines in the news, none evokes more vivid images than "Disaster." The word brings to mind the trail of tangled rubble that marked the path of Hurricane Andrew through Florida; the crumbled buildings left by California earthquakes; and, most poignantly for Midwesterners, the drowned homes, roads, and factories along all the flooded rivers in the summer of 1993.

Different authorities have offered various definitions of the term "disaster." The World Health Organization defines it simply as "a sudden ecologic phenomenon of sufficient magnitude to require external assistance" (Noji, 271). Barton, writing in 1969, spoke of "a collective stress situation...which occurs when many members of a social system fail to receive expected conditions of life from the system" (38). For Ralph Lewis, "the term disaster describes events that have resulted in extensive negative consequences" (163). Wenger used the term, at the community level, to refer to "a condition in which the traditional

structure, due to the impact of a precipitating geophysical event, is destroyed and/or no longer collectively defined as an appropriate guide for social behavior in the altered system" (28). All these definitions of disaster contain the notions of sudden impact, of overpowering natural forces, and of disruption of the lives of inhabitants of the area.

This last concept is essential to our understanding of disasters. A geologic or meteorologic event, no matter its magnitude, is not necessarily disastrous. As Wenger explains, events are defined as disastrous according to their impact on human activities and expectations:

> No physical agent or event has a social meaning outside of a social context. Floods inundate unpopulated flood plains; earthquakes occur on the floor of the ocean; blizzards blanket barren tundra... As will be noted, similar types of events, producing similar levels of physical disruption, can produce a disaster or crisis condition in one social context, and have no such effect in a different social setting (26).

Disaster reportage emphasizes the human interest aspects of the mass experience: the front page of the daily paper may show a photo of an old woman, standing in the muddy ruins of her home, holding her mother's

ruined doll; the picture brings tears to our eyes. The tendency to focus on spectacular aspects of disastrous events, while it does attract wider media attention, sympathy, and support for the victims, disregards the ordinary behaviors of people who simply pick up the pieces and try to put them back together. Of all the victims of disaster--individuals, families, businesses, and communities--and of all the phases of disaster--planning, impact, and recovery--business reconstruction receives the least scrutiny.

Business reconstruction is mostly characterized by the drudgery of shoveling mud off a showroom floor; of poring over charred ledgers to retrieve last month's accounts receivable; of making endless calls to salvage goodwill with clients and creditors. But there are no front-page photographs, and no tears, for the man holding a briefcase full of the bankruptcy file on his small business. His grief may be as intense as that of any other victim. His loss represents a greater loss to the community than most, because business recovery is a major force in the process that determines whether a community survives or succumbs to disaster. In the words of Verta Taylor,

> Disasters capture attention partly because they generally involve property damage. Mass media stories and pictures, when not featuring human interest aspects, tend to stress dollar losses. In fact, the most recent federal disaster legislation in the United States (Public Law 93-288) singles out the economic recovery as an important, if not the major goal of assistance to be given in the post-impact period." (Quarantelli, 263)

Business reconstruction is most likely neglected because, unlike private individuals who are eager to ventilate their experiences or social spokesmen who are avid to publicize their new vision, the people involved in rebuilding a business are simply too busy to waste time talking about it. Also, much business information is kept confidential to prevent competitors from making use of it. To discuss the disaster impact on such things as delivery problems or cash flow crunches is to give those competitors, many of whom may have escaped the disaster themselves, a double advantage.

It is worthwhile to remember, too, that not all the victims of disaster are to be found in the disaster area:

> The economic losses to homes and personal property, to crops, business facilities and stock, utilities, and transportation are major manifestations of flood losses. Of possibly greater magnitude are the losses

> incurred by entities that never get wet but are forced to close because their suppliers or supply routes are damaged. (Changnon, 1-2)

The scope of the event needs to be discussed further. When an isolated misfortune strikes a single business or a small area, its victims can obtain recovery assistance through normal channels from the usual providers of support. When disaster strikes a branch of a large corporation, help is available through headquarters. Only when the numbers and the needs of the victims exceed the capabilities of those usual supporters--or when the supporters themselves are among the victims--does misfortune become disaster. As normal lines of supply and communications break down, as incoming shipments are blocked, outgoing orders are stymied, and supplies are diverted to meet emergent needs, business owners can find themselves overwhelmed. Each stricken business then finds itself competing with all the other victims for a limited supply of resources, doled out by an increasingly harried group of rescuers.

Human survival needs naturally will take priority in this competition for resources. Those disaster victims whose major "injury" has been to their business

will find the relief system less responsive, and possibly even hostile, compared to those who have suffered more easily recognizable disaster losses.

The issue here is not to argue that business reconstruction should take precedence over public health needs. The issue is that the needs of business reconstruction must be clearly defined, so that whatever assistance is available can be employed most effectively. The disaster relief system favors those applicants whose needs appear most important, either because of the obvious nature of those needs, or because of an applicant's ability to persuade the relief workers that its specific requirements are indeed worthy of assistance.

The situation is analogous to the "majority fallacy" described by Zikmund: "blind pursuit of the largest, or most easily identified, or most accessible market segment" (82). Marketing managers are familiar with one side of this fallacy, the surprise of discovering a new clientele or application for an established product. However, in disaster they find out how it feels to have an urgent need going unrecognized.

The blame for business needs being unmet in disaster falls on both sides. Disaster relief agencies tend to overlook the importance of business reconstruction in community survival, being focused on the immediate needs of the homeless, hungry, and frightened individuals in the area. When those individual needs have been met, the agencies and the media attention "move on to other stricken communities long before they can observe the long-run consequences of their disaster activities" (Friesema, 12). Businesses, on the other hand, tend to overlook the possibility of disaster entirely as they concentrate on everyday tasks. When disaster hits, the typical small business tends not to know what kind of help is needed, nor what kind of help is available, nor who to contact to get that help. Waugh speaks of widespread reliance on " state and local policymakers" in disaster planning (118). This reliance is based on the dangerous assumption that those policymakers will somehow know, without being told, how to make plans that will meet the needs of small business. This present lack of awareness has left many business people with the concomitant assumption proposed by Kartez and Lindell

that disasters are random, uncontrollable events, and there is nothing particular that can be done to prepare for them (9). The result is inadequate, misdirected, or chaotic disaster response.

However, many of the same principles which apply to effective individual and community response can also be applied to the business sector. Before and after disaster, there are actions which can be taken to minimize losses and promote recovery. Many of these actions parallel the usual measures taken by astute managers to protect their business in the normal course of operations.

Disaster research can provide an array of valuable insights into the factors that promote or inhibit the success of a business under any conditions. Christopher Douty used this reasoning in his study of the 1906 San Francisco earthquake:

> One reason for studying disasters is the light that may be shed by the recovery process on factors influencing growth and redevelopment. Another is for insight into economic behavior under conditions of extreme uncertainty, which in turn may be useful in the development of measures to cope with future disasters. (iii)

Success in business under any condition depends upon mastery of factors such as finance, marketing, logistics, and personnel management. A common foundation for all these factors is the ability to communicate, to establish and maintain the network of relationships that ties a business to its customers, its suppliers, and its community. This ability to communicate is the most necessary for survival, and the most vulnerable of a business's assets in a disaster.

Without communication, the established network falls apart; at the same time, as disaster-generated demands arise, new lines of communication must be formed; and as resources diminish, the task of establishing new relationships becomes increasingly difficult. Thus, "there is a combination of increased needs and destruction of means for meeting needs; and many of the new needs are urgent, requiring very quick reaction to avoid drastic losses" (Barton, 66). The stress of this situation impairs communication. Business owners find themselves frantically trying to come up with any solution--not necessarily an optimal one, or even a good one--to the problems that threaten to overwhelm them.

The same criticism can be applied to business managers that Kartez and Kelley applied to public officials:

> Few studies of local government response to disaster ever fault public managers for failing to make heroic efforts to save lives and restore essential services. A long history of investigations repeatedly criticizes managers for not anticipating the social and organizational demands of the disaster environment. (126)

These "social and organizational demands" are for communication and coordination--the structure that links those who need help with those who can provide it. Communication and coordination are critical in disaster response and recovery. Dennis Wenger summarizes this process in his study of community response to disaster. During the preparatory phase, when an organization is bracing itself to withstand an expected threat, networks are established both within the organization and between it and other agencies. After the disaster impact, communications are likely to break down because of disaster damage or because of simple overload. The organization, be it family, business, or community, becomes increasingly isolated and reestablishment of contacts becomes an urgent

priority. When the normal lines break down, the new ones that replace them may not be the ones that would best serve the purpose. They may be simply the ones that are simplest to establish and will provide some degree of relief or reassurance in the crisis (35). And Mileti warns that these communication breakdowns cause "duplication of efforts in some areas of responsibility" with the concomitant waste of scarce resources, while other, equally critical, recovery activities may be neglected (19).

The process of communication is only a part of the network; another, equally important part of this network is the determination of what information is to be communicated. Priorities must be set, decisions must be made, and critical cognitive and logistical resources must be applied to the multitude of demands that arise. This analysis needs to be done long before the disaster actually occurs.

Peter Drucker has stated the first principle of this analysis in *Innovation and Entrepreneurship: Practice and Principles*. Drucker was speaking specifically to growing businesses, but a business

trying to rebuild after disaster can be considered in the same way:

> First of all the founders, together with other key people in the firm, will have to think through the key activities of their business. What are the specific areas upon which the survival and success of this particular business depend? (198)

Obviously, these "specific areas" will differ from one business to another. They will also differ between normal operations and disaster recovery within a single business. Resources that are taken for granted in normal times, such as electrical power, or the files in the basement, may be rendered unavailable by the disaster. Not all these resources are really essential to reconstruction, but the psychological impact of their loss can make it seem that everything is lost. Consequently, when help is offered, the tendency is to ask for more than is really necessary or useful.

This principle is illustrated by an incident in Dade County, Florida, after Hurricane Andrew. "Dade County," said Captain Ellery Gray, United States Public Health Service director of the operational response, "did not know how to ask for what it needed." When the Federal Emergency Management Agency was preparing to

send medical support, county executives said, "We need everything--absolutely everything!" so FEMA delivered a 200-bed field hospital on 24 semitrailer trucks, fully equipped and staffed with some 450 soldiers. However, all of Dade County's hospital facilities had survived; all they really needed was a few portable generators and some fresh pharmaceutical supplies. The rest of the field hospital sat idle, not only a wasted resource but an additional demand on the relief effort. Captain Gray, speaking at the Eighth Conference on Military Medicine, called for better assessment and communication of needs to prevent that waste in future disasters (Nov. 9, 1993).

Other resources, such as law enforcement, may be altered beyond all recognition. Police departments normally support business owners in protecting their property. However, many business owners who attempted to reach disaster-stricken buildings have found themselves turned back by forces whose mission was to prevent looting and maintain civil order (Dwyer, 38). In this instance, prior coordination could have persuaded the police that these owners had legitimate reasons for entering these areas; prior planning could

have minimized or even prevented the need for them to enter at all.

The prerequisites for business reconstruction, then, are a clear vision of what is necessary to the recovery of the business, and the ability to communicate that vision to the appropriate audiences. The attitude that underlies these two factors may well be "more critical in ascertaining recovery responses and long-term impacts than dollar estimates" (Drabek, in Chagnon, 108). This attitude has been described as "managerial personality" (Anderson, 215); "vision" (Rubin, 30); and "entrepreneurial ideas" (Charles, 190). The implicit goal of reconstruction is to return to normal as quickly as possible. The visionary manager goes one step beyond this goal, and sees the reconstruction process as an opportunity to rebuild the business better than it ever was.

Success in reconstruction after disaster depends upon the same factors as does business success under any conditions. The effects of zoning ordinances and tax provisions, the prevailing economic climate, and the availability of suitable land and workforce, may be similar for all the disaster-impacted businesses within

a given area. The disaster itself may exert the same physical impact on every business in an area. The reconstruction process, however, proceeds unevenly. Some businesses survive and prosper while others, with apparently equal access to relief agencies, succumb. Not enough is known about the factors that make the difference.

It could well be that managerial vision and effective communications are the essential factors in business reconstruction. The present study proposes to examine the pre-disaster and post-disaster communications activities and attitudes of small businesses in the first year of reconstruction after a major flood.

CHAPTER II

LITERATURE REVIEW

The importance of disasters arises from their impact on human lives. Much of history is the story of disasters, reaching back from yesterday's headlines: "WASHED OUT!" (*Suburban Journal*, page 1B, August 27, 1993) to the time when

> The waters rose and covered the mountains... Every living thing on the face of the earth was wiped out; men and animals and the creatures that move along the ground and the birds of the air were wiped from the earth. Only Noah was left, and those with him in the ark. (*Genesis*, 7:20, 23)

Natural disasters can strike in a variety of ways--floods, earthquakes, tornadoes, volcanic eruptions, tsunamis, and hurricanes, to name a few of the variations. The physical effects of the disaster will be, to some extent, determined by the particular natural force which has overreached its usual levels, but the effects on the people and properties follow very similar patterns.

The process of disaster might be divided into the four phases outlined by Drabek in *Human Systems*

Responses to Disaster: preparation, impact/response, recovery, and reconstruction/mitigation (20). These phases blend smoothly into each other; actions taken in one phase can determine courses of action in the next phase. The most critical phases in terms of surviving the present disaster are impact/response and recovery. The popular concept of disaster usually goes no farther than these. From the viewpoint of surviving the next disaster, the critical phases are preparation and reconstruction--which is another way of looking at preparation for the disaster *after* the next one.

Floods are subdivided into two categories, coastal and riverine. Coastal floods are usually sequelae to hurricanes, where they compound the damage of the high winds; or to undersea earthquakes which generate tsunami, or tidal waves. Noah's flood followed the pattern of a riverine flood, which occurs whenever a drainage area accumulates more water than its normal channels are able to contain. Noji summarizes the findings of World Health Organization authorities in "Natural Disasters": "In terms of number of events per year, floods are the most common of all natural disasters. . .Floods (including storm surges) account

for approximately 50 percent of disasters" (274). Changnon's studies agree with this assertion, "From a national economic viewpoint, floods, both riverine and coastal, are the most destructive category of natural hazards in the United States" (1), as do numerous others (Haas, 8-10; Waugh, 231; Charles, 182; Rutherford Platt, 228; Petak, 266; and Croteau, 173). The dynamic forces behind riverine floods differ from other types of disasters in several notable ways, which are worth discussing because of the possibilities they suggest for protective measures before the disaster and reconstructive actions afterward.

The first factor to consider is that the area at risk for riverine flooding is usually identifiable. Unlike earthquake faults, which are hidden deep underground, rivers are easily visible features in the landscape. Unlike tornadoes, which can strike with little warning, the behavior of rivers under specified circumstances is reasonably predictable.

Many sources of information about that behavior, and its flood risks, are available. The Corps of Engineers offers maps that show the boundaries of flood plains along many major rivers. Insurers have access

to risk-assessment data on flooding potential in most areas. Public libraries and chambers of commerce offer information about the history of an area, including past disasters. Furthermore, even without outside assistance, anyone who lives near a large body of water can look at the terrain and ask, "How likely is it that this area might flood, and what would happen to me if it did?"

Another distinctive feature of floods is their uniformity of impact within an area. When the water rises, it rises evenly over everything in its path.

The last point to consider about floods is that floodwaters come back to the same place again and again. Between 1874 and 1913, the United States Army assisted with ten major floods in the Mississippi River valley (Foster, 16). Fort Wayne, Indiana, was flooded three times in seven years; the Charles and Kim study of the Fort Wayne experience will be discussed in detail later. More recently, 1993 saw the third major flood in twenty years strike parts of Missouri (Burnett, 75).

Between floods, however, river valleys are extremely attractive places. The topsoil is rich, the

terrain is level and easy to build on, and the presence of a major waterway gives an extra option for transport of materials. Developers and investors may weigh the advantages of floodplain development against the risk of possible floods and then discount the risks, partly because of well-publicized levee projects, warning systems, and flood insurance programs, and partly because of an inability to comprehend the power of a flooded river. As a consequence,

> ...there are more people and settlements than ever before in riverine flood plains. Where in the past there was marsh or swampy areas, there are now housing complexes and industrial parks. Where empty space might have been hit in the past, in the future people and developed areas will be hit. (Quarantelli, "Disaster Scholarship," 32)

As a result of the perceived risk-benefit ratio in floodplain development, a 1972 study by Harbridge House summarized what happens: "There is basically more to lose now than in the past" (I-3). Petak and Atkisson estimated just how much more there was to lose in 1982:

> If community growth in riverine flood plains continues as it has in the past decades, building damage losses from riverine floods can be expected to jump from an annual expected value of $1502 million (1970 dollars) in 1980 to $2634 million (1970

> dollars) in 2000, assuming that no mitigations are applied during that period. Specifically, this loss estimate assumes that the construction of area flood control works is halted in 1980, that no regulation of growth in flood plains occurs thereafter, and that no building floodproofing mitigations are applied." (266)

To put Petak's estimates into closer perspective, the St. Louis County Assessor's Office reported on May 25, 1994, that the county lost $84 million in market value of real property due to flood damage, or 7 percent of an overall property tax base of $12.1 billion (Sutin, B1). This figure represents only one category of flood-related losses, and may not be fully descriptive of even that one category. There is no way to determine from the assessor's report how much of that real property was agricultural land, how much was residential, how much was industrial assets not directly required for the core business, nor how much was offset by increases in the assessed value of new sites for displaced businesses.

Economist Jerome W. Milliman argues that the damage to real property is less important than the frustration of the purpose that property was intended for, and that "properly defined property damages should

represent the present value of expected losses in net incomes or expected losses of value added in production" (93). The technical difficulties of estimating these expected losses from reduced revenues, delayed production, and deferred expansion, have hindered researchers in answering Milliman's challenge to come up with more accurate cost figures. LaPlante also raises the issue of the "multiplier effect," where income from disaster-relief sources offsets disaster-generated losses (223). While this disaster-relief income can be critical in reconstruction, its presence obscures the actual extent of loss. Further, most sources of disaster relief funds are subsidized by various levels of government, so today's disaster means higher taxes next year. According to Robert Litan, writing for the Brookings Institute, "the average taxpayer chipped in $17 in the wake of the relatively minor Loma Prieta quake" (47).

> The small merchant or entrepreneur has been thought to be particularly vulnerable to natural disasters. Small businessmen are perceived as being undercapitalized, probably uninsured, and less able to stand interruptions in business. The presumed vulnerability of such operations has seemed important for the economic future of communities not only because small merchants

> and entrepreneurs provide services and jobs, but because small entrepreneurs are seen as the local generators of economic growth idealized in the loft-type of industry. While the vulnerability seems reasonable, the empirical evidence used to demonstrate that vulnerability has not been terribly convincing. (Friesema, 74)

One reason why this evidence is "not terribly convincing" is that not enough of it has been collected yet, by Milliman's criteria or any other. While there is a wide range of disaster research available, most of it focuses on the individual victim, or on the various civic and private groups that must prepare for and mobilize against disasters. Most of it is written from the perspectives of the military, medical, or sociological communities, or on the politics of an impacted area. Comparatively little research has been published on the experiences of the small business community in disasters. Even in well-examined fields, the identification of all the requirements for effective disaster recovery remains to be accomplished.

In 1983, a team led by Stanley A. Changnon, Jr. surveyed federal agencies to assess the level of flood-related research then being funded. They found 58 projects underway: 49 on hydrology, hydraulics, and

meteorology; three on political and legal areas; three in public health; one each in sociology and economics; and one "interdisciplinary" project (13). The importance of physical sciences in the study of floods is indisputable, but Changnon points out the relative neglect of economic aspects in disaster recovery, which may be even more important than hydrology to the people who have to survive the aftermath of the physical event.

Another neglected area is identified by Noji in "Disaster Epidemiology": "Lack of collaboration between workers from different disciplines is a major shortcoming of past research into the health effects of disasters" (335). The same could be said for all effects of disasters. Quarantelli adds, "Most researchers come to a problem from a particular disciplinary and thus limited perspective" ("Disaster Scholarship," 37). Not only is there a need for more work in specialized areas of disaster research, there is an even greater need for work that can connect the specialists and their clientele. If there is "basically more to lose," as Harbridge House asserted,

there is also more to work with, and tying it all together is the way to make it work.

A Dun & Bradstreet report for 1981 found an overall business failure rate of 61 businesses per 10,000, of which 49 percent were less than five years old and could be categorized as small, entrepreneurial ventures (quoted in Platt, Harlan D., 121).

After a disaster, this failure rate rises much higher. Nelson R. Bean, president of Evans American Corporation, asserts that 43 percent of companies closed by disaster never reopen; of the survivors, 28 percent fail within three years afterward, resulting in a long-term failure rate of 59 percent. While Bean cautions that his findings apply mostly to smaller business entities, he adds that heavily leveraged companies of any size may be unable to survive the effects of disaster on their cash flows (44). For some financial institutions, the average interval between loss of an essential system and loss of revenues is 20 hours (Weyhausen, 22). For the Hartford *Courant*, having a press out of service for one hour sets the emergency action plan into effect. "The biggest problem in planning for a disaster," says the newspaper's

director of facilities and engineering, "is knowing when the red flags are going up" (Fitzgerald, 44).

A survey done after the 1972 flood in northeastern Pennsylvania offers a view of "the red flags going up" on a microeconomic scale. Joseph D. Vinso examined the financial ratios of households affected by this flood.

Summary of Household Financial Ratios	Before Flood	After Flood	Two Years Later
Current Ratio: Financial Assets/ Liabilities	3.1	3.1	1.06
Quick Ratio: Financial Assets less Marketable Securities /Liabilities	2.4	2.4	0.84
Debt/Total Assets	0.095	0.183	0.26
Debt/Equity	0.10	0.22	0.36
Financial Assets/ Total Assets	0.295	0.576	0.279

(Reproduced from Vinso, 213).

Vinso's subjects were individual householders living in the flooded area, surveyed by individual interviews during the recovery and reconstruction periods. He found that the dramatic changes in householder financial ratios were due not to decreases in assets but to increases in the debt load, largely from SBA loans

taken out to repair flood damage. This debt burden was identified as a reason why "individuals who had apparently been restored to preflood condition complained bitterly that they were actually in much worse condition" (214).

However tempting it may be to draw a connection between Vinso's householders and small businesses--certainly an increase in the debt load of a small business would affect long-term hopes for success as much as it affected the householders' peace of mind--research on other aspects of the problem has produced conflicting conclusions.

A long-term study by Rossi et al, for the Social and Demographic Research Institute (SADRI), used U.S. Census data for 1960 and 1970 to compare growth rates in areas which had experienced a disaster against similar areas without a disaster. The major finding of the SADRI group was: "For the period 1960 to 1970, natural disaster events occurring in counties and census tracts had no discernable effects that materially altered population and housing growth trends" (18). They credited governmental disaster relief policies for "enough additional support for

reconstruction" (13) to prevent losses of population or housing after disaster.

Rossi acknowledges several limitations to the SADRI study: "the models were unable to separate out the effects of disasters from the effects of public policies that were applied in the form of relief and rehabilitation activities in the wake of the disaster" (5). However, it can be argued that relief and rehabilitation activities are a standard effect of disaster in this country. Annabelle B. Motz commented on Rossi's finding that the change in the manufacturing activity level of communities after disaster was statistically insignificant:

> My observation is that in the past decade, in areas that were flooded in particular, many small businesses were driven out, and manufacturing became concentrated in the hands of a few firms. That kind of effect, although obviously important, is not reflected in a variable such as percent in manufacturing. (39)

The Rossi study simply does not speak to the urgent issues of social or economic turbulence in affected areas. There was no determination as to how many disaster-affected businesses closed their doors, relocated to another area, or reduced operations. Even

if employment levels remained unchanged after disaster, the implications for recovery differ according to whether or not the employer population has changed. "We do not know from this analysis whether or not individuals, families, and businesses need long-term disaster assistance" (20).

Some authorities consider disaster effects as being almost incidental to the overall trends in a community, that "disaster brings to the surface changes in the system that actually were underway prior to the catastrophe" (Sjoberg, 373). Haas concurs with this view: "Predisaster growth or decline trends tend to continue after a disaster, although postdisaster reconstruction policies may accelerate the pace for a time" (xxvi). Friesema carries it even farther:

> The theory that a natural disaster, whatever the immediate horrors, leads to long-term economic growth and other good things seems to be largely based upon the belief that a disaster stimulates recapitalization. This recapitalization, based upon insurance payments and disaster recovery aid--outside sources--leads to a community with a new and more modern plant, which gives it a competitive edge over what it had prior to the disaster. Analogies to postwar Germany and Japan are common, as are references to natural disasters as 'instant urban renewal.' (14)

Other investigators, using different techniques, have offered at least partial corroboration of this "trend hypothesis." Before the earthquakes of 1906 in San Francisco and 1972 in Managua, Haas found the central business districts of both cities were surrounded by

> the wholesale and manufacturing concerns dependent upon the low rents of old and amortized loft buildings in near-central locations, close to the external economies that come from the concentration of hundreds of linked activities in a tightly circumscribed area. These activities--generally small, marginal, often innovative and experimental--are sizeable employers in the city. The districts that house them are often called incubators, for the new and the innovative may eventually be hatched into big employers. (78)

After the disaster, these businesses were displaced by larger businesses which had the resources to "take advantage of the disaster to improve their own position and the city's economic efficiency" (27). Many smaller businesses were forced into either failure or flight away from the city, which "loses some of its industrial diversification as a consequence" (30). While manufacturers and wholesalers had been gradually moving out of the central business area for 30 years, they

moved out rapidly after the disaster (93). The haste of their departure left San Francisco with an economy concentrated in the finance and banking areas; it was also associated with increased failure rates among the departing businesses.

Douty found that, of 894 small businesses obtaining loans from the San Francisco Relief Committee, 351 were out of business two years later, and only half of the survivors were self-supporting (Haas, 78). This 39 percent mortality rate can be compared with Bean's modern estimate of 59 percent.

The argument can be raised again that small, new ventures naturally have a higher failure rate than established businesses, and a few more or less of them is not particularly significant. That argument can be validated only by invoking the names of large businesses that did not start as small ones; the invocation will be exceedingly brief. The long-term losses in jobs, in tax bases, and in technological innovation that might have come from small businesses that did not survive are impossible to estimate.

Disaster recovery statistics are not universally dismal. A study done of the flood experiences of Fort

Wayne, Indiana, demonstrates the difference that can be made by an effective disaster plan. The Maumee and St. Joseph Rivers converge at Fort Wayne, where they flooded in 1978, 1982, and 1985. Charles and Kim interviewed civic leaders after compiling the following historical data about those three floods.

Item/ year	1978	1982	1985
Maumee River Crest	23.83 ft	25.93 ft	24.58 ft
Residents evacuated	2,400	9,000	100
Estimated Cost	$11 Million	$50 Million	$2.85 Million
Area of City Flooded	15%	20%	5.4%
Flood Protection Plan	NO	NO	YES
Comprehensive Flood Emergency Action Plan	NO	INEFFECTIVE	YES

(Adapted from table,182).

When the research team looked at the factors behind the dramatic changes in Fort Wayne, they found three overriding principles in operation: the citizens of Fort Wayne took responsibility for their own recovery; they established a plan for flood recovery

before the water began to rise the third time; and they included everyone in the process, from Federal agencies to private citizens (190). Fort Wayne expects its rivers to flood again, but it expects to "lower or avert" (190) the damage that past floods have brought.

Even accepting the notion that a growing community will continue to grow, and a declining one will continue to decline regardless of disaster, how long could a community continue to maintain a growth trend in the face of a $50 million loss every three years?

Another perspective needs to be considered after the examination of overall business trends in a region has been completed. Recovery of the area as a whole is a meager consolation to the individual businesses that did not recover, nor to all the people to whom, for whatever reason, those businesses were important. There is a need to examine the factors that contribute to the survival of individual businesses. If these factors can be identified, and the skills that promote them can be taught, the outcome can improve business survival rates after future disasters.

> Disaster recovery is ordered, knowable, and predictable. The central issues and decisions are value choices that give varying

> emphasis to the early return to normalcy, the reduction of future vulnerability, or to opportunities for improved efficiency, equity, and amenity. Overambitious plans to accomplish these goals tend to be counter-productive. Major opportunities to improve the reconstruction process lie in early recognition of certain overlooked problems, people, functions, and areas: the reduction of uncertainty about the future for those who live and work in the city; and the preparation for reconstruction before the disaster comes. Invariably it is found that much more is left than destroyed. (Haas, xxxvi)

Haas's central issues are remarkably close to the overriding principles of the Fort Wayne study. The existence of a contingency plan reduces uncertainty, but the value of a plan varies according to its capacity for recognizing and dealing with potential problems. Kartez and Lindell describe a typical disaster plan:

> By convention these plans are lengthy procedural documents descended from hierarchical military command models. Such plans often attempt to assert a centralized system of control rather than facilitate the adaptation of the organization to changing circumstances. They may be developed in isolation by a technical specialist, with minimal involvement from the very managers whose actions the plans are intended to guide. Thus a planning process which lacks frequent participation from units in the organization and which emphasizes noninteractive methods, results in failures

> to properly prepare for the recurrent demands of major urban emergencies. (8)

Barton found that these conventional plans usually failed, because of their "paper" nature. Many were never rehearsed, so key players had no idea of their emergency roles (96). In some cases, the plan relied on equipment that simply was not available (96). Sometimes the equipment was not usable: National Guard units responding to Hurricane Andrew were unable to communicate with local police at first, because of incompatible radio equipment (CALL, VII-2). In more than one disaster, the same thing happened that Rutherford Platt found in Jackson, Mississippi during the 1979 Pearl River Flood, where the city's Emergency Operations Center had been located in a basement. The basement flooded when the levee broke (229).

The list of anecdotes goes on and on. Disaster strikes, and the victims find things happening--or, worse, not happening--that they never expected.

> Under normal circumstances few citizens place a high priority on any phase of emergency management. However, these same individuals expect their government leaders to manage effectively disasters that occur, but rarely link long-term planning with crisis events. (Ciglar, 40)

Waugh adds that citizens and business interests resist any central planning that can increase their tax rates or decrease their ability to use their property as they want (Comfort, 116). There is also the issue of persuading people to invest time and attention in extraneous projects whose value is apparent only in circumstances that nobody wants to think about anyway. "Relative to other concerns--both competing programmatic goals and competing interests in the budgetary process--emergency management is not a compelling issue" (116) -- until the levee breaks.

It seems reasonable to expect that organizations which have suffered a disaster would find this a more "compelling issue" than their more fortunate counterparts. A 1982 survey by the International City Management Agency (ICMA) found this expectation was only partly true. Of 450 cities surveyed, 80 percent did have disaster plans, many of which were characterized by the director of the survey as "lengthy, detailed... irrelevant in the disaster event" (Hoetmer, quoted in Kartez and Kelley, 127). What made

the difference in the ICMA study was the degree of effort invested in the plan:

> Cities gain more in terms of improved preparedness from an increase in planning effort (even without further experience) than from actually experiencing an emergency but neglecting planning. Even high experience cities adopt 25 percent more good practices on average when planning effort is high rather than low. (Kartez and Lindell, 23)

The absence of a plan does not lead to the absence of action when disaster strikes. Immediately after impact, "people do not know how to act because their usual sources of guidance are unavailable and/or irrelevant" (Schneider,137). If no emergency guidance is available, an ad hoc disaster response develops: people begin to see things that need to be done, to help their neighbors, to protect things they value, to salvage what they can. Often these ad hoc responses are discouraged by authorities who have no way of distinguishing salvagers or sandbaggers from looters and tourists. Even more often, ad hoc responses are inefficient, uncoordinated, misdirected, incomplete, or simply chaotic.

Dr. Craig Llewellyn, speaking at the Uniformed Services Academy of the Health Sciences in November

1993, summed up the problem: "Hands-on levels work well together. Policy levels coordinate well. Intermediate levels break down in disaster response" (Nov.8). Rear Admiral Frank Young added, "The key to success in disaster response is the ability to respond as a team" (Nov.9). Colonel Leonard Randolph defined planning for this team as, "If you think of them, include them. If you didn't think of them, apologize--and then include them" (Nov. 10).

This idea of "the team" is part of an extremely interesting social science concept: the stranger phenomenon. Every time two people come in contact, each classifies the other as friend, foe, or stranger--unknown and therefore uncomfortable. Adams quotes a Red Cross worker on the stranger phenomenon:

> So the door was pretty much open and anybody who came in with a willing face and willing arm, why we put a Red Cross band on him and put him to work--which is a dangerous process. But sometimes you don't have time to take pedigrees and find out what the person's motive is. (401)

Barry Turner, in a study of three disasters in Great Britain, found a consistent pattern of vital

information being disregarded because the people who knew lacked access to the people who needed to know:

> In two of the cases, individuals outside the principal organizations concerned had foreseen the danger that lead to the disaster, and had complained, only to meet with a high-handed or dismissive response. They were fobbed off with ambiguous or misleading statements, or subjected to public relations exercises, because it was automatically assumed that the organizations knew better than outsiders about the hazards of the situations with which they were dealing. (388-89)

Both sides lose in this game of strangers. Helping agencies try to read the minds of their clientele, while those who need help exhaust themselves trying to find it. Even when the helpers and the clients do manage to connect, the task still remains of establishing a working relationship. Russell Dynes links this task to the stranger phenomenon: "the lack of contact with particular organizations in predisaster times would cast doubt upon their legitimacy in the disaster context" (Quarantelli, 52).

Dynes goes on to describe the solution to the stranger problem. Every organization has members whose role is to

> . . .facilitate the exchange of information and resources. Some people have positions within organizations that demand their giving attention to others in different groups. Some hold positions in two or more organizations. Still others provide the link between organizations primarily through their previously established friendships, which come to have special significance during the emergency period...Because organizations seldom regularize contacts in disaster periods and because many change their structure creating unfamiliar positions, contacts with persons rather than positions may be the only ones possible. (Quarantelli, 54)

Calling on friends for help during a disaster is a reasonable action. It is more likely to be productive if both sides have a clear idea of the kinds of help that are needed. As Captain Gray found in Dade County, the wrong kind of help can be worse than no help at all. An effective disaster plan must include this clear determination of what kind of help is needed, an identification of the "friends" --agencies, organizations, and individuals-- who can provide it when needed, and, even more important, a communications structure that will minimize the need to "depend on the kindness of strangers" (Williams, Scene 11).

The single most important part of the disaster plan has not yet been discussed. All the things that

go into disaster planning, recovery, and reconstruction --all the paperwork, teamwork, networking, thought, talk, time, effort, and sweat-- are directed toward a single goal. The choice of that goal will determine whether the community, or the individual businesses in it, succumbs, survives, or prospers after disaster. Haas explains part of the determinant process:

> Within the reconstructed city, there is an ordered sequence of return, both in time and space, that mirrors the hierarchy of function, person, and power within the city. Those functions able to command the best locations and pay the highest rents return fastest. They choose the initial locations and force activities or persons dependent on them, whether damaged or not, to relocate nearby as best they can. The invisible hand of this process is altered but not substantially changed by current disaster aid policies. (263)

There is more to this "ability to command" than just money. Haas comments that the first businesses to succeed in reestablishing themselves are those with "the greatest reserves and resiliency" (29). What Haas means by "resiliency" is not spelled out, but others have seen the same relationship between goals and survival. "Victim perceptions of flood induced losses are poorly understood, but may be more critical in ascertaining recovery responses and long-term impacts

than dollar impacts" (Drabek, Changnon, 108). Disaster aid or insurance payments can support a business for a while, but what happens when they run out?

Douty concluded in his study of the 1906 San Francisco earthquake, "the degree of market interdependence is such that a substantial number of decision makers will have to share an optimistic view of the future to effect rapid restoration of the market mechanism" (154). Thompson adds, "undoubtedly growth and decline of organizations vary with such factors as organizational purpose" (Baker, 297). Carl Anderson points out an agenda in assessments of small-business response to disaster: "As might be anticipated, the key variable proposed to matter is managerial personality" (265). For Fort Wayne, "The key is not to wait to be contacted, or to respond to the flood, but to take matters in hand and encourage entrepreneurial ideas" (Charles, 190). Harbridge House reported on the flood that produced Vinso's study that "the businesses which have or will die out as a result of the flood are essentially those which were experiencing significant business decline before the flood struck" (IV-4), that is, those which lacked optimism and resiliency to

respond to the challenge. Finally, Claire Rubin's comment on communities can be applied to all disaster victims:

> In communities where recovery was observed to progress rapidly and competently, community leaders exhibited vision. That is to say, they had a concept not only of what their community was at the time of the disaster, but also of what it should and could be in the future. (30)

This vision may be the single factor that decides what happens to a community, or to the individual businesses in it, after disaster. The obvious goal after a disaster is to get back to normal, but visionaries realize that things will never be the same after disaster, and that mourning for the past is a waste of energy which can be used to make things better than they ever were. If a community is to prosper after disaster, it must have citizens who believe with Peter Drucker that, "There must be an economy full of innovators and entrepreneurs, with entrepreneurial vision and entrepreneurial values, with access to venture capital, and filled with entrepreneurial vigor" (257).

Statement of Hypothesis

Business survival under any conditions depends on the effective application of limited resources against a multitude of demands. Survival after disaster depends upon the same principles. The study of reconstruction after disaster yields many hints, but little hard data, about the factors that underlie successful recovery from riverine flooding. Assertions have been made about the power of preexisting trends in a disaster area as an overall factor. Other factors postulated to play a part in the recovery include disaster plans, effective communications networks, and a rather nebulous quality called managerial optimism. These three factors are closely interrelated in a number of ways.

Making plans is an optimistic action, because the action of planning indicates a perception that the future is not only survivable but rich in opportunity. Exchange of information both supports and validates planning; communication is further supported by effective planning. The possession of a solid plan and an effective communications network give a sense of readiness to meet future challenges, as well as an

immediate capability for identifying opportunities that were not drowned and for employing assets to exploit those opportunities. While an optimistic attitude is not, by itself, enough to ensure business reconstruction after disaster, it is the foundation on which that reconstruction must be based.

The hypothesis of the present study is generated from the interrelationship between these factors. The expectation is that those businesses which express a high degree of optimism about future prosperity will be more likely to have disaster plans than those which do not expect to prosper. Also, it is expected that high levels of "optimism" in business attitudes will be associated with a higher level of outside contacts, both before and after disaster impact.

This study is an initial exploration. As such, it must acknowledge both the limitations of exploratory studies and the possibility of unexpected discoveries along the way. Whether or not the analysis of the data will lead to support of the stated hypotheses, this study will have served its purpose if it identifies promising avenues for future exploration.

CHAPTER III

RESEARCH METHODOLOGY

A complex hypothesis has been proposed: that disaster plans are more common among businesses with an optimistic view of their future than in businesses that express neutral or pessimistic outlooks; and that the number of contacts with potential helpers, both before and after disaster impact, will be higher among optimistic businesses than among the other categories. Because of the scarcity of previous research in this specific area, the present study will be a general exploration of the relationships between "managerial optimism," the presence of disaster plans, and the degree of networking that went on before and after the flood in the surveyed businesses. For the purposes of this study, "optimism" is defined in terms of responses to the question, "What do you expect the future of this business to be?" Survey subjects who circled "1--extremely good" are classed as "optimistic," and those who chose "5--extremely bad" are "pessimistic," with intermediate responses being considered as representative of intermediate attitudes.

Subjects

The part of Chesterfield Valley chosen for this survey lies in a bend of the Missouri River, which flooded in June 1993. It includes parts of United States Census Tracts 2216.01 and 2216.02. The area is bounded by the Missouri River on the north and west, by State Highway 141 on the east, and by Wild Horse Creek Road (County Road CC) to the south.

Geographically, the Chesterfield Valley is a classic example of a flood plain. The western bank of the Missouri River here is a bluff some 200 feet higher than the eastern bank, so that overflows will always spread into the relatively flat, two-mile-wide strip to the east of the river's normal course, which is protected by the Monarch Levee. This area, traditionally used for agriculture, has been rezoned and developed for commercial and residential uses as the urban area spreads westward.

The Chesterfield Chamber of Commerce provided a list of 250 businesses which were licensed to operate in the selected portion of Chesterfield Valley as of January 1, 1994. The businesses covered a wide range

of operations, from construction and manufacturing to financial services and day care.

No prescreening criteria were applied to this list before a randomized sample of 100 businesses was extracted from it. Likewise, no restriction was placed on the role or status of the individual in the business who was to fill out the questionnaire. The design of the questions was intended to make it clear that the person filling it out should be regarded as a company spokesperson, but the choice of that spokesperson was left to be determined by the culture of the individual business.

The relatively large sample, 40 percent of the subject population, was chosen as being the largest that could be financially supported by the researchers. Response rate was expected to be low because of the assumption that respondents would be too busy getting back in business to talk about it.

Instrument

One hundred survey packets were assembled. Each survey packet contained an introductory letter, a two-page questionnaire, and a postage-paid return envelope. The questionnaire and introductory letter are reproduced in Appendix A.

The questionnaire included 28 points of information to be elicited. The first was a demographics section asking the type of the business. This section was extracted from Small Business Administration Form 584 to allow for the possibility of future comparisons with Small Business Administration data. One preliminary speculation that had been raised in the formulation of the present hypothesis was the notion that different types of businesses would differ in their reconstruction paths, according to whether they were recovering physical assets such as equipment and manufactured goods, or intangible assets such as billable hours. This notion remains intuitively appealing as a possible direction for future research. The data on business age was also elicited with the intention of making comparisons to the Dun and Bradstreet finding that the majority of business

failures occur within the first five years of operation.

Only one item, "which range best describes total assets of the business in the fiscal year before the flood?" related directly to financial status of the respondent. While more detailed financial information would certainly have allowed a wider range of statistical calculation, it could also have produced resistance among survey subjects who wish to protect confidential information. Therefore, the decision was made to settle for only the broadest, most innocuous questions about financial status. Financial data will be available from other sources for future investigations into this aspect of recovery, but the present study was chosen to focus on business attitudes.

"Number of employees" was asked for two reasons: to determine the degree of turbulence in the employment base, and to serve as a limited verification of the size of the business, since a larger number of employees can be assumed to mean a larger payroll obligation, and therefore a larger "total assets" category would be needed to cover that payroll. It

should be noted that the reverse assumption was not made; it is obviously possible for a company to have few employees and many assets.

A question about business structure was included to identify the possibility of structure as an extraneous variable. Each type of structure, corporation, proprietorship, or partnership, establishes its own set of options for the business.

The second part of the questionnaire focused on specific flood experiences: whether or not operations were suspended, and for how long; and whether the business had to move its base of operations. Respondents were also asked about the ownership of their base of operations before and after the flood. Like business structure, this was designed to identify possible variations in experience due to extraneous factors.

In the third section, respondents were given a set of Likert scales and asked, "please circle the number that comes closest to describing your business," under four sets of conditions: how it was before the flood; how it was at the time of the questionnaire; how well it is expected to do in the future; and speculation

about what the future would have held without the flood. By rating each of these conditions on a five-point scale, where #1 was associated with "extremely good" and #5 with "extremely bad," a quantitative analogy can be derived to the quality of "managerial optimism," and to changes in "optimism" under the various conditions.

The fourth section focused on disaster plans. It asked specifically, "Did the business have a disaster plan before the flood? If so, who wrote it? Does the business have a disaster plan now?" No further instruction was given, because the intent of this section was to determine whether the business had made any effort to prepare for the effects of a disaster on its operations. The format and scope of any such preparatory efforts, as well as the nature of any revisions made after a disaster event, were beyond the limits of this study. However, they would be well worth examining in future studies.

Changes in the number of pre- and post-flood disaster plans can be seen as a measure of heightened awareness of the benefits of planning, as well as an indication of resolve to survive the next disaster. No

plan would be needed in a situation that offers no expectation for recovery.

Respondents were also asked to comment on the number of "outside agencies and organizations involved in the business's recovery efforts since the flood." While it would have been interesting to be able to categorize the helpers, that information was felt to be beyond the scope of an exploratory project, and so was not requested. However, future research to identify the different sources of outside assistance would be a logical extension of the present exploration.

The number of "outside agencies and organizations involved since the flood" was contrasted with, "Of these outside agencies and organizations, how many had the business had contact with before the flood?" The difference in pre- and post-flood contacts indicates the number of new relationships that had to be established under stressful circumstances; in other words, the prevalence of the "stranger phenomenon."

The final section was an array of open-ended, free text questions. Respondents were asked to tell, "If you knew that this business was going to be flooded again in the summer of 1995, what would you do?" and,

"If the owner of another business knew that it was going to be flooded, and asked you for advice, what would you tell him or her?" Identifying specific tasks in the "what would you do" column shows that the respondent does have a disaster plan, even though it may not be formally prepared.

The final question was a free-text summary. "No survey can ask all the right questions," it acknowledged, and offered respondents an opportunity to answer the questions that should, in their opinion, have been asked.

Procedure

A copy of the Chamber of Commerce list was cut into slips, with one address on each. The slips were put into a large jar and stirred by hand for three minutes; then 100 slips were removed, one at a time, and their addresses copied onto large envelopes containing the survey questionnaire, cover letter, and postage paid return envelope. The cover letter included information that would enable respondents to verify the origins of the survey if they so desired.

The survey packets were mailed on April 11, 1994. The first returns were received on April 14, all undeliverable by the Postal Service: "No forwarding address on file." The last response arrived on May 21, 1994.

Data Analysis

The study was designed to capture information that would allow a wide variety of analyses of relationships between the factors of "managerial optimism" and other respondent characteristics. All tests of the hypothesis were based upon the $p = 0.05$ level of statistical significance.

Responses were cross-tabulated in subgroups according to the various business factors: type of business, range of total assets, number of full-time employees, age according to "year the business opened," post-flood relocation, and suspension of operations. The respondent population was also examined for percentage mix of each state in the various factors. In the subgroups for number of full-time employees and age of the business, summary ranges were established that reflected the incidence of these characteristics

among the respondents; these ranges were then treated in the same way as the preestablished ranges for type of business and total assets.

In each of the subgroups, a mean "optimism" was determined under each of the four conditions: how was business before the flood? how is it now? what are the future expectations? and what would have been expected without the flood? The mean "optimism" ratings for the subgroups were compared to the overall mean "optimism" rating of the entire group, using the *t*-test for difference of means.

The same subgroups were examined in terms of "pre-flood presence of disaster plans" by *Chi*-square test to discover the relationship between disaster plans and experiences in the flood, i.e., suspending operations or relocating, since these experiences appear likely to influence the attitudes of the subjects.

Finally, a matrix was constructed to show the changes in the degree of "optimism" in the various states of each factor.

The free-text comments were examined in terms of general themes of planned action and advice offered. When free-text comments reflect on principles

established by previous research, those comments will be further discussed in that context. Since free-text items produce anecdotal information rather than data that is amenable to quantitative research, the statistical analysis will be limited to tabulations of frequency and to a general discussion of major themes identified in the content.

CHAPTER IV

RESULTS

Demographic Descriptions

One hundred questionnaires were mailed out, and 36 were returned. Four additional packets were returned as, "No Forwarding Address on File," and one subject returned, instead of the questionnaire, a flyer advertising the business's new address and "Grand Reopening Sale." These five anomalous respondents were not included in the statistical computations, although they will receive mention in the discussion of the study. The overall response rate is 41 businesses out of a total subject pool of 250, so the sample analyzed here represents 16.4 percent of the total population of businesses in the flooded area.

In some of the questionnaires, individual items were left unanswered, but no response was disqualified because of omissions. Group means and other calculations involving a particular item were made on the basis of the actual number of subjects who did respond to that item.

The first step in analyzing the responses was to establish demographic groups by type of business, by size in total assets, and by age. The breakdown of the group by type of business is shown in Table 1.

TABLE 1

Type of Business	Number of Subjects	Percentage of Total
Sales	14	38.9%
Manufacturing	7	19.4%
Service(Hospitality)	8	22.3%
Construction	7	19.4%
TOTAL	36	100%

The Service category includes seven service businesses and one hospitality operation. Several respondents in sales and manufacturing checked two types of business; in all these cases, one of the business types indicated was service. The decision was made to assume that service was a secondary component of the business operation, so as to avoid double entries and the associated dilution of information. These respondents were coded according to their primary component. Thus, the service category is limited to those respondents who listed no other type of business.

Retail and wholesale businesses were combined as Sales. The survey did not attempt to discover what kinds of goods were sold or manufactured.

Nearly all the businesses responding were corporations; three were partnerships, and only one was a proprietorship. This one-sided distribution effectively removed the possibility of considering the influence of business structure as a factor in the analysis.

Total number of full time employees before the flood was 1,105; afterward it was 1,093, or a negligible decline of 1.1 percent. However, the actual amount of job turnover was much greater than this. Sixteen businesses reported changes in the number of employees, with seven increasing and nine decreasing their work force. A total of 52 jobs were affected--20 gains and 32 losses-- so that 4.7 percent of the total work force had a change in employment status because of the flood. Four subjects did not answer the question, "Which range best describes total assets in the fiscal year before the flood?" Of the remaining 32, none reported total assets less than $100,000, so the categories were collapsed to more accurately

reflect the distribution of responses, as shown below in Table 2.

TABLE 2

Range of Total Assets	Number	Percentage
Less than $200,000	8	25.0%
$200,000 to $499,999	9	28.1%
$500,000 to $1 Million	8	25.0%
Over $1 Million	7	21.9%
TOTAL	36	100%

The ages of the businesses ranged from one to 70 years, with the mean age being 15.9 years, and the median age 10 years. Three subjects did not report the year their business opened.

TABLE 3

Age Range	Mean	Number	Percentage
5 Years or Less	2.6 Yrs	6	18.2%
6 to 10 Years	8.2 Yrs	10	30.3%
11 to 20 Years	14.5 Yrs	8	24.2%
21 Years or More	38.1 Yrs	9	27.3%
Total	15.9 Yrs	33	100.0%

The division between the two youngest groups, at five years, was an arbitrary choice to facilitate comparisons with the Dun and Bradstreet finding that business failure rates are higher in the first five

years of operations. The rest of the groupings were suggested by the distribution of the responses.

Since business type, size, and age are to be considered in relationship to the variables of interest--disaster planning, communication, and optimism--they were also examined in relationship to each other, in Table 4.

TABLE 4

TYPE/SIZE	<=200K	200-500K	500K-1M	>1 MIL	N/A
SALES	2	5 * ##	2 *	3 #	2
MANUFACT.	1	0	4 ** #	2 ** #	0
SERVICE	3 **	2	1	1 * #	1
CONST.	2	2	1 #	1 * #	1 #
TYPE/AGE	**<=5**	**6-10**	**11-21**	**21+**	**N/A**
SA	2	2 #	3 **	5 ##	2
MF	2	2 ** #	2 * #	1 *	0
SV	2 * #	3 **	3	0	0
CO	0	2	0	3 * ###	2
SIZE/AGE	**<=5**	**6-10**	**11-21**	**21+**	**N/A**
<200K	2	4	1	0	--
200K-500K	1	3	2	1	--
500K-1M	2	2	4	1	--
>1M	1	0	1	4	--

* = Disaster Plan
\# = Prior Contacts
Each symbol in a block represents one incidence.

Sixteen of the businesses, or 44 percent, had to suspend operations because of the disaster; time out ranged from one day to "forever." Ten businesses, or 28 percent, relocated either temporarily or permanently. Eleven businesses, 31 percent, both suspended operations and relocated. The remaining four, 11 percent, operated on their usual schedule in their usual location. These different sets of experiences were associated with markedly different levels of optimism, which will be outlined later in this chapter.

The overall level of property ownership versus leasing changed very little; Table 5 summarizes the overall effects of the changes.

TABLE 5

	Lease	Own
Before the Flood	23 (64%)	13 (36%)
After the Flood	20 (56%)	16 (44%)

However, the apparently small fluctuation in leasing versus ownership is the net effect of a larger series of transactions. Six businesses actually reported changes in status: four that were leasing before the flood bought buildings afterward; one that owned its

plant before the flood moved to a leased building afterward; another owner relocated into an employee's home. Several subjects commented that they had now set up permanent operations in a new location--on high ground.

Before the flood, ten businesses had disaster plans; eight months later, 18 had plans. This increase from 28 percent to 50 percent is a striking indication of the perceived value of disaster planning. Even more striking, many subjects said they had no disaster plan, then, in the free-text, listed specific actions they would take before the next flood.

The level of outside contact related to disaster plan preparation was too low to allow the level of in-depth analysis that the study originally intended: only two of the ten businesses with prior plans had any outside help drawing them up. In one case this help came from an insurance agent, and in the other, it was a manufacturers' representative. Eight companies named the "person responsible for writing the plan": two owners, two vice presidents, one president, one general manager, one terminal manager, and one factory representative. These few bits of information do

provide insight into some of the free text comments, but they will not endure any quantitative analysis.

The level of involvement by outside agencies and organizations was somewhat lower than expected: only 19 businesses, 53 percent of the sample, reported outside help from anyone, and only five of those, or 14 percent, reported involvement with more than four outsiders. Of the 19 businesses that acknowledged outside help, only 9 had prior contact with these outsiders.

An early intent of this study had been to compare the attitudes of businesses which had preexisting plans and prior contacts with those which had neither, or only one of those factors in place before the flood. However, only four businesses met the criterion for both factors. All four of these were large businesses, and their size could influence their perceptions of their future. Future studies will be needed to adequately examine the possibility of an association between these factors.

Attitude Analysis

Optimism is a difficult attitude to define, and even more difficult to measure. The measurement technique used here was a set of Likert scales that allowed subjects to assign a number from one, "doing very well," to five, "doing very poorly," on the state of their business under four sets of circumstances: how was business before the flood? (THEN); how is it now? (NOW); what do you expect the future of this business to be? (WET); and what would the future have been without the flood? (DRY). Mean scores for each circumstance were derived for each of the variables of interest and each demographic group. The results appear in Table 6. The sets of circumstances can be seen to form two contrasting pairs: Then versus Now, and Wet versus Dry. The changes in attitudes between these paired states are examined in Table 7.

TABLE 6

	n	THEN	NOW	WET	DRY
SAMPLE MEAN	36	2.00	2.47	1.94	1.78
TYPE					
Sales	14	2.70	2.57	2.00	2.07
Manufacturing	7	1.88	2.29	1.57	1.43
Service	8	2.13	2.63	2.38	1.75
Construction	7	1.85	2.29	1.71	1.57
SIZE					
Less than $200K	8	2.50	3.00	2.38	2.00
$200K to $500K	9	1.89	2.44	2.00	1.78
$500K to $1MIL	8	2.00	2.50	2.13	1.88
$1MIL or More	7	1.43	2.14	1.43	1.29
AGE					
5 Yrs or Less	6	2.00	3.17	2.33	1.50
6 to 10 Yrs	10	2.50	2.40	2.00	2.10
11 to 21 Yrs	8	1.75	2.50	2.13	1.75
21 Yrs or More	9	1.78	1.89	1.44	1.67
EXPERIENCE					
Suspended Operations without Relocating	5	2.00	2.60	2.40	1.40
Relocated without Suspending Operations	16	2.56	2.31	1.62	2.06
Both Relocated and Suspended Operations	11	1.64	2.82	2.00	1.55
Neither Relocated nor Suspended Operations	4	2.00	2.00	1.75	1.75
Prior Disaster Plan	10	2.10	2.10	1.70	1.80
Prior Contacts	9	1.44	1.67	1.22	1.22
Both Plan and Contacts	4	1.25	1.75	1.00	1.00
Neither Plan nor Contacts	21	2.05	2.86	2.19	1.86

Based on a 5-point Likert scale ranging from 1="very good/optimistic" to 5="very bad/pessimistic."

TABLE 7

	n	THEN-NOW	DRY-WET
SAMPLE MEAN	36	(0.47)	(0.16)
TYPE			
Sales	14	(0.13)	(0.07)
Manufacturing	7	(0.41)	(0.14)
Service	8	(0.50)	(0.63)
Construction	7	(0.44)	(0.14)
SIZE			
Less than $200K	8	(0.50)	(0.38)
$200K to $500K	9	(0.55)	(0.22)
$500K to $1MIL	8	(0.50)	(0.25)
$1MIL and up	7	(0.71)	(0.14)
AGE			
Less than 5 Yrs	6	(1.17)	(0.83)
6 to 10 Yrs	10	0.10	0.10
11 to 20 Yrs	8	(0.75)	(0.38)
21 Yrs or More	9	(0.11)	0.23
EXPERIENCE			
Suspended Operations Without Relocating	5	(0.60)	(1.00)
Relocated Without Suspending Operations	16	0.25	0.44
Both Relocated and Suspended Operations	11	(1.18)	(0.45)
Neither Relocated Nor Suspended	4	No change	No change
Prior Disaster Plan	10	No change	0.10
Prior Contacts	9	(0.23)	No change
Both Plan and Contacts	4	(0.50)	No change
Neither Plan nor Contacts	21	(0.81)	(0.33)

Based on a 5-point Likert scale ranging from 1="very good/optimistic" to 5="very bad/pessimistic."

Negative changes, in parentheses in Table 7, are associated with less optimistic ratings. Positive changes are associated with a mean rating that has come closer to a score of 1: "doing very well" on the scale.

As might be expected, those businesses that both suspended operations and relocated after the flood had the largest negative changes in optimism rating between July 1993 and April 1994. Businesses less than five years old also had large negative changes. To put the relationship between these factors into clearer perspective, only one of the six businesses less than five years old was both suspended and relocated, so the possibility of an overlap between age and experience in the determination of optimism is minimal.

The mean optimism levels set out in Table 6 were then subjected to a *t*-test to determine the significance of differences in mean optimism levels between the grand mean and the means of the various groups in response to the question, "what do you expect the future of this business to be?" The resulting F-statistics are presented in Table 8.

Table 8

Group	Mean	n	d.f.	Significance
GRAND MEAN	1.94	36		
TYPE				
Sales	2.00	14	48	0.1856
Manufacturing	1.57	7	41	1.0278
Service	2.38	8	42	1.1873
Construction	1.71	7	41	1.5422 *
SIZE				
Less than $200K	2.38	8	42	1.1570
$200K to $500K	2.00	9	43	0.1935
$500K to $1MIL	2.13	8	42	0.5502
$1MIL or More	1.43	7	41	1.4065 *
AGE				
5 Yrs or Less	2.33	6	40	0.8602
6 to 10 Yrs	2.00	10	44	0.1972
11 to 20 Yrs	2.13	8	42	0.5680
21 Yrs or More	1.44	9	43	1.5528 *
EXPERIENCE				
Suspended not Relocated	2.40	5	39	0.9627
Relocated not Suspended	1.62	16	50	1.3245 *
Both Suspended and Relocated	2.00	11	45	0.7800
Neither Relocated nor Suspended	1.75	4	38	0.3953
Prior Plan	1.70	10	44	0.7638
Prior Contacts	1.22	9	43	2.3346 ***
Both Plan and Contacts	1.00	4	38	1.8260 **
Neither Plan nor Contacts	2.19	21	55	1.2652

* = p< 0.10. ** = p< 0.05. *** = p< 0.025

The last phase of data analysis was a *Chi*-square analysis of the relationships between preexisting disaster plans and post-flood relocation or suspension of operations. Table 9 shows the *Chi*-square distributions for these factors. Yates' correction has been applied to compensate for the small sample size. Numbers of subjects in each group are shown in brackets.

TABLE 9

	PRIOR PLAN	NO PLAN	TOTAL
SUSPENDED OPERATIONS	[6] 5.5	[10] 10.5	16
NOT SUSPENDED	[4] 4.5	[16] 15.5	20
TOTAL	10	26	36
Chi-square = 0.625	d.f. = 1	P>.05 = 3.841	

	PRIOR PLAN	NO PLAN	TOTAL
RELOCATED	[7] 7.5	[20] 19.5	[27]
NO RELOCATION	[3] 2.5	[6] 6.5	[9]
TOTAL	[10]	[26]	[36]
Chi-square = 0.000	d.f. = 1	P>.05 = 3.841	

Free Text Commentary

Businesses were asked to identify "who has been MOST helpful, and LEAST helpful, in the recovery efforts?" More than one response was allowed, and many subjects listed several actors in both categories.

TABLE 10

MOST HELPFUL		LEAST HELPFUL	
Employees	11	Local Government	12
Local Government	12	SBA	6
Nobody	9	FEMA	4
Charitable Groups	5	Federal Government	3
Business Associates	4	Banks	2
Friends and Family	4	Landlord	2
SBA	4	Charitable Agencies	1
City of Chesterfield	3		
FEMA	2		
Private Banks	2		
Insurance Adjustors	2		

It is worth noting that there were only 31 candidates for the title of "least helpful" person or agency, while there were 46 nominees for "most helpful." It is also difficult to interpret those responses that "nobody" was most helpful. Not enough information was obtained to determine whether "nobody was most helpful" means that all helpers were effective, or that there was no help from anybody.

One respondent stated his own assessment of the most helpful group in the recovery process: "The dedication of our employees working seven days per week

during recovery. Everyone who came back to Chesterfield Valley and has talked to me would agree that their own employees were the biggest factor in getting them back in business as soon as possible."

The list of problems during the recovery period covers 92 items, most of which fall neatly into categories parallelling the kinds of problems that occur, to a much smaller degree, during normal business operations.

Money problems lead the list with 19 entries relating to diminished cash flow, lost sales, out-of-pocket costs of replacing supplies, and increased rents. One subject reported an increase in rent from six dollars to fourteen dollars per square foot. Logistical problems came second, from maintaining production schedules, to replacing equipment, to finding things after a hasty move.

Communications problems were the third most frequent citation, with 13 mentions, and problems with government came fourth, with eight. These two categories seem to overlap to a great extent, because most of the problems with the government agencies seemed to stem from "poor information" and "red tape,"

both of which can be the result of problems with communications. Several subjects agreed with the one who wrote,

> I blame the city of Chesterfield for misleading all of the businesses in the valley. We called them every day to check on the status of the levee. Up until three days before the flood they stated it would never happen. At that point they came to all the businesses with forms to be filled out to reach someone in case of flood. They told us to fax it but their number was continually busy for those last three days. By that time the plan was too little too late. We only had twelve hours to find a place to go (Questionnaire #4).

"Lost records" were mentioned six times, "emotional damage" got five citations on the problem list, and four problems related to the increased time required to carry out tasks. The complete list of problems can be found in Table 11.

TABLE 11

PROBLEMS

Loss of sense of purpose and organization
Monetary losses
Finding things after moves
Owners and employees emotional recovery
Cash flow
No place to operate
No help from SBA/FEMA
Loss of revenues
Replacing supplies
Red tape
Loss of uninsured inventory
Standing water, wet grounds
Red tape
Chaotic operations in temporary location
Finding temporary Site
Financial burden
Extra time required to maintain service level
Agencies made promises and didn't come through
Financial burden of recovery
Cleanup of plant, tools, and inventory
Restrictions
Lack of cooperation from city hall
Records lost
Change of address
Communications
Lost records
Logistics
Complete lack of facts
Lost Records
Expense of refitting office and supplies
Replacement of lost inventory
Inefficient operations in new site
Utilities really ripped people off
Profiteering
Relocation
Loss of product
Deciding whether to rebuild or not
Maintaining production schedules
Relocation
Replacing equipment
Lost time setting up
Not knowing where to start or who to contact
Lost records
Cost of relocation
Obtaining services
Salvage and cleanup
Temporary quarters
Contacting Customers
Service delivery problems
Equipment failures
Loss of Revenues
Cleanup of equipment
Maintaining customer confidence
Supervising operations in remote site
Relocation of operations
Customers out of business
Increased interest obligation due to SBA loans
Employees took other jobs during our down time
Misleading reassurances from authorities
Rent went from $6 to $14 per square foot.
Inaccurate advice about potential flooding
Relocation
Lost stock
Lost Records
Keeping up with orders
Paying rent on temporary building and mortgage on damaged one
Don't expect help from any Government agency
Restaffing
Stabilizing
Long delays
Poor information
Government promised help but did not deliver
Cash
Trapped: own the property and can't walk away
Lost all records
Collecting Insurance
Reassuring customers
Breaking the lease after a flood
No sales
Having to quote on jobs with no equipment and long leadtimes
Repairing and Replacing equipment
Lack of Capital for replacement
Finding suitable temporary quarters
Psychological damage
Securing loans for operating capital and repairs
Having to pay out of pocket for everything
Disorganized due to relocation
Labor
Materials
Relocation and economic loss
Information
Loss of business contacts
Staying on top of receivables
Evaluating losses

The final section of the questionnaire was designed to expand on the earlier question "Does this business have a disaster plan?" by asking what a business would do in a future disaster. It was hoped that these two open-ended questions would elicit specific tasks which could be incorporated into future recommendations for effective disaster planning. The resulting comments are summarized in Table 12.

TABLE 12

WHAT WOULD YOU DO IF YOU KNEW THIS BUSINESS WAS GOING TO BE FLOODED AGAIN?

Move	21
Get Flood Insurance	7
Make Evacuation Plans	2
Nothing Different	2
Store Material Offsite	1
Pray	1
Shoot Myself	1

WHAT ADVICE WOULD YOU GIVE ANOTHER BUSINESS THAT KNEW IT WAS GOING TO BE FLOODED?

Move Out	21
Buy Flood Insurance	6
Prepare Evacuation Plans	4
Investigate Conditions Yourself	2

It is to be hoped that "Shoot myself" was intended as a facetious answer. Grieving for drowned opportunities is a normal reaction to disaster, and several other

comments reflected this grief. However, an encouraging number of them echoed the resolve of the one who said,

> Don't sit back and feel sorry for yourself and wait for someone else to rescue your business, it's not going to go that direction. Appraise your damages, your people resources, your salvage efforts, and re-commit yourself to build it stronger and never subject it to the intangible. And don't commit to "own" in a flood plain...One flood is enough for a lifetime!
> (Questionnaire #19)

CHAPTER V

DISCUSSION

Summary

The response rate for this study was better than expected: 36 usable questionnaires returned from a sampling of 100 businesses in a total population of 250. The criterion for abandonment of the effort had been set at 25 responses. Five other packets did come back in ways that were interesting, but not suitable for statistical analysis. Four of these are almost certainly out of business, judging by the return of their packets marked "No Address on File." The last subject used the return envelope to announce a "Grand Reopening Sale." Thus, in addition to the 36 respondents, the total return includes one business that shows an intent to survive, four which have probably already succumbed, and 59 which, for whatever reason, did not respond to the survey.

The results offer limited support for the primary hypothesis proposed by this study. Those businesses which had both a prior plan and prior contacts with

outside agencies showed a significantly more optimistic view of the future than did businesses which had neither, or which had only a plan. This increased optimism was independent of all other factors studied: size, age, type of business, or disaster experience. Table 8, in Chapter IV, shows the degree of difference between the mean optimism rating and the optimism of the various subgroups.

While more optimistic ratings were found in the construction type of business, in the larger sized businesses, and in those aged 21 years or more, these ratings were significant only at the level of $p < 0.10$. At the same level of significance, those businesses which relocated without suspending operations also had optimism ratings better than the mean.

Bigger businesses were more likely than smaller ones to have prior contacts. However, not enough information was available to evaluate the benefits of those prior contacts in the disaster event, or to separate the effects of the contacts from other factors distinguishing large businesses from small ones.

The secondary intent of the study could not be accomplished. Too few of the subjects had prior

disaster plans or prior contacts to allow an in-depth analysis of the interplay between these factors. The remarkable increase in the number of disaster plans after the disaster, however, demonstrates the general agreement of Chesterfield businesses with Kartez and Lindell's conclusions about the importance of such plans. One of the subjects explained why his business did not have a disaster plan:

> A small business is to a large business, what a john boat is to an aircraft carrier. That is, it can be maneuvered very quickly and easily, compared to very slowly, with difficulty requiring greater expense. Therefore, with so few people and other assets, I don't feel a disaster plan is critical to small business. (#19)

This comment is from the same subject who had such high praise for the efforts of his employees after the flood. The "maneuverability" of this particular business obviously comes from more sources than just its small size.

The present study validates Litan's assertions: smaller, younger businesses were the least optimistic about their future prospects, regardless of their experience in the disaster. This same group also showed the largest negative shift in their perceptions

of business since the flood (see Table 7, Chapter IV).

Service businesses were less optimistic than those which deal mainly with tangible goods. It may well be that it is easier to keep operating while moving inventory than it is to keep providing service while meeting disaster-generated demands on time and energy.

The existence of a disaster plan and/or contacts did not alter the experiences of suspension or relocation. Those experiences seem to be based mostly on luck and water levels. Only four businesses were able to stay open without relocating, and all of these were larger businesses.

The survey's findings on property ownership and employee numbers partially confirm a finding of the SADRI study done by Rossi et al: that disaster had "no discernable net effects" on preexisting trends. However, the eight percent change in leased versus owned property holdings actually represents a much higher level of turbulence. Some subjects commented that they had moved from a leased or owned facility to another in the same category but in a new site on higher ground. The estimated number of small businesses abandoning the flood plain, based on these

comments, is 20 percent; this estimate may be low, and may possibly be very low. Future studies will be needed to see whether the Chesterfield Valley follows the pattern of business dispersal that Haas found in San Francisco.

For an individual business, relocation may be the wisest choice; however, for the community which hopes to rebuild, the subsequent diminution of its tax base makes rebuilding just that much harder for those businesses which remain. St. Louis County's loss of 7 percent of its property tax base can be expected to have serious long-term effects on the County's ability to provide services to its residents.

The net decrease in the number of full time employees was 1.1 percent; this finding also supports the SADRI conclusions. However, the total number of jobs affected represents 4.7 percent of the reported full-time employment base. For an individual business to adjust its work force to meet changing conditions is normal. For the individual worker, this adjustment may mean leaving the area in order to find another job. Again the community suffers, by the diminution of the labor pool available to attract new business.

Limitations

The lack of advance screening of the businesses in the survey area brings the demographics of the respondents into question. The need to collapse categories at the low end of the size range indicates that, in this category at least, the survey may not have allowed subjects at the high end of the range to give accurate information about their business.

While the return rate was higher than expected, the subject pool still represents a very small sample from a very small locality in only one section of the flooded region. Consideration must be given to the varying effects of specific local factors before applying the conclusions of this study to any other area, or to any other type of disastrous event. Also, the possibility cannot be ruled out that those businesses that filled out the questionnaire might differ in some crucial way from those which did not.

The findings in employment levels and employee turbulence were limited to full-time employees. While this section was based in part on the Rossi study, and does support Rossi's conclusions, it also shares the flaw which Verta Taylor found in that study. Since

many businesses use part-time or seasonal workers, the full-time level tells only part of the story. The degree of turbulence in employment and in facility ownership versus leasing is much greater than the net change. A further study of this topic would have to include part-time employment levels and changes between part-time and full-time levels.

The survey instrument was unable to capture the actual number of businesses that have abandoned the flood plain for higher ground. It also leaves unanswered the question of how many businesses returned with plans for a future move. These trends will have a major impact on the long-term recovery prospects for the area, so they will need to be followed.

Suggestions for Future Study

The mere existence of a disaster plan and a network of outside contacts is not enough to ensure survival. Much work remains to be done in order to distinguish an effective plan from one that is "lengthy, detailed ...and irrelevant" (Hoetmer, 127). Even the definition of a disaster plan is in question. It is difficult to determine what is actually happening

with a business that reports, "no disaster plan," then lists half a dozen actions that would be taken in a future flood. If this list of actions is not a disaster plan, what is it? More important, will it help the business respond to disaster?

More work will also be needed to clarify the kinds of relationships that are most important to recovery, and the best ways of establishing or preserving these relationships in a network. The amount of contradictory or inaccurate information being disseminated during the disaster period was identified as a major problem; again, more work is needed to determine better ways of obtaining and verifying critical information.

The difference in optimism levels between various types of businesses leads to another possible line of future research. It is intuitively appealing to assume that service industries, whose operating assets are concentrated in the skills of their employees, would be more "portable" than those which deal with tangible goods; however, service businesses were the least optimistic after the flood. Time is a critical asset for a business. It may be that some kind of

substitution between time and tangible goods allows a tangible-goods industry to better control demands on this critical asset. It may also be, in some cases, that using another supplier will not improve delivery times for the customer. The only strong conclusion that can be drawn from the present study is that different types of business do appear to follow different courses in recovery--just as they did in normal times.

Having to choose among an array of alternate sources and substitute products is a familiar problem for business planners. An investigation of the changes in this array after a disaster could answer some fundamental questions about the comparative strengths of established and emergent relationships, once the emergency is over. It would be interesting to learn what alternatives were chosen by businesses whose major suppliers were shut down by disaster, and how well those alternative courses of action worked.

This study did not touch on the availability and effectiveness of sources of disaster relief funds, yet such funds are obviously important in recovery. It would be interesting to see how long those funds remain

important, and whether the end of disaster aid is associated with any change in business failure rates, as LaPlante suggests. Some of the free-text comments reflect the concerns of Vinso's householders about increased debt burdens. Other comments on this topic mention the "red tape" difficulty associated with obtaining disaster aid. Part of the difficulty may be due to simple unfamiliarity with the various agencies and their capabilities, but part of it can be due to those agencies' failure to assess their clients' needs. Both aspects of this problem offer many opportunities for future study.

Forty-seven percent of respondents said the most important action to take in preparation for a future flood was to move out of the flood plain, but many of these had returned to their flood-stricken sites. It may be that some businesses have faith in the efficacy of future flood prevention measures. Some are in the position of one subject: "We're trapped--own the property and can't walk away." Some of the reasons for leaving or staying are obvious; others remain to be discovered. An investigation of these reasons could

hold important implications for long-term flood plain management.

Any exploratory study will raise more questions than it answers. The most important question that arises from the present study is this one: what effect does optimism have on a business's long-term survival prospects? Simply feeling hopeful about the future is not enough, by itself, to guarantee that the future will fulfill those hopes.

Disaster plans and networks support optimism. Do contingency planning and communications, then, also support other factors that improve the odds for a small business's survival? One way to fully validate the findings of this study will be to return to Chesterfield in two or three years, to see what has become of those businesses that faced the flood of 1993 and to speculate on what will become of those businesses that will face the next flood.

The Missouri River will inevitably flood again. The next flood may come in two years or in twenty, but it will certainly come. Whether other communities equal Fort Wayne's success, or fulfill Petak's prophecy, remains to be seen. If disaster planning

principles can be adapted from the military, medical, and political foundations, and if a vision can be established that will help all the members of a community see each other's needs as the water rises, the community will survive and prosper. Without that vision, or without the planning to bring it into clear focus, the flood after next may wash over barren ground.

APPENDIX A

Cover Letter and Questionnaire

This questionnaire is part of a graduate-level research study conducted under the supervision of the School of Graduate Business, Lindenwood College, St. Charles, MO. The purpose of the study is to learn more about the factors that contribute to business recovery after a natural disaster. I hope you will contribute a few minutes of your time to complete the questionnaire and return it in the enclosed, postage-paid envelope.

All individual responses will be kept strictly confidential. This confidentiality means that it will not be possible for me to express my thanks to those who choose to participate in the study. However, whatever your decision, please accept my best wishes for your business's success in recovery from the effects of the Flood of 1993.

Sincerely,

Jennifer J. Bredell

Please indicate the terms that best describe this business:

Type of business:
Retail_____
Wholesale_____
Service_____
Manufacturing___
Construction____
Agriculture_____
Hospitality_____
Other (please explain)
_____

Which range best describes total assets of the business in the fiscal year before the flood?
Less than $50,000_____
$50,000 to $99,999_____
$100,000 to $149,999_____
$150,000 to $199,999_____
$200,000 to $499,999_____
$500,000 to $1 Million____
Over $1 Million_____

Proprietorship_____Partnership____Corporation_____
Year the business opened? _____
Number of full-time employees: Before the flood_____? Now_____?

Were operations suspended during the flood?_____ How Long?_____
Before the flood, was the business facility: owned___? Leased____?
Other arrangement? (Please explain)_____

Has the business relocated since the flood?_____
If so, is the new facility: owned?_____Leased?_____
Other arrangement? (Please explain)_____

For the following questions, please circle the number that comes closest to describing your business on the scale:

How was the business doing before the flood?
Extremely good ---1-------2-------3-------4-------5--- Extremely bad

How is the business doing now?
Extremely good ---1-------2-------3-------4-------5--- Extremely bad

What do you expect the future of this business to be?
Extremely good ---1-------2-------3-------4-------5--- Extremely bad

How do you think the business would be doing if there had been no flood?
Extremely good ---1-------2-------3-------4-------5--- Extremely bad

Did the business have a disaster plan before the flood? Yes__ No__

If so, what was the job title of the person responsible for writing the disaster plan?_____

If the business had a disaster plan, did any agencies or persons outside the business help to draft it? Yes___ No___
If yes, how many others? 1 to 4___ 5 to 8____ More than 8____

If the business had a disaster plan, how did that plan work in the flooding?
Worked very well ---1-----2-----3-----4-----5--- Worked very poorly

Plan was not used___

Does the business have a disaster plan now? Yes___ No___
How many outside agencies and organizations have been involved in the business's recovery efforts since the flood?
None___ 1 to 4____ 5 to 8____ 9 to 12____ More than 12____

Of these outside agencies and organizations, how many had the business had contact with before the flood?
None___ 1 to 4____ 5 to 8____ 9 to 12____ More than 12____
Had any of these outsiders contributed to the disaster plan? Yes___ No___

Who has been MOST helpful in the recovery efforts?_____

Who has been LEAST helpful in the recovery?_____

Please name the three biggest problems the business has faced in the recovery period:

1._____

2._____

3._____

If you knew that this business was going to be flooded again in the summer of 1995, what would you do now?

If the owner of another business knew that it was going to be flooded, and asked you for advice, what would you tell him or her?

No survey can ask all the right questions; if this one has left out some part of the recovery process that was particularly important to your business, please tell me about that important part.

Your participation in this study is very much appreciated. Again, please accept my best wishes for your success.

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