

Disaster Recovery Planning in the Wake of a Disaster: A Survey of Grand Forks, ND Businesses

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Executive Summary

Of all the issues related to the flood of 1997, the response of businesses to the flood stands out as one of the lesser researched aspects. *Behavioral Science Review* devoted an entire issue to the flood but failed to examine the impact on business. I gathered data through a survey mailed to 1900 local businesses. This generated 256 responses of which 128 contained useful data, a low useful response rate of 6.7%. I find that businesses in Grand Forks conducted an insufficient amount of disaster recovery planning prior to the flood of April 1997 and that the overall planning levels have not improved significantly.

No more than 11.83% of responding businesses operating both before and after the flood had a disaster recovery plan in place in a given year. For businesses commencing operations after the flood 24.14% of respondents currently have disaster recovery plans. Reasons given for the absence of a plan include a lack of perceived need, a lack of time, cost concerns, plans to leave the area if a similar flood occurred, and a perception that such an event was unlikely to occur again. Many businesses that operated prior to the flood reported some lingering problems such as debt burdens, loss of customer base and workers, as well as general economic decline in the region. The attitude expressed by some in the survey responses raises the possibility that disaster recovery plans are misunderstood. Businesses require two things: 1) help understanding the value of disaster recovery plans, and 2) assistance with the development of disaster recovery plans. While the risks of flooding may be reduced it is still important for businesses to have disaster recovery plans in place to mitigate other problems such as terrorist attacks, winter storms, and black outs.

Many of the resources needed to help business are in place already. Grand Forks already has agencies such as the Small Business Development Center (SBDC) and a branch of the Small Business Administration (SBA). Numerous federal agencies can offer help through internet based resources. The best example of this would be the Federal Emergency Management Association (FEMA) who has an entire library devoted to the how-to's of disaster planning. The Mitigation Division hosts the site titled

“Protecting Your Business From Disasters” at <http://www.fema.gov/fima/how2bus.shtm> . With the ready availability of such resources there is little need to go without at least a basic recovery plan.

The lack of recovery plans in an area that experienced a disaster only six years ago raises concerns about the rest of the state. It seems likely that businesses in other regions of the state would also be ill prepared for a disaster and so there is likely a need for a statewide program for businesses.

Structure of the Survey

Businesses received a survey through the mail that included several parts, all with the intent of acquiring data to determine the presence of certain factors or characteristics at the business such as disaster planning. There is one major distinction made regarding businesses that are in operation currently, whether they operated before the flood, hereafter referred to as group A, or commenced operations after the flood, hereafter referred to as group B. The survey instructions requested all businesses to complete a demographic information sheet designed to acquire information for classification purposes. This information included annual revenues, number of employees, SIC code and similar information. Upon completion of the demographic information sheet businesses were instructed to move on to the appropriate survey questionnaire, either the one for those in operation both currently and prior to the flood, or the one for businesses started after the flood. The appendix contains copies of the actual survey documents. The survey for the Group A businesses was longer and attempted to gather information not available from post-flood only businesses such as market perception after the flood, lingering problems due to the flood, interruption of business, etc. This report does not provide results for all questions asked due to data problems related to many surveys being incomplete or other issues. In addition many questions were for classification or clarification purposes only. A total of 1900 surveys were sent out to area businesses with 256 returned. Of that 256 only 128 elected to participate, the other 128 asked to be removed from any future contact lists. The overall useful response rate then was around 6.74%.

One major group of businesses not surveyed were those businesses that failed due to the flood. This is a particularly difficult group to interview as many may have left the area and there are no comprehensive databases available for business operations that include the relevant years. Future research may attempt to locate the owners of these businesses in an effort to identify factors that determined business failures.

Disaster as an Entrepreneurial Opportunity

The survey asked two questions focused on providing insight into whether the flood allowed for increased entry of new firms, that is whether disaster provided an entrepreneurial opportunity. In theory as existing firms rebuilt from the flood they had no advantage, cost or otherwise, over new firms. New firms could enter and compete better than if the flood had not occurred. The survey asked Group A businesses if they felt they faced increased competition after the flood (Q19). Only 26.97% of respondents said they felt this was the case. The survey asked Group B firms if they competed with an existing business when they started(Q2). Only 24% of respondents felt they were in competition with an already existing business. The responses of Group B to a question about what created the need for the business or created the opportunity show that some saw an expanding market and decided to take advantage. One firm replied, “I worked for my competitor before I started my own business. I saw first hand they couldn't keep up with the number of calls that were coming in. So, I figured there was room for another business.” Others say they found a need for a particular type of business and started one, while some were attracted by the growth potential of the region.

Overall, the responses from Group B firms mention the flood as a factor in starting the business only for a few construction companies. Otherwise the evidence seems to indicate that there was not a significant entrepreneurial advantage for new entrants after the flood. It may be important though to look at other disasters as well as look at the government assistance made available to determine whether it impacted the speed of business recovery.

Existence of a Disaster Recovery Plan

The events of recent years have demonstrated a business's need for a disaster recovery plan. Terrorist attacks and their repercussions, wild fires, floods in Europe, tornados, winter storms, and blackouts can significantly disrupt business. With this in mind the survey asked some questions, repeated below, about disaster recovery plans. The survey asked Group A businesses to indicate whether they had

a disaster recovery plan, flood insurance for their business, and flood insurance for their home from 1993 to 2003. Table 1 reports the results for these businesses.

Question 4: Please indicate whether you had each of the following for the indicated years.

Table 1. Percentage of Respondents with the indicated item for a given year.¹

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Disaster Recovery Plan	4.35	4.35	4.30	6.45	11.83	11.83	10.75	9.68	11.70	11.70	11.70
Flood insurance for business	3.26	3.26	3.23	3.23	6.45	12.90	15.05	12.90	12.77	12.77	12.77
Flood insurance for home	13.04	13.04	13.98	17.20	32.26	35.48	35.48	32.26	32.98	29.79	27.66

As expected flood insurance coverage for both business and home increased after the 1997 flood. There was an increase in disaster recovery planning after the flood as well. Twice as many Group A business owners hold flood insurance for their home currently than did in 1993.² Almost four times as many businesses have flood insurance in 2003 than in 1993. More than 2.5 the number of businesses have a disaster recovery plan now than in 1993, but this is actually down from the peak experienced in 1997 and 1998, just after the flood. More important though is the fact that only 11.7 percent of Group A businesses currently hold a disaster recovery plan.

A public education initiative that explains the benefits of a disaster recovery plan seems to be necessary. There are numerous resources for such planning such as the Small Business Development Center (SBDC), the regional Small Business Administration (SBA) office and others. In addition there are many web based resources for disaster planning. One of the better sources for this is the Federal Emergency Management Agency (FEMA) website, specifically the Mitigation Division's Library. This Library contains online resources on business disaster planning as well as more general publications on disaster management. These resources can be downloaded by the public for free. The availability of such

¹ The number of responses for each year varies.

² The question about flood insurance for the home was asked because some business owners, particularly those that are only marginally profitable, may be forced to choose between flood insurance for their home or their business. This is a potential area of future research.

resources raises questions about why businesses do not have such a system in place already. To answer this question the survey asked pre- and post-flood operators if they indicated no current disaster recovery plan why they did not take these precautionary steps.

Question 5: If your answer to Question 4 indicates no current disaster recovery plan please provide a brief reason why?

Many respondents declined to answer this question. The replies of those that did answer are summarized below. There were a total of twenty-four usable responses of which eight (33.33%) indicated that they felt the flood was beyond their control, too much work or too costly.³ Two responses (8.33%) thought that good times were ahead or were waiting to see the results of public expenditure before committing their own resources. Another two (8.33%) felt that their operations were flexible enough that a disaster plan was unnecessary. One business's (4.16%) explanation for a lack of a disaster recovery plan was that in the event of another flood they plan to leave Grand Forks. Nine responses (37.5%) indicated that they felt a plan was not necessary or that an event such as a flood was unlikely to happen again. Finally, four responses (16.67%) indicated that they had flood insurance coverage or could acquire it and viewed it as a substitute for a disaster recovery plan.

The explanations for a lack of a disaster recovery plan reinforce the earlier results demonstrating a need for public education about the nature of a disaster recovery plan. Some businesses do not understand that plans do not have to be complex arrangements while others fail to see the vast number of situations where a plan would help. With the available human resources and the internet information available there is no reason for any business to do without at least a basic disaster recovery plan.

The survey for Group B businesses asked similar questions. Only 24.14% of responding businesses indicated that they have a disaster recovery plan currently in place. While low this is more than twice the number for Group A businesses. The newer businesses may have learned a lesson taught to the older businesses and adopted disaster plans to insure future success. Twelve responses from this

³ Some responses included elements of more than one category and count more than once so the numbers will not sum to 100%.

group of business about a lack of disaster planning are revealing. 50% said they did not see a need for such a plan for their business. 25% said that they had never considered such a plan. 16.67% said they did not have the time to formulate such a plan and 8.33% said it was not cost effective for their business.

Once again we see a large role for agencies like the SBDC. The SBDC, and agencies like it, not only need to educate businesses on the process of disaster planning but also demonstrate the value of a disaster recovery plan. Unfortunately, pointing out the benefits of a disaster plan are beyond the scope of the current survey, though future research could choose to specifically target such a point.

Disaster Funding Sources

The survey asked Group A businesses to provide the types of resources on which they relied to survive the flood. The text of the question is included below as are the overall results.

Q16: What resources did you rely on to survive the flood’s interruption of business?

Respondents were given a choice of items to mark off on the survey as well as an “other” category which they could check and then explain what they used. Respondents were free to fill in as many as applied to them. Table 2 contains the frequency of use for each item from the survey results. Out of 96 returned surveys 25 left this section blank. I interpreted a blank response as indicating the business did not need/use any disaster funds. The largest number of funding sources anyone listed was five.

Table 2. Frequency of Use from Q16-all responses.

Category	Personal Savings	Government Assistance	Bank Borrowing	Insurance	Family	Friends
Frequency (Percent)	41.67	26.04	15.63	14.58	12.5	7.29
Category (cont.)	Equity interest	Personal Investments	Credit Lines	Other		
Frequency (cont.) (Percent)	11.46	11.46	17.71	17.71		

The two most frequently used categories were personal savings and government assistance. At least four of the “other” responses list an SBA loan as a source of funds and one lists the disaster relief fund. One of the “government assistance” responses listed an SBA loan as well. Three other businesses relied on a cashflow approach, reducing their spending to match or go below income levels or using the cashflow generated to help cover flood related costs. Five of the “other” explanations list a reliance on donations of either funds or time on the part of family, members, or employees to help withstand the flood and one business lists specifically the Angel fund.⁴

Table 3. Frequency of Use from Q16-only those with at least one category.

Category	Personal Savings	Government Assistance	Bank Borrowing	Insurance	Family	Friends
Frequency (Percent)	57.14	35.71	21.43	20.0	17.14	10.0

Category (cont.)	Equity interest	Personal Investments	Credit Lines	Other
Frequency (cont.) (Percent)	15.71	15.71	24.29	24.29

Table 3 reports the same categories as Table 2 but Table 3 reports only as a percentage of those that used at least one of these categories. Essentially Table 3 displays the frequency of use among business reporting the use of at least one category. Naturally the frequencies increase but it is significant to note that more than 50% of those that needed to use these resources relied on personal savings. Businesses relied also on multiple sources of funds to recover from the disaster. For this group of businesses the average number used is 2.41 sources and the median is 2 sources. Over 40% of responding businesses used personal savings and almost 60 percent of those that used at least one of these categories. Of those responding that they used one of these resources for survival slightly more than 35% used government assistance. Twenty percent or more of resource users responded that they borrowed from a bank, received funds from insurance, used a credit line or some other form of funding.

⁴ The Angel Fund was established by the late Joan Kroc to help the people of Grand Forks recover from the flood.

The availability of outside disaster funding is important because not all businesses will have a cashflow option available to them. The management of public disaster funds is brought into question though by one respondent who stated, “city could have done a lot more. I received no help as I was able to get a loan...In Grand Forks, people weren’t treated equally. Business down town received everything, we received nothing....” It is also important to note that one valuable resource is not mentioned here and was not gathered through the survey: time. Many businesses listed problems getting workers to show up due to the need for home repairs. These types of delays could represent a significant addition to the overall amount of time it takes for a business to resume operations. That delay could also allow for a loss of competitive position within the market creating persistent problems after disaster recovery is complete.

One of the benefits of a disaster recovery plan would be a clear idea from where the funds for recovery and continued operation would come. Interruptions would likely be shorter and therefore the problems faced by businesses and business owners would be fewer.

Continuing Issues

The flood occurred in April of 1997. Most businesses reported that they were able to return to operations within 2 to 4 weeks with some saying it took until the end of the summer. However some report problems created by the flood continuing for a longer period of time, even to the present. One respondent said, “Me and this town will be paying for the flood for years to come.”

Question 31- Are there any problems your business continues to face today as a result of the flood?

Of the 96 surveys returned there were 29 blank responses, 34 that listed some variation of no continuing problems and 29 that listed ongoing or continuing problems due to the flood. Of those with useful responses 53.97% are no longer facing problems and 46.03% are facing problems. The responses of the 46% facing problems typically fall into 6 categories: debt issues, problems with the overall Greater Grand Forks (GGF) economy, customer issues, worker issues, business (cost) issues, and other.

Table 4. Number of Occurrences and Percentage of Total Responses by Category- Q31.

	Debt	Overall Economy	Customers	Workers	Business	Other
Number with problem	8	2	11	4	4	3
Percentage of those listing problems ⁵	27.59	6.90	37.93	13.79	13.79	10.34

The two largest problem areas are in the debt and customer areas. Respondents report large debt loads from credit cards, SBA loans and other recovery expenses. Some businesses also see a change in their target market. Problems include customers leaving the area or a change in tastes and preferences or lingering income issues for people in general. Smaller numbers of businesses report issues with finding workers or with the costs they must pay or charge. One firm lists both debt and customer problems as issues and two list customer and worker problems while two list both customer and business problems. There is no significant difference between the size of the firms that report problems and those that do not, as measured by the number of employees.

The length of time for business recovery is an important public policy question, particularly for disaster relief. In order to assist business effectively a complete understanding of the recovery process, particularly the length of time is vital. While it is beyond the scope of this study to determine, future research may need to address when business needs the most help, after the initial disaster or during a long recovery process after operations resume. The existence and use of a disaster recovery plan may help businesses through the initial disaster allowing aid agencies to focus on improving business performance during the resumption of operations.

Conclusions and Further Questions

The survey results do not necessarily provide strong recommendations for public policy due to the low number of responses. They do provide directions for future work in disaster recovery research,

⁵ Percentages will not sum to 100 because respondents could list multiple problems and may fit into more than one category.

particularly for business recovery, as well as recommendations for public education projects by agencies with a mission to help businesses. The persistent low frequency of disaster recovery plans in businesses that experienced a disaster is curious. Further work could attempt to determine why this is the case by looking at factors such as public assistance and attempt to see if people view public expenditure as a form of safety net. This is relevant for the case of Grand Forks due to the large dike construction project underway. Do businesses see this removing their need to develop sound business plans? This is also an issue for other regions. If businesses that experienced a disaster recently do not have adequate planning, would we expect businesses that are further removed to be better prepared? Another issue to address is a closer look at the sources of funds upon which businesses drew during the recovery process as well as when public assistance was needed most, during the initial recovery or after resumption of operations.

Other issues such as population migration after the disaster could have an important impact on business recovery. Many respondents expressed a concern that their target market left the area and was not replaced completely. A study of the reasons for migration out of the area could have important results and recommendations for public policy towards businesses attempting to recover from a disaster. Clearly, with entities such as SBDC, SBA and other resources, a disaster recovery plan is within the reach of any business, so long as they know the help is available.

APPENDIX

How many employees did your business have on its payroll at the end of March in each of the following years:

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Full Time	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Part Time	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Full Time Equivalen t	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

Please list the last five locations for your business as well as the dates you moved in and moved out.

	Location	Move in date	Move out date
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

Please list the dollar amount of revenue for your business from each of the following years.

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003(est.)
Dollar Amount of Revenues	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

Would you be willing to discuss some of these questions, and others, further with a researcher?

_____ Yes _____ No

If so, would you prefer to be contacted by:

_____ Phone Please provide your phone number: _____

_____ Mail Please provide your address here: _____

_____ E-mail Please provide your e-mail address: _____

* * * * *

Please proceed to the **blue pages** if your business was **operating before the flood and continues to operate today**.

Please proceed to the **green page** if your business **began operations after the flood and continue to today**.

Please proceed to the **yellow page** if your business **ceased operation after the onset of the flood**. This includes businesses that began after the flood and failed and those that were in operation prior to the flood and did not recover.

Flood Survival Survey

Businesses Operating Currently & Prior to the Flood

1. On what date were you forced to cease operations due to the flood? _____
2. On what date were you able to resume operations after the flood? _____
3. On what date did your business return to the level of profitability achieved before the flood?

4. Please indicate whether you had each of the following for the indicated years (Mark only when you had the indicated element)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Disaster recovery plan	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Flood insurance for your business	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Flood insurance for your home	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Physical capital expenditures for your business	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

5. If your answer to Question 4 indicates no current disaster recovery plan please provide a brief reason why?

6. If you answered that the flood forced capital improvements in Question 4, did they lead to a temporary closure of your business (beyond the initial closure due to flood waters)?
_____ Yes _____ No
7. Did you plan to make these improvements in the next year anyway? _____ Yes _____ No
8. In the next two years? _____ Yes _____ No
9. Did you own your own residence? _____ Yes _____ No
10. Did your residence experience flood damage? _____ Yes _____ No
11. What were the overall flood related losses to your business? \$ _____
12. What were the losses related to the interruption of business? \$ _____
13. What were the losses related to damaged or destroyed inventory? \$ _____

14. What were the losses related to repair and rehabilitation of business premises? \$ _____

15. What other types of losses did you incur? _____

16. What resources did you rely on to survive the flood's interruption of business? (Please check all that apply.)

_____	Personal savings	_____	Government disaster assistance	_____	Bank borrowing
_____	Insurance	_____	Family	_____	Friends
_____	Equity interest	_____	Personal investments	_____	Lines of credit
_____	Other (Please explain further)				

17. Was your business forced to move **permanently** as a result of the flood? _____ Yes _____ No

18. What mitigating steps, other than insurance, did you undertake to reduce business losses due to the flood?

19. Do you feel you faced increased competition from new businesses entering the market?
_____ Yes _____ No

20. What specific reasons made business difficult immediately after the flood? (E.g. no customers, workers needed to take care of their homes, you needed to care for your home, no supplies of goods available).

21. How would you characterize the trend in your annual sales immediately prior to the flood?
_____ Growing _____ Stable (not growing, not shrinking) _____ Shrinking

22. How would you characterize your sales during the clean-up period after the flood (through August 1997)?
_____ Below Average _____ Average _____ Above Average

23. How well were you able to anticipate the changed sales during the cleanup period?
_____ Very Well _____ Moderately Well _____ Moderately Poorly _____ Very Poorly

24. Did you offer credit to your customers and buyers (accounts receivable)?
_____ Yes _____ No

25. Did your credit practices, including collection period, change as a result of the flood?
_____ Yes _____ No

26. If you answered "Yes" in Question 25, how did they change?

27. As a result of the flood did you alter your target market?

_____ Yes _____ No

28. As a result of the flood did you perceive that your target market left the area?

_____ Yes _____ No

29. As a result of the flood did your suppliers leave the area, cease operations completely, or refuse to do business with you?

_____ Yes _____ No

30. If you answered "Yes" to Question 29, would you please offer some elaboration.

31. Are there any problems your business continues to face today as a result of the flood?

Thank you for your time. Please place this and the demographic information form in the envelope provided and return it to Dr. David Flynn.

Flood Survival Survey
Businesses Currently Operating Commencing Operations after the Flood

1. What created the opportunity for this business, or what made you think there was a need for this business and why did you open when you did?

2. Were you directly competing with a business attempting to recover from the flood?
_____ Yes _____ No

3. Do you have a disaster recovery plan in place currently? _____ Yes _____ No

4. If your answer to Question 6 or 7 is "No", please provide a brief reason why?

5. Do you currently hold a flood insurance policy for your business? _____ Yes _____ No

6. Do you currently hold a flood insurance policy for your home? _____ Yes _____ No

7. If your answer to Question 7 or 8 is "No", please provide a brief reason why?

8. What were your startup costs and what was the source of funds for your startup?

9. What was your prior form of employment?

10. When you started your business, did you offer credit to your customers and buyers (accounts receivable)?

_____ Yes _____ No

11. If you answered "Yes" to Question 10, what were the typical credit terms (interest, maximum amount, and duration) you offered?

12. Do you still offer credit to your customers and buyers? _____ Yes _____ No

13. If you answered "Yes" to Question 12, what are the typical credit terms offered?

Thank you for your time. Please place this and the demographic information form in the envelope provided and return it to Dr. David Flynn.