



# The Impact of Natural Disasters on Small and Medium Enterprises (SME) in Bangladesh

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## Abstract

The direct and indirect impacts of natural disasters are devastating to business activities and their continuity. These catastrophic events have created a significant impact on Small and Medium-sized Enterprises (SMEs) in the Bangladesh during the recent years. SME sectors can be considered as the highly vulnerable sections of Bangladesh economy which impacted drastically by the flooding as they are relatively resource constrained and less resilient. Having a sound understanding of the adverse impacts of flooding on SMEs might useful for entrepreneurial resilience. This study sought to investigate the full range of impacts (short term and long term) experienced by SMEs located in coastal region of Bangladesh following floods, cyclone, river bank erosion, saline water intrusion and earthquake. Three hundred and fifty respondents selected affected SMEs from coastal region. Semi structured interviews were carried out in person with the business owners in order to identify their experiences on various types of damages, rehabilitation and re-establishment. One of the major finding was the SMEs are vulnerable to natural disasters.

## Subject Areas

Business Analysis

## Keywords

SME, Coastal Region, Natural Disasters, Semi-Structured

## 1. Introduction

Disasters have had a huge effect both in the developed and developing countries on all forms of industry. The direct and indirect impact and sustainability of natural disasters are devastating for business operations, especially after the disaster. In recent years, these devastating incidents had considerable negative ef-

fects on most businesses, particularly small and medium-sized enterprises (SMEs). While several studies have studied the effects of natural disasters in individual homes and the wider macroeconomic environment, the consequences of natural disasters in the discipline of disaster risk reduction remain one of the least explored areas of small business (DRR). According to existing research, SMEs are more vulnerable to natural disasters than big companies since SMEs tend to be located in non-optimal areas. SMEs are smaller and financially poorer and are less often localised (Zhang 2004) [1].

Small companies are creators of jobs. In its opinion, small companies form the vast majority of companies, produce more than half of the gross domestic product of private non-farms and accounted for 60% - 80% of net new employment (Longley 2011) [2]. Small enterprises thrive in the best interest of the economy. However, business disappearances, especially small business, are like anything else in life. In the first five years of operation, the SBA reports the annual rate of closure of small enterprises to 50 percent. There can be two types of usual explanations for company disappearance, both endogenous and exogenous. An endogenous demise involves loss of ownership and manager's expertise and mismanagement choices due to internal factors such as undercapitalisation, the launch time, and (U.S. Small Business Administration 2008). Exogenous causes include factors outside the owner's control and derive from "out-of-the-way" sources, for example, competition, unpredictable demand, adverse economic conditions and disasters (US Small Business Administration 2008). Either endogenous or exogenous shocks may lead to business failure in the post-crash setting, and exogenous shocks, combined with endogenous vulnerabilities, can lead to an insurmountable survival.

Relatively few studies of small companies that addressed losses in post-disaster settings do not clearly understand the factors leading to loss after natural disasters. While little has been known about the death of the after-disaster, attempts had made to determine its prevalence. The SBA's Herbert Mitchell, who notes that 40% of businesses that suffer from a natural catastrophe do not survive, is among the most frequently quoted statistics (Dennis 2004) [3]. The Company and Home Safety Institute recommends 25% of companies do not recover. The preliminary figures of natural disasters indicate that approximately 19% of companies were no longer working five years after the end of the year, and not merely catastrophe loss (Schrank *et al.*, 2013) [4]. The first two figures are estimates, and the recorded demise rate probably encompasses all forms of demise, including ownership option and company failure. Various decrease estimation methods may have been employed. The statistics for death will also differ in terms of the timing and quality of the data being used. The nature of the disaster itself can depend on these estimates (e.g., hurricane vs earthquake). The reader is talking to Gosling and Hiles for an interesting discussion of business continuity statistics and its origins (2010) [5]. In fact, disasters can be the turning point for some small business owners in their tenuous life, after which they either fail or

recover. There is very little research on the impact of natural disasters on the deterioration of small businesses [6] [7]. A critical study has been carried out on the effects of the 1993 Midwestern floods on small businesses (Tierney *et al.*, 1996) [8].

## 2. Small Medium Enterprises (SMEs)

SMEs are not described in a specific way. As the selection criterion for the method of categorising businesses, the majority of organizations and countries use employee numbers, fixed asset value, yearly turnover and balance sheets. Bangladeshi organizations and organizations have their own definitions concerning small and medium-sized enterprises. By supplying employment, commodities and services, small businesses contribute to the well-being of the city. SMEs will be much more important in the future as an important part of developing countries economies. Although SMEs' density appears to be higher in developed countries, this could change in the future as the number of SMEs per thousand in low-income countries increases three times as fast as in high-income countries, 6% a year compared to 2% a year (Kushnir, 2010) [9]. SMEs, especially informal businesses, tend to be more flexible in their operations. Labour relations are usually built on the dynamics of confidence rather than transparency (Murta *et al.* 2013) [10], which provide a somewhat different basis for job development, which supports community networks directly. This means that small and medium-sized enterprises will engage more with communities than bigger companies and play important roles in local growth. SMEs would be likely, with lower levels of education, social safety and sometimes especially disadvantaged communities, to employ less "employable" employees. Also, in the developing world, SMEs have been found to offer jobs, including older and previously unemployed, to those less likely to find a job in a bigger sector (Kok *et al.*, 2012) [11].

Webb *et al.* (2002) [12] observed that much of the previous literature focused on single case reports, prescriptive disaster response solutions or unusual cataclysmic events. No matter if the owner or company characteristics occur and help prevent the loss during natural disasters, educational characteristics can be found. Half of the participants had to stop their business—no business activities were carried out this resulted in zero output because the raw ingredients were not available and the output could not be sold. A substantial fall in income of 28% of respondents was seen by over 50% As a result, cash reserves are dry or with debts the services industry has been impacted hard since they cannot deliver services and produce income for sustainability. 42% of businesses reduced their marketing costs to zero. It is clear to optimize costs because there are currently no sales their wage costs were reduced by 14% to zero. It can be concluded that these companies have already begun laying off workers 19 percent of company's operating expenses have decreased to a total "0," meaning that they are not able to maintain their business premises working. 16% of companies have reduced their manufacturing expenditure to zero "0," indicating the product's

stagnation. If the lockdown continue for more than 4 months, 68% of SMEs will deplete their cash reserves and shut down operation permanently Besides the fundamental things—every other industry has a hard time keeping its head above water and remaining functioning SMEs associated to critical products, such as staple foods and medicines, are free to survive locked up for a minimum of 8 - 12 months and above 12 months (7 percent). More than 50% of the SME's (46%) will be employed within four months to reduce their expenditures. Also in other situations, 31% of businesses (1 - 50 percent of employees) are layoffs to decrease expenses and keep their operations floating. Positive, however, we can also see that 23% of companies do not undertake any kind of dismissal—these companies have sufficient cash reserves to deal with rainy days (Impact on Bangladesh's SME Landscape, 2019) [13]. In Bangladesh, SME contribute to employment for 7.8 million and provide livelihood fir 31.2 million. Therefore, SME greatly contribute total \$317 billion to enhance the GDP of Bangladesh. Beside this, 70-80% non-agricultural job created by SME and every 2 out of 3 in the private sector get employed through SMEs in Bangladesh. In Bangladesh, more than 6 million SME and micro enterprise exit.

### 3. Natural Disasters Effects in Bangladesh

Bangladesh is one of the most natural-vulnerable countries in the world; this is due to its unique geographic location, dominance of floodplains, low elevation from the sea level, high population density, high level of poverty, high level of illiteracy and high level of dependency on nature & its resources. Geographically Bangladesh is located between 20°34'N - 26°38'N and 88°01'E - 92°41'E. Bangladesh is bordered on the west, north and east by India, on the south-east by Myanmar and on the south by the Bay of Bengal (Agrawala *et al.* 2003). The country is located at the unique juxtaposition of the composite, sprawling second largest river system in the world, the Ganges-Brahmaputra-Meghna. This river system drains an area of 1,086,000 km<sup>2</sup> from China, Nepal, India and Bangladesh. Because of its unique geographical location the nation has been gifted with rich biological diversity, hosting a rich variety of species which populates the ecosystems of the country (Aminuzzaman 2010). However, much of the terrain is low-lying with more than 80% of the country occupied by floodplains. Mean elevations range from less than a meter on the tidal floodplains to the north-east Sylhet basin which is up to 6 meters above mean sea level. The 35 million people living in the coastal belt in Bangladesh are front line victims of natural hazards. One meter of Sea Level Rise (SLR) 15 million (11% of the total population) are potentially affected (UNEP 2007). Associated with this impact, 60% of the total population could be affected by flash flooding from river over-flow.

Bangladesh has faced more than 200 climate-related disasters in last thirty five years and losses occurred, like damage of asset, business, property, livelihoods and over thousands of death toll. Natural disasters are creating barriers to end

poverty from this country (Afsana and Sarwar, 2015) [14]. Natural disasters are forcing people to take diversified occupation to maintain their livelihood along with destroying past development. Coastal areas people's livelihood depend greatly on natural resources which in turn dependent on nature climatic conditions. Frequent disasters such as floods, river bank erosion, droughts, cyclone, and other weather associated incidents affect household welfare through the destruction of physical, human as well as social capital. On 13 October 2012, UNDA published a list of disaster-sensitive countries on the severity of disasters danger in Brussels, which are the Development Affairs Partnership and Environment & Human Security Affairs. Bangladesh is fifth among 173 countries in the world. The first nation in the world in the Pacific, 2nd Tonga, 3rd Philippines, and 4th Guatemala, is on top of the list on Vanuatu island. Malta and Qatar are the least risky nation. However, Qatar is less dangerous than Malta. Two criteria for estimating the disaster risk were considered: 1) flood, cyclone, river bank erosion, saline water intrusion, drought, earthquake and damage caused by this disaster and how much destruction/loss will occur in the future. 2) Government capacity for infrastructure, health services, funding for nutrition, administration and education in disaster management, bima (insurance) chance for loss recuperation. The IPCC expects that by the end of the 21st century, the global temperature will rise from 1.8 to 4.0 C, and thus the sea level rises from 18 to 779 meters. The increase in sea level would flood new coastal regions that will interfere with their livelihood. As the IPCC points out in its 4th study, more irregular precipitation has expected to increase river flows from India, Nepal, Bhutan and China in Bangladesh. IPCC also pointed out in its observations that the severity of the drought will rise in the north and west of Bangladesh.

Climate change and natural disasters effect significantly on the livestock sector of Bangladesh; therefore, global temperature increases have a substantial impact on the animals. The diversity of biodiversity is getting smaller than before. Some animal and plant species have already become extinct from nature because of natural disasters, inland & marine water contamination, and deforestation due to overgrowth of population; warmer and wetter temperatures responsible for increasing the prevalence of diseases and vector diseases. In Bangladesh, hot spell and cold wave frequency and strength are rising. The two extremes pose a variety of threats to the preservation of the raised animals and birds, and to the people who are doing business and badly dependent on it. These physical factors have created direct and indirect problems for the business sector to expand properly and sustainably. The indirect threat to the animals and birds creates stress resulting in a rapid decline in productivity and immunity. Economic loss in the sector results in the loss of productivity, and reduced immunity indirectly attacks birds and animals. Natural disasters creating situation for emerging different diseases, in particular the poultry industry, cause massive economic losses. The industry has a major problem with the depletion of the poultry industry because of avian influenza. The Avian influenza outbreak in the livestock sector

has been facing a critical situation in Bangladesh since March 2007. The sector is becoming vulnerable in terms of sustainability. There is a crucial situation concerning the livelihoods of small and marginal farmers. During this time, the poultry sector has lost its rise since 2007 as a result of the synergistic impact of heat, cool wave, emerging and re-emerging disease, which has resulted in the closure and unemployment of hundreds of millions of small and medium business enterprises. UNDP has established Bangladesh as the country that is the world's most vulnerable to tropical cyclones and the sixth most vulnerable to flooding. Freshwater availability would decline in vast river basins due to climate change. This could adversely affect more than a billion people by 2050, along with population growth and increased demand from higher living standards. Emerging diseases and diarrhoea are expected to increase endemic morbidity and death. Increased coastal water temperature would worsen cholera and toxicity.

#### 4. Business Affect Recovery after Natural Disasters

Much of the study in small-scale disasters has so far examined businesses and removed businesses with disaster difficulties that have ceased operations (Alesch *et al.*, 2001) [15]. Nevertheless, some studies have managed to locate and interview non-existent company owners to see whether operating companies differ from non-operating firms (Schrank *et al.*, 2013 [4]; Marshall *et al.*, 2015 [16]; Sydnor *et al.*, 2017 [17]; Lam *et al.*, 2012 [18]). In general, these findings show gaps between companies that are still in business and companies that do not. In addition, the work of Sydnor *et al.*, (2017) [17] indicates that there would be gaps between surviving and fighting companies and completely recovering companies.

The following is an examination of possible discrepancies in the results of the post-disaster report. The variables addressed include both internal company and proprietor features and variables related to the resource exchange between company and household. Moreover, management techniques are discussed before and after the case. In a past study, these variables had better understand small business performance, such as survival, disappearance, and success.

Manage good and failing small enterprises plans. There are two major causes of small businesses failure: management skills (human resources) and sufficient finance capital (Peterson *et al.*, 1983 [19]; Hall *et al.*, 1991 [20]; Scherr *et al.*, 1989 [21]). Lussier (1995) [22] studied a range of endogenous factors and developed a success/failure prediction model. Significant discrepancies (based on bankruptcy records) between profitable and failed enterprises included professional advice, owner education, the recruitment and retention of high-quality personnel and the owned parents. These gaps represent the businesses' human capital and their capacity either to manage well or to identify additional tools for human capital to help them make decisions and expertise in management. In the prediction of samples of successful and failed enterprises, the model with 15 factors was developed and evaluated and found to be approximately 70 percent accurate. Indi-

vidual variables investigated consist of management solutions adopted during the recovery phase by companies. The management techniques for natural disasters include corporate management methods, such as location and budget strategies. Corporate management procedures including whether the owner has taken precautions to safeguard corporate data or relocated the company. The variables included whether a company was operating in a coastal county and distance from the storm to determine the vulnerabilities of a business operating location. When it comes to natural disasters, many of Bangladesh's coastal areas have not only suffered flooding, but also cyclones, erosion on the bank of the river, etc. Included and measured in two ways are business damages and loss from natural disasters: 1) number of days closed before reopening and 2) extent of damages. The number of closed days after the tragedy acts as a proxy for the loss of income as companies which were unable to reopen do not generate profits. In order to provide insight on what delayed reopening was the reasons for resuming the firm (such as damaged business assets or government constraints). The degree of the damage to the facility where the business functioned was defined as damage (including assets included in this facility) and whether the business owner reported catastrophic damage or not. Management strategies also include family adaptation techniques and a number of time, work and place of business indicators at the corporate and household interfaces. The tactics include exchanges between companies and the household between individuals and resources. The approach for family adaptation includes questions like when things are busy at home, how often do family, family members, other relatives or friends help the business without compensation to spend more time with your household?" and postpone or skip routine company requirements, such as record keeping or managing files, to spend more time with your family." Where 0 is never and 4 is often. The family business adjustment scale is one measure of the adaptive capacity accessible to the company and was summed up in a range of scales between 1 and 5 on seven Likert-type items. The control variables include current owner and firm features, storm damage and effect and other shocks encountered by the owner and company during natural catastrophes. Control variables are of the owner and company characteristics included variables such as gender, company age, industry, ownership status and if the company employed family employees. **Table 1** shows the variable definition for the analysis.

**Hypothesis 1 (H1).** Businesses that suffered more by natural disasters were less likely to be open that suffered with less damage.

**Hypothesis 2 (H2).** Businesses that experienced delays in reopening after natural disasters.

**Hypothesis 3 (H3).** Businesses that relocated after natural disasters were more likely to be operating that did not relocate.

**Hypothesis 4 (H4).** Businesses that received Government Fund were more likely to have recovered from natural disasters than businesses that did not

**Table 1.** Variable definition for the analysis.

Variables	Definition
Female Owner	1 if owner is female; 0 otherwise
Number of Days Closed	Number of days closed before reopening
Comingled Finances Before Natural Disasters	1 if business comingled business and household finances before Natural Disasters; 0 otherwise
Comingled Finances After Natural Disasters	1 if business comingled business and household finances after Natural Disasters; 0 otherwise
Delay Due to Damaged Business Assets	1 if delay in reopening was due to damage to business assets; 0 otherwise
Delay Due to Government Support	1 if delay in reopening was due to government restrictions; 0 otherwise
Exogenous Shock after Natural Disasters	1 if business was affected by flood or storm between big Natural Disasters; 0 otherwise
Suffered Catastrophic Damage of Disasters	1 if damage was catastrophic; 0 otherwise
Received SBA Loan	1 if business received SBA loan; 0 otherwise
Received Loan Delays from Creditors	1 if business received loan delays or write downs from creditors; 0 otherwise

receive that fund from government.

**Hypothesis 5 (H5).** Businesses that received an SBA loan were more likely to have recovered from natural disasters than businesses that did not receive an SBA loan.

**Hypothesis 6 (H6).** Businesses that received special consideration on existing loans payments were more likely to have recovered from natural disasters than businesses that did not receive special consideration.

## 5. Results and Analysis

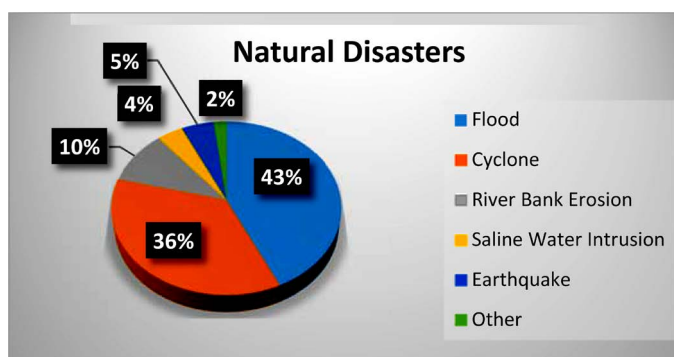
### 5.1. Statistical Results

The statistical study results indicate that inundation is the natural disaster most affected relative to other disasters in the coastal area of Bangladesh. This is predictable and consistent with previous research, which has shown that floods are Bangladesh's leading natural disasters. **Figure 1** shows the percentage of any natural disaster struck by SMEs in Bangladesh over the past 10 years, which is 43% of the respondents affected by flood in the past decade. 10% affected by river erosion. Meanwhile, 2% of SMEs selected other catastrophes and reported political threats, commodity price declines and oil price fluctuations. However, these threats should not be taken into account in this research since they are not natural disasters. The analysis is based on 350 sample size by collecting questionnaire in the coastal area of Bangladesh.

Respondents were also asked about their business condition and experience during pre and post natural disaster phase. The respondents were obliged, on the basis of a Likert Scale of strongly agree, agree; do not know; agree; disagree, and strongly disagree, to assess statements concerning the consequences of natural disasters and their knowledge and notification. The mean score is shown in **Table 2** for each statement.

**Table 2** shows many respondents agreed that the effects of the natural disaster on their business were really terrible. Mean score 4.05 indicates that most of the





**Figure 1.** Natural disaster experience among SMEs in Bangladesh (%).

**Table 2.** Mean score for the respondent's business experience of natural disasters.

Statement	Responses with lowest weight	Responses with highest weight	Mean weight
The natural disaster impact very badly to my business	2.4	-	4.05
My business was aware of a natural disasters occurring in the locality	8.5	-	3.75
Warning was received prior to the occurrence of the natural disaster	2.7	-	2.89
Sufficient lead time was available to take action upon receiving information	-	3.4	2.60

respondents affected agree with the declaration. Moreover, the majority of respondents strongly endorsed the assertion. The second statement's mean score is also very important in concluding that respondents are conscious of the natural disasters that take place around them. However, in the third and fourth claims, the number of replies that strongly agree with the declaration has dropped dramatically. The final statement on enough lead time is the only one with clear disagreements among respondents. This suggests that many of the respondents affected were not sure or denied that they were given time to act after obtaining information or warning about natural disasters that could impact the participants. The mean size for this argument is also less than three. The survey shows that floods and cyclone are the worst natural disaster in Bangladesh, for which small and medium-sized enterprises affected badly.

This result can be anticipated because it is normal in Bangladesh and coincides with previous publications and literature published by different local and global institutions. Many SMEs have confirmed that natural disasters have impacted them at least once a year and that in the past six years, some of them have suffered twice or more annually. The study showed, however, that unpredictable natural disasters like drought, haze and heatwave have evolved due to climatic change in the recent years. Their impacts and events have not been extensively addressed before and have not been regarded as a critical danger to small and medium-sized businesses in Bangladesh. Many small and medium-sized enterprises in Bangladesh agreed that drought, haze and heatwave had an impact on

their business. Still, not many of them indicated the high impact of these disasters.

## 5.2. Descriptive Statistics Analysis

The descriptive statistics compare all three operating categories and are shown in **Table 3**. Recovered businesses were less likely to have experienced disastrous destruction (Flood, cyclone, river bank erosion, saline water intrusion and earthquake) and had less closure days of natural disasters (compared to survive companies and closed businesses). Due to the loss of a business asset or government controls, they were also less likely to be late. Furthermore, their operations were less likely to be moved.

Financially, recovered businesses were less likely to have comingled their finances pre and post natural disasters compared to survived and closed businesses, although they were more likely to have a higher percentage of number of days closed of the business. Recovered businesses were more likely to have received an SBA loan and special considerations such as loan delays from creditors than closed businesses. Survived businesses were more likely than both recovered and closed businesses to have comingled their finances after natural disasters, received an SBA loan, and received loan delays from creditors.

**Table 4** shows the result of Heckman Probit Model Analysis.

## 6. Discussion and Conclusion

This study assessed the application of system theory to business practice and the role that small business owners play in responding to an exogenous shock in specific strategic decisions. The results show the importance of studying the business reaction to shock using the lens of system theory. The results show that transactions between companies, families and society, both personal and

**Table 3.** Descriptive statistics comparing closed, survived, and recovered businesses (N = 350).

	<b>Closed (N = 60) Percent/Mean (Std. Dev.)</b>	<b>Survived (N = 190) Percent/Mean (Std. Dev.)</b>	<b>Recovered (N = 100) Percent/Mean (Std. Dev.)</b>
Female Owner	30.00	40.00	34.00
Number of Days Closed	34.87	68.06	61.75
Comingled Finances Before Natural Disasters	24.12	47.13	65.46
Comingled Finances After Natural Disasters	-	81.20	53.13
Delay Due to Damaged Business Assets	13.57	52.49	32.74
Delay Due to Government Support	39.22	43.79	26.91
Exogenous Shock after Natural Disasters	15.00	50.03	75.69
Suffered Catastrophic Damage of Disasters	69.10	41.55	29.28
Received SBA Loan	7.52	20.45	14.94
Received Loan Delays from Creditors	10.83	23.46	39.35

**Table 4.** Heckman Probit Analysis after natural disasters (N = 350).

	<b>Coefficient</b>	<b>Robust St. Error</b>	
Female Owner	-0.126	0.068	
Number of Days Closed	-0.105***	0.030	
Comingled Finances Before Natural Disasters	-0.069	0.041	
Suffered Catastrophic Damage of Disasters	-0.060***	0.013	
Received SBA Loan	0.640	0.377	
Received Loan Delays from Creditors	0.281***	0.086	
Constant	<b>1.893***</b>	<b>0.354</b>	
	<b>Coefficient</b>	<b>Robust St. Error</b>	<b>Marginal Effect</b>
Female Owner	0.189**	0.044	6.25%
Number of Days Closed	0.040***	0.006	1.31%
Comingled Finances After Natural Disasters	-0.791***	0.119	-26.20%
Delay Due to Damaged Business Assets	0.213**	0.074	7.06%
Delay Due to Government Support	-0.333**	0.119	-11.03%
Exogenous Shock after Natural Disasters	-0.367**	0.138	-12.15%
Received SBA Loan	0.029	0.023	0.95%
Received Loan Delays from Creditors	0.107	0.061	3.55%
Constant	1.260**	0.431	
Rho	1.000	0.000	

resources, were conducted and are linked to results. Work and family change transactions were human capital (employees, absence, sole proprietorship; gender ownership and the age of business), event costs and financial resources. (Daily losses, closed days and delays in reopening) (Family comingling, loan delay from financial institutions, and SBA loans from government). The pre-and post-disaster tools and both internal and external management methods were the transactions. The data shows that there are a number of operational outcomes instead of the traditionally studied degraded/resided dichotomy in line with the paradigm suggested by Marshall and Schrank (2014) [23]. While some companies have never reopened after natural disasters, most have reopened. There has been proof for companies that have reopened that some fail and some have struggled to remain open, while others have recovered or surpassed their pre-disasters sales and success. The findings of the analysis also show that the time and nature of decay and recovery vary. Owners who decided to reopen their business after natural disasters not only provided the disaster with different tools, abilities and impacts but were also likely to face different conditions and decisions in deciding to reopen their business than owners who did not reopen. Never reopening businesses endured the sudden onset of natural disasters, which were perhaps seriously damaged but lacked the features and infrastructure to make progress. The effects of living events have intervened and probably have

affected the company's ability to recover from natural disasters completely. Those companies that we're able to reopen but ultimately closed (Cby 2013).

This study's findings show that there are numerous results correlated with pre-existing conditions and post-event management strategies. Also, the business capital and its institutional transactions with other processes play a role in the company recuperation of those companies that can restart, taking the strategic decision in response to an exogenous occurrence. Events such as natural disasters that affect even the safest small businesses significantly exacerbate the rate of small business losses. The strategy used to address these problems is capable of improving performance. It is necessary, for example, to be flexible in the situation following a disaster (Alesch, 2001) [15]. One-third of Cby2013 and the company owners rescued in this study were tenants who may have made relocation easier for them than if they had owned properties. This decision, however, can prove expensive. Indeed, 20% of companies that have survived Cby2013 have relocated against 12%, and just 8% of companies have recovered. It is important to note that Cby2013 companies had the capacity and were more likely to have relocated than companies that had survived or recovered, adding yet another financial burden that led to their decay. There is also no sufficient versatility to relocate itself to recovery. The position is nevertheless a valuable advantage if it first and foremost reduces exposure to an exogenous occurrence. Therefore, these findings indicate that the initial position selection is more reliable than the relocation after the event to minimize vulnerability to a disaster and help survival.

## 7. Limitations and Future Research

Based on the diversity of recovery illustrated in the report, it is evident that further study of the timing, nature and recovery background would be useful to understand the recovery process of a small business from a natural disaster. There was minimal variation in the management techniques discussed in this report. With additional household and community support, a profound review is recommended on how small companies handle their organisation before and after a crisis. It should also be examined to decide if life events have an effect on the depletion of small companies that initially have survived a natural disaster or whether the impact is limited to "distraction" (Winter *et al.* 2004) [24]. The role of enterprise marketing strategies in business reactivation was based on recent studies (Morrish *et al.*, 2020 [25]; Miles *et al.*, 2016 [26]). Haffele *et al.* (2020) [27] said the 2020 pandemic demonstrated that entrepreneurial sites such as marketing strategies could be useful instruments to avoid policy stifling. Future researchers may concentrate on entrepreneurial tactics employed by owners in order to help their companies recover. The subject was beyond the reach of this report. The results of this study indicate that it could be affecting a company's dimension, its management structure and strategy, its vulnerability to risks and events in the after-disaster life, which may influence the family of the owner,

whether or not it is vulnerable to natural catastrophe. Based on the model described above, a small business' survival and recovery after a natural disaster depends on management decisions taken before, after and after a disaster. These decisions differ over a period and under the specific circumstances of the business and families. The owners of small companies need, as they struggle for their enterprises' survival, not just to access their families and their communities externally. Sustainable management strategies that use both internal and external capital, as mentioned in the SFBM, would enhance sustainable development.

Finally, we feel that it is necessary to collect information on the experience of business owners who have died. They have a distinct and precious perspective to learn. Moreover, it is important to remember that small companies are not islands that float in the sea of trade, but structures that connect, such as homeowners, workers, consumers, community organizations, financial institutions, government institutions, the environment and other enterprises, with other systems. In crisis times, the 'bridges and limits' between these structures are essential lifelines that researchers who are trying to understand the recovery of small firms should not ignore.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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