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Do Hazard Mitigation and Preparedness Reduce Physical Damage to Businesses in Disasters?

Critical Role of Business Disaster Planning

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From *Natural Hazards Review* Jan. 2014, 04014007 (1-11)

Physical damage is an important factor affecting business continuity and community resilience after disasters. The City of Galveston, Texas estimated that 75-80% of its building stock was damaged by Hurricane Ike, which was the fourth-costliest hurricane in U.S. history. While governmental entities such as the Federal Emergency Management Agency (FEMA) and nonprofit organizations like the Institute for Business and Home Safety (IBHS) publish guidelines for businesses regarding hazard preparation and planning, the implementation of these measures is largely the responsibility of each business.

Having a disaster response plan is significant for reducing physical damage

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Texas A&M researchers Yu Xiao and Walter Peacock examined the percentage of businesses in Galveston, Texas that undertook preparation measures for Hurricane Ike and the extent to which these strategies helped

protect businesses from physical damage.

FINDINGS AND IMPLICATIONS

The researchers used results from a survey of 262 Galveston businesses after Hurricane Ike hit in September 2008. The overall reported physical damage was 57%. Business factors that influenced damage included presence of a hazard plan, geographic location, full-time employment, having experienced previous disaster events, and industry sector. For example, retail businesses are typically located at ground-level to attract customers and are therefore more vulnerable to

STRATEGIES AND FACTORS INFLUENCING OUTCOMES

Short-Run Strategies (Expedient Mitigation Actions)

- securing entry doors
- protecting windows with plywood
- moving equipment or inventory to safer locations

Long-Run Strategies

- having buildings regularly checked for structural soundness
- installing permanent roof straps tying the roof to walls and hurricane shutters or impact-resistant windows
- avoiding locating the business in flood plains

Business Factors Influencing Damage

- presence of a hazard plan with short- and long-run strategies
- geographic location and corresponding flood depth
- business age
- full-time employment
- owned or rented business property
- having experienced previous disaster events
- industry sector (businesses in finance, insurance, and real estate typically engage in more preparedness than retail and service sectors)

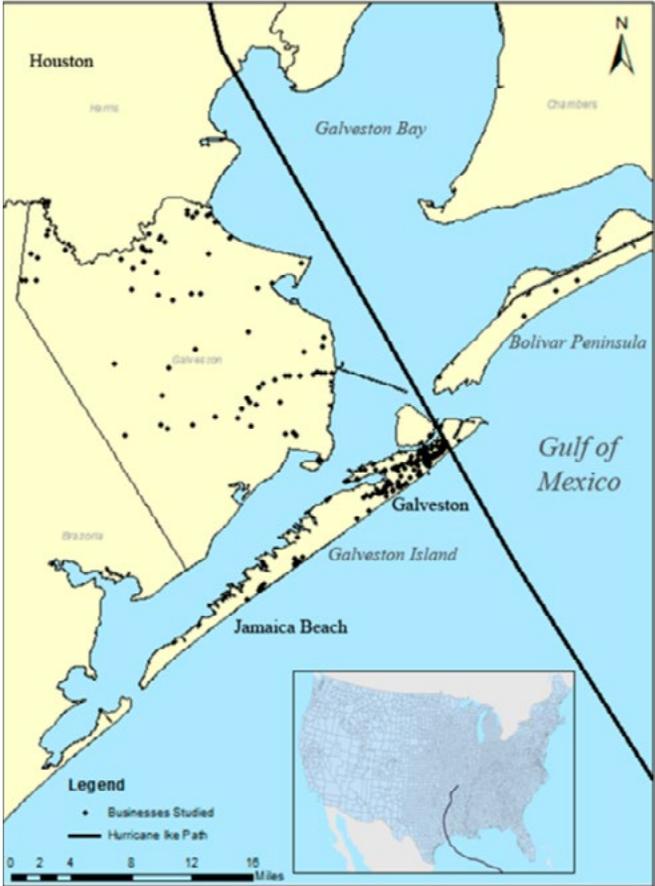
“The major takeaway from this study is that disaster planning, done right and implemented correctly, can help businesses reduce physical damage caused by disasters. The importance of planning in and of itself for promoting the adoption and implementation of specific mitigation/preparedness actions as well as the percent of actions addressed in this research have important potential implications [for disaster mitigation].”

flooding damage. Further, businesses located on Galveston Island were much more likely to experience damage than those located on the mainland.

Nearly 67% of businesses in the sample had an emergency/disaster plan before Hurricane Ike. 94.5% of businesses with plans – potentially motivated by the plans – implemented some form of preparation. Typically this took the form of short-term preparedness measures rather than long-term (perhaps more costly) strategies. Having a disaster preparedness plan also significantly affected how likely a business was to move more of its inventory to a safer location. Only 10.6% of businesses reported undertaking no preparation whatsoever before Hurricane Ike.

- The overall preparedness level of businesses in Galveston County has become much higher than earlier studies found. This could indicate that these businesses are becoming more proactive in terms of disaster preparation and mitigation in the aftermath of dramatic disaster events such as Hurricanes Rita and Katrina.
- Having a business emergency response/disaster preparation plan does help reduce physical damage. Further, the percentage of mitigation strategies adopted also influences damage reduction. Factors that did not influence property damage for Hurricane Ike (primarily a flood event hurricane), such as installing roof straps and protecting windows, may mitigate damage for wind event hurricanes like Hurricane Andrew.
- Because businesses located in low-lying areas or on Galveston Island (a barrier island) were prone to higher levels of damage, the simplest strategy for damage mitigation is to locate businesses away from these areas. Furthermore, businesses that are already located in these high-risk areas can move more of their equipment and inventory to safer locations to minimize these losses.

Other factors, such as business owner minority status and gender, may influence mitigation plan preparation and adoption. In addition to these social vulnerability factors, strategies other than those explored in this study are likely to further mitigate disaster losses for businesses. These may include building design features, construction types, and elevating and flood-proofing structures. Thus, “emergency managers, planners, and business associations should promote business disaster resilience through disaster planning”.



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