The Lack of Disaster Preparedness by the Public and it's Affect on Communities

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Abstract

Disaster management involves preparing, supporting, and rebuilding society when natural or man-made disasters occur. Emergency management depends highly upon the local economic and social conditions within the disaster region and involves four phases: mitigation, preparedness, response, and recovery. This article will focus on the personal activities of citizens throughout each phase and discuss responsibilities of the general public as well as local, state, and federal governments before, during, and after a disaster. Through a review of available literature, this article attempts to expose why some citizens and/or communities are ill-prepared and rely upon government assistance to protect them from disasters. The net result is that personal safety and welfare are entrusted to large agencies, unable or unlikely to best serve in the community's best interests.

INTRODUCTION

Disasters are natural or man-made emergency events which have negative economic and social consequences for the affected population. The general welfare of the public is threatened, warranting government intervention to minimize the negative effects of any disaster (Donahue, & Joyce, 2001). At issue is the extent to which the role of personal responsibility by individual citizens should play in disaster management.

Currently, there are at least thirteen agencies and departments throughout the U.S. federal government that provide disaster relief programs, with the Small Business Association (SBA) and the Federal Emergency Management Agency (FEMA) being the biggest providers of non-agricultural relief to individual citizens. Upon a disaster declaration by the president or SBA administrator, the SBA provides low-interest loans to disaster victims to repair or replace real estate or personal property with repayment terms of up to thirty years. If ineligible for SBA loans, FEMA may provide housing grants for three months of rent, which are renewable for up to eighteen months (Barnett, 1999, p. 141).

Government programs utilize taxpayer dollars to assist disaster victims, spreading loss throughout all citizens, while insurance distributes loss across only the pool of affected purchasers. Neither eliminates risk but instead, distributes the burden of loss over larger populations. Therefore, current government policy on disaster relief appears to reward risk-takers and punish risk-averters (Barnett, 1999, p. 146).

This article will discuss the personal activities of individual citizens during the mitigation, preparedness, response, and recovery phases of disasters. Highlighted are areas in direct conflict with the successful emergency management of disaster events.

PUBLIC PERCEPTION OF RISK

Decision making is complicated, whether for natural disasters or in cases of terrorism such as bioattacks or epidemics. Factors that must be considered include, but are not limited to, the wide range of scenarios that makes it impossible to plan and educate the public, initial uncertainties about events, barriers to quick analyses of situations, and the complex logistical needs that are peculiar to each incident (Centre for Biosecurity, 2004).

To swiftly carry out relief activities in local communities at the initial stages after the occurrence of disasters, it is necessary to carry out community-based disaster preparedness activities on a habitual basis prior to a disaster. In addition, it is necessary for residents in local communities to participate in disaster preparedness activities, and for residents to cooperate with administrative bodies (Lindell, & Perry, 2000).

For the general public, personal preparedness requires the

preparation of equipment and procedures that will be needed once disaster strikes. This personal level response can include home confinement or evacuation (Emergency management, n.d.). Most studies on natural disasters tend to conclude that it is difficult for people to appropriately perceive risks associated with natural disasters (Slovic, Kunreuther, & White, 1974).

Evidence indicates that low-probability events, such as natural hazards, are systematically misjudged (Faure, 2007). For example, people tend to perceive flood disasters as somewhat predictable periodic phenomena, instead of as probable and random phenomena. Furthermore, most people tend to believe that if a major flood disaster occurs in a certain year, no major flood disasters will occur for some time after. Additionally, many people believe that when levees, dams, and other structures are newly constructed, disasters are completely prevented (Slovic, Kunreuther, & White, 1974). Since not all people are so tolerant of flood risk in the areas where they live, it is important to identify which factors affect the degree of acceptance of people to flood risk (Duval, & Mulilis, 1999).

Historically, psychological experiments have shown that there may be a preference of uncertain losses over certain loss incurred with insurance premium payments (Faure, 2007). Therefore, many individuals do not protect themselves voluntarily against hazards, believing that either disaster will not strike and insuring their assets would therefore be wasteful, or they decide to take their chances that the government will bail out those who are affected by disasters, thereby preferring instead to turn to the federal government for assistance with their losses (Kunreuther, 1974).

PREPARATION FOR DISASTERS

Prior to a disaster, it is desired that not only administrative bodies but also residents in local communities come up with community-based disaster-preparedness measures by themselves, which are then reflected in administrative plans (Lindell, & Perry, 2000). Drills and exercises which test the abilities and response capabilities of emergency service personnel have been long-accepted as practices to test organizational readiness. One problem associated with such drills is that community residents are rarely involved in the process (Simpson, 2002). It is necessary for a greater number of residents

to participate in community-based disaster preparedness activities, in order for them to be successful (Lindell, &

Perry, 2000).

Recognition of costs also has a strong negative effect on community participation. If people have a high recognition of costs, their intention to participate declines. On the other hand, recognition of benefits has only a small positive effect on intention to participate. As disasters do not occur frequently, people feel highly burdened to participate in community-based disaster preparedness activities during normal times when nothing happens (Russell, Goltz, & Bourque, 1995).

Modern mass media is a central force behind the social construction of risk. This is due to the social utility of the media, its narrative-forming tendency, as well as the focusing power of media hypes. The media's function as social glue and television's unique psychological power serve to legitimize the information received via the media. Thus legitimized, the information is more likely to be understood in terms of the narratives in which it is presented (Vasterman et al., 2005).

THE CALL TO EVACUATE

Natural disasters are usually seen as unavoidable events with catastrophic effects, but they are also seen as quirks of nature or acts of God (and in many cases as the mythological wrath of God for collective sinful behavior) and thus beyond man's control (Watson, 1987).

Evacuation during Hurricane Katrina was mandatory for citizens of New Orleans, however many did not heed the warnings. This disaster was a three-fold. First the hurricane hit, next levees broke, and then the floods came. This begs the question: What does it take to convince people that when warnings are issued, it is for their own safety and welfare? People don't evacuate for several reasons including, but not limited to, past experience, traffic, immobility, lack of transportation, limited social capital and the desire to shelter-in-place. The longer a person has lived in a coastal area, the less likely they are to evacuate (Mileti, Drabek and Hass, 1975). This is due in part to the limited predictability of a hurricane's path. Also, evacuation orders are sometimes given too early, so if the threat then changes course, damage to the evacuated area could be minor. Those that evacuated then lose faith in officials' ability to predict a threat, making the population apathetic and reluctant to heed future warnings.

For those that do evacuate, traffic jams often cause frustration, possibly deterring future evacuations. Weak

social networks within a community can make evacuation difficult, because people lacking trust in each other may fear their homes and businesses will be looted. Communities having vehicles may not have the social capabilities or may choose not to share these resources. Additionally communities with strong ties to their neighbors may be less likely to evacuate for the fear of leaving their social network. Finally, some rely on sheltering-in-place for protection and prefer this to evacuation.

According to Rosenkoeter et al. (2007), a study of the elderly during Katrina found that despite information seeking behavior, one-fifth indicated that they had not made plans for future evacuation, although most were influenced by what they heard in the news. Many other New Orleans residents reported confusion about what to do because of inappropriate timing of mandatory evacuation orders, and confusing recommendations from different authorities. Many mentioned the inconsistent evacuation recommendations from the mayor and governor (Elder et al., 2007).

Rosenkotter et al. (2007) also found that the vast majority of those living alone were women. Women were less likely to have a cell phone or to use a computer; more women owned pets, and those pets would weigh heavily in their decision to evacuate. Women had larger percentages of reported health problems, and it is predictable that many of these problems could impair their ability to evacuate. It was also found that considerably more elderly men than women were still driving their cars.

In studying the evacuation decisions of African Americans during Katrina, Elder et al. (2007) found racial barriers including being of low socioeconomic status, having little cash on hand, a perceived need to stay behind to protect valuables due to neighborhood crime and violence, perceived racism in evacuation transportation, and perceived apathy toward low income African Americans. These factors significantly affected response by city residents.

A poll conducted after Hurricanes Katrina and Rita by the Council for Excellence in Government and American Red Cross concluded that only twelve percent say they have done a great deal to prepare for natural disasters, terrorist attacks, or other major emergencies (McGinnis, 2006). Some reasons for lack of preparation provided by the respondents included the belief that another disaster was unlikely to affect them, the feeling that they do not mind inconvenience as long as they do not have to do anything, and simply that they do not know what to do. Citizens must realize that they are their

own first responders, and that they need to create a family communication plan, put together emergency supplies, and practice evacuation plans (McGinnis, 2006).

The government has the authority to order and enforce mandatory evacuation orders in many disaster situations. The federal government was granted the authority to assist state and local governments with disaster preparedness and relief through the Disaster Relief Act Amendments of 1974 (Fairchild, Colgrove, &Jones, 2006). Furthermore, the authority of the government to force evacuations in life-threatening emergencies has been upheld in U.S. Courts. This authority is intended to preempt the poor judgment of those who would risk staying behind during an evacuation (Fairchild, Colgrove, & Jones, 2006).

REACTION TO DISASTER

Factors that the public considers in reacting to a disaster warning include the significance of and understanding of the threat, and confidence (or lack thereof) in authorities. Initially, people make the determination whether or not the threat is real and they trust the source of information before taking action (Helsloot, & Ruitenberg, 2004).

During Hurricane Katrina, a large portion of the blame was placed on local, state and federal governments. Many individuals claimed the government responded to the hurricane and flooding too slowly, and felt there was no excuse for this. A survey conducted on Hurricane Katrina evacuees found that most individuals blamed the federal government, the state of Louisiana and the city of New Orleans for the problems that occurred due to the hurricane and flooding. A large number of evacuees believed the federal government would have responded more quickly to rescue efforts if more of them had been wealthier and white, rather than poorer and black. Thus, many blamed the government at the local, state and federal levels for the poor disaster response in the wake of Katrina, and they felt that the federal government did not care about 'people like them' (Survey of Katrina Evacuees, 2005).

Garrett, & Sobel (2003) believe that this perception could be at least partially true. They determined that nearly half of all disaster relief is politically motivated, rather than by need. They found evidence of a higher rate of disaster declaration by the president in states that are politically important. This leads many states to be overlooked, even when legitimate disasters are suffered, often in favor of electoral vote-rich states that experience only mild natural occurrences. There is also a link between the political affiliation of the governor

and the president during election years, with more disaster declarations being made in states politically important to the president. Research has shown that flood declarations are greater during presidential reelection years. For instance, in 1996 (President Clinton's reelection year) the level of disaster expenditures was roughly $140 million higher than in previous years. The unilateral nature of the Stafford Act makes this possible by allowing the president to bypass Congress, possibly punishing or rewarding legislators.

Disaster expenditures are also higher in states that have congressional representation on FEMA oversight committees (Garrett, & Sobel, 2003). States with legislators on a FEMA oversight subcommittee were estimated to receive an additional $31 million in excess expenditures. These statistics are disheartening to average citizens who place their trust in government officials to put personal interests aside for the public good.

Expectations about human response to disasters and terrorism are not compatible with known expected behavior under emergency conditions. Panic and dysfunctional behavior may differ from natural disasters and terrorist incidents. Disaster victims do not necessarily act in shock and panic, but more likely in response to what they believe is in their best interests given their limited understanding of the circumstances. Behavior in disaster response is generally pro-social as opposed to anti-social (i.e. looting), despite what is portrayed in popular media and press coverage (Perry, & Lindell, 2003; Helsloot, & Ruitenberg, 2004).

Generally people tend to act in pro-social ways, including performing acts of rescue and providing assistance and other altruistic responses. The myth of irrational and anti-social behavior can actually hamper disaster response planning when managers believe that giving incomplete or withholding information is justified. With incomplete information people are less likely to trust the sources and comply with recommendations (Perry, & Lindell, 2003).

Perry and Lindell (2003) also suggest the idea of socially integrative (pro-social) responses – "therapeutic community response; the altruistic community". Studies indicate that people tend to act in what they believe is their best interest, and in a rational way. Community response to disaster situations is to terminate socializing and social participation (this goes against the media portraying "hurricane parties," etc. as typical behavior – is that really a general response or just a few people?); non-essential production, distribution, and consumption (i.e. luxury goods); and social control

issues (i.e. minor traffic violations, domestic disputes) (Perry, & Lindell, 2003, p. 52).

The general public tends to converge on disaster scenes to offer help and people who are geographically distant routinely donate significant amounts of money and supplies. Uninjured victims are often the first to search for survivors, care for the injured and assist others in protecting property from further damage while awaiting intervention by authorities. Victims are typically supported by endeavors of official organizations and resources, as well as contributions from other households not directly affected by the event (Perry, & Lindell, 2003).

Anti-social behavior, such as looting, is relatively rare, and crime rates tend to decline following disaster impact. In the aftermath of Katrina, civil disturbances, i.e. looting, violence and other criminal activity only became serious problems as most of the attention of the authorities was focused on rescue efforts.

People look to authorities to help them make decisions. However decision-making can be negatively influenced when authorities are not forthcoming with information or try to "protect" citizens by withholding information. In fact, a lack of information has been found to increase a fear response (Perry, & Lindell, 2003).

In panic situations where irrational and antisocial behaviors are often observed, it has been shown repeatedly that people are more reluctant to comply with suggested emergency measures when they are provided with vague or incomplete information. Though panic flight is rare, research dating back to the early 1950s indicates that there are several conditions that must occur, probably simultaneously, in order to evoke it (Fritz, 1957; Mileti, Drabek and Hass, 1975; Quarantelli, 1957). According to Perry and Lindell (2003), these are: (1) the perception of immediate and severe danger; (2) the existence of a limited number of escape routes; (3) the perception that the escape routes are closing, necessitating immediate escape; and (4) a lack of communication about the situation. These conditions are defined in terms of the individual's perceptions or beliefs; thus the conditions are based on what those at risk believe to be true at the time, not what is known after the fact.

LIVING THROUGH THE AFTERMATH

When disaster strikes a community, function is disrupted by: destroying physical capital; interrupting vital communications; and reducing available labor through

injury, death, or lost time with workers attending to personal recovery issues (McGinn, 1985).

Shortly after a disaster, residents begin returning to their communities. Citizens enter neighborhoods, assessing the damages sustained by their neighbors, wondering what they will find at their own homes. At this point, the task of picking up the pieces of their lives begins.

Depending on where the disaster struck in relation to their dwelling, the residence might sustain minor damage with nothing more than a downed tree and some shingles missing, or complete destruction with few possessions remaining. Calls to insurance companies begin, with many unable to get through because of the shear volume of calls. Often insurance claims take weeks or even months to be filed, and even longer to be resolved. Depending on the extent of the damage and the number of policy holders affected, insurance companies may deny claims, cover only portions of policies, or go bankrupt, leaving clients with unresolved claims and little recourse.

Often infrastructure is badly damaged, making electronic transactions impossible. Prices of goods often increase dramatically due to damaged infrastructure, scarcity of goods, or sometimes unscrupulous merchants take advantage of those that have been hit hard by disaster.

The public feels a degree of responsibility toward helping those victimized by disaster but increasing costs justify preventative action, economically speaking (Kunreuther, 1974). Damage costs after disasters have become a public responsibility with taxpayers being burdened with financing the recovery of the affected population (Kunreuther, 1974). Today the US government offers loans and grants to disaster victims. However, this was not always the case.

In 1887, then President Grover Cleveland refused an emergency appropriation of government funds to drought victims in Texas, citing that the federal government had no "warrant in the Constitution… to indulge a benevolent and charitable sentiment through the appropriation of public funds… for the relief of individual suffering which is in no manner properly related to the public service" (Barnett, 1999, p. 141).

In 1949, the US Congress established the US Department of Agriculture's (USDA) Farm Service Agency (FSA), which provided low-interest loans and other financial aid to farmers and ranchers who were hit hard by natural disasters (Barnett, 1999). Over the years, government relief assistance grew

exponentially, from providing 1% of US disaster relief aid in 1953, to over 70% by the mid-1970's (Barnett, 1999). As eligibility criteria were broadened and levels of relief increased, federal disaster relief took on the nature of an entitlement (Barnett, 1999).

Federal assistance for non-agricultural disaster relief has continued to grow as well. As of 1999, at least 13 agencies and departments provided a variety of disaster relief programs. Between 1980 and 1996, the Federal Emergency Management Agency (FEMA) and the Small Business Administration (SBA) alone handed out $9.1 billion in grants and loans (Barnett, 1999).

These government bail-outs have created a problem: Because the government will act as the ultimate insurer through post-event relief, there are fundamental disincentives for voluntary efforts at pre-disaster risk reduction (Gerber, 2007).

Government disaster relief programs give disaster victims taxpayer money, but is it appropriate to provide disaster relief to victims that knowingly built a house in a disaster prone area? It has been suggested that individuals make risky decisions, taking into account only the portion of their loss that is not likely to be covered by government relief. (Barnett, 1999) In this way, disaster relief programs continue to grow without constraint as more people demand more compensation (Barnett, 1999). Policy development is thusly challenged to find a balance between the needs of citizens in hazard-prone areas and the general public (Kunreuther, 1974).

Several solutions have been proposed as better alternatives to government funded disaster aid. Requiring all families to carry the proper amount of private insurance is one way. This would also ensure equitable reimbursement, as each individual would be compensated for the actual damage to their property, rather than being paid more or less than is required to compensate for losses (Barnett, 1999). Those that are underinsured- or not insured at all- would not receive government relief either.

A less attractive alternative is for the government to issue loans or grants, but only if affected individuals agree to resettle in lower risk areas, where future damages would presumably be less, and insurance would likely be more affordable (Barnett, 1999).

THE CHANGING COMMUNITY

For many, susceptibility to disasters is a matter of location, location, location. For instance, in the case of an earthquake event, it is often the case that poorer persons live in less sturdy homes located on steeper slopes, which not only increases their vulnerability at the time of the event but also makes the consequences for recovery more difficult as well (Gerber, 2007).

Even where disasters are common, lessons learned are easily forgotten soon after damaged areas are cleaned up. Ironically, less than two months before Hurricane Hugo hit the Atlantic coast of the US in 1989, the Florida legislature allowed minimum wind load requirements to be reduced for homes built beyond the coastline (Austin, 1989). This decision undoubtedly contributed to the enormous loses experienced by Florida just three years later when in 1992, Hurricane Andrew cost tens of billions of dollars in damage (Smith et al., 2006).

In the 1970's, each Florida county was to use well-known computer models to establish coastal-construction control lines that set landward limits of impact zones of a 100-year storm event. Those building on the seaward side of those limits would need special state issued permits, and in some areas houses were required to be built on pilings. Ahead of these new, potentially home-saving regulations, property owners rushed to pour slab on grade foundations, and were grandfathered. In 1995, Hurricane Opal seriously damaged or destroyed 535 non-conforming structures, whereas less than 1% of conforming structures were seriously damaged (Austin, 1989).

Entire regions can undergo monumental changes as a result of a natural disaster. Economic capacity of households to adjust explains most of the differences in demographic groups' patterns of adjustment to damage (Smith et al., 2006). For instance, in the eight years after Hurricane Andrew, the population in areas with 50 percent or more of the homes damaged so seriously as to be rated uninhabitable grew faster than areas with less damage. Low income households responded primarily by moving into low-rent housing in areas that experienced heavy damage. Middle income households moved away to avoid risk, and the wealthy, for which insurance and self-protection are most affordable, appeared to remain (Smith et al., 2006). There is evidence that for the highest income groups, the amenity effect dominates the risk effect, and the proportion of these households actually increases in areas with higher risk. In hurricane prone areas high coastal risk areas also correspond to areas with high coastal amenities (Smith et al., 2006).

In the case of Hurricane Andrew, the conclusion is that this lack of responsiveness is due largely to economic capacity rather than ethnic influences (Smith et al., 2006). In other cases it is more commonly the case that the poor will locate in areas that afford livelihood-organizing opportunities regardless of whether living in such a place exposes them to a higher degree of risk. In this way, socio-demographic characteristics, such as race, class, gender, and ethnicity directly affect degree of vulnerability (Gerber, 2007).

CONCLUSION

Support for hazard mitigation is typically strongest immediately following a disaster and after most disasters, regulations are reevaluated. Building codes are strengthened, zoning is reassessed, insurance companies adjust rates or drop coverage altogether, infrastructure is repaired or sometimes discarded, and the demographic of the community often changes.

With appropriate construction, repair, and land use standards, a rebuilt community can be at lower risk to future disasters, compared to pre-disaster conditions. However, in the US the current system of disaster relief is largely one of reaction rather than protection. The US tends to overlook long term benefits, and in doing so we are mortgaging our future and falling farther and farther behind (Austin, 1989).

The interrelated phases of disaster management—preparedness, response, recovery, mitigation—consist of coordination between government levels, across local governments, and between public and private organizations in various functional roles and responsibilities (Newkirk, 2001).

In the aftermath of Hurricane Katrina, many Americans immediately focused upon local, state, and federal preparedness and gave failing grades to the federal government and Congress. The public worried about leaders being better prepared for the next disaster while ignoring the issue of personal responsibility (McGinnis, 2006).

Interestingly, the locations now considered a hazard were settled at first by people looking for industrial growth. The trend of increased urbanization in hazard-prone areas will continue, making disaster reduction efforts a priority for sustainable development (Boullé, Vrolijks, Palm, n.d.). Ideally though, it should be an individual's own responsibility to self-protect by either moving out of harms way; rebuilding structures less vulnerable to damage; or by properly insuring their property against loss.

References

r-0. Austin, T. (1989). Structures that survived. Civil Engineering, 66, 1: ABI/INFORM Global (42).

r-1. Barnett, B (1999). US government natural disaster assistance: Historical analysis and a proposal for the future. Disasters, 23(2), 139-155, Retrieved March 25, 2008, from Blackwell Synergy database

r-2. Boullé, P, Vrolijks, L, & Palm, E. Vulnerability reduction for sustainable urban development. Journal of Contingencies and Crisis Management, 5(3), 179-188, Retrieved March 25, 2008, from Blackwell Synergy database.

r-3. Centre for Biosecurity, UPMC. (2004). Leading during Bioattacks and Epidemics with the Public's Trust and Help. Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science, 2:25-40.

r-4. Donahue, A, & Joyce, P (2001). A framework for analyzing emergency management with an application to federal budgeting. Public Administration Review, 61 (6), 728-740, Retrieved March 27, 2008, from Blackwell Synergy database.

r-5. Duval, T. S. and J.-P. Mulilis (1999): A person-relative-to-event (PrE) approach to negative threat appeals: A field study, Journal of Applied Social Psychology, 29, 495–516.

r-6. Elder K, Xirasagar S, Miller N, Bowen SA, Glover S, Piper C. (2007). African Americans' decisions not to evacuate New Orleans before Hurricane Katrina: a qualitative study. American Journal of Public Health, Apr 5;97 Suppl 1:S124-9.

r-7. Emergency management. (n. d.) Retrieved March 27, 2008, from The Free Dictionary Web site: http://encyclopedia.thefreedictionary.com/Disaster+preparedness

r-8. Fairchild, A, Colgrove, J, & Moser Jones, M. (2006). The Challenge Of Mandatory Evacuation: Providing For And Deciding For. Health Affairs, 25(4), 958-967. Retrieved March 26, 2008, from ABI/INFORM Global database.

r-9. Faure, M (2007). Financial compensation for victims of catastrophes: A law and economics perspective. Law & Policy, 29 (3), 339-367, Retrieved March 18, 2008, from Blackwell Synergy database.

r-10. Fritz, C. (1957). Disasters Compared in Six American Communities. Human Organization, 16, 6-9.

r-11. Garrett, T, & Sobel, R (2003). The political economy of fema disaster payments. Economic Inquiry, 41 (3), 496-509, Retrieved March 27, 2008, from Blackwell Synergy database.

r-12. Gerber, B J (2007). Disaster Management in the United States: Examining Key Political and Policy Challenges. Policy Studies Journal, Volume 35, Issue 2, Page 227-238, May 2007, doi: 10.1111/j.1541-0072.2007.00217.x. Retrieved March 18, 2008, from Blackwell Synergy database.

r-13. Helsloot, I. & Ruitenberg, A. (2004, September). Citizen response to disasters: a survey of literature and some practical implications. Journal of Contingencies and Crisis Management, 12, 98-111.

r-14. Kunreuther, H (1974). Disaster Insurance: A Tool For Hazard Mitigation: ABSTRACT. Journal of Risk and Insurance (pre-1986), 41(2), 287. Retrieved March 26, 2008, from ABI/INFORM Global database.

r-15. The Lack of Disaster Preparedness by the Public and the Affect on Communities 19

r-16. Lindell, M. K. and R. W. Perry (2000): Household adjustment to earthquake hazard: A review of research, Environment & Behavior, 32, 461–501.

r-17. McGinn, N (1985). A menu of possible educational responses in the context of disasters. Disasters, 9 (1), 13-21, Retrieved March 16, 2008, from Blackwell Synergy database.

r-18. McGinnis, P, (2006). After Katrina, Americans Hit the Snooze Button. Public Manager, 34(4), 60-61. Retrieved March 18, 2008, from ABI/INFORM Global database. (Document ID: 998404431).

r-19. Mileti, D., Drabek, T. and Haas, J. (1975). Human Systems in Extreme Environments, University of Colorado Institute of Behavioral Science, Boulder, CO.

r-20. Newkirk, Ross T. (2001). The Increasing Cost of Disasters in Developed Countries: A Challenge to Local Planning and Government. Journal of Contingencies and Crisis Management, Volume 9, Issue 3, Page 159-170, Sep 2001, doi: 10.1111/1468-5973.00165. Retrieved March 16, 2008, from Blackwell Synergy database.

r-21. Perry, R. & Lindell, M. (2003, June). Understanding citizen response to disasters with implications for terrorism. Journal of Contingencies and Crisis Management, 11(2), 49-60.

r-22. Quarantelli, E.L., (1957). The Behavior of Panic Participants. Sociology and Social Research, 41, 187-194.

r-23. Rosenkoetter MM, Covan EK, Bunting S, Cobb BK, Fugate-Whitlock E. (2007). Disaster evacuation: an exploratory study of older men and women in Georgia and North Carolina. Journal of Gerontological Nursing, 33(12):46-54.

r-24. Russell, L., J. D. Goltz, and L. B. Bourque (1995): Preparedness and hazard mitigation actions before and after two earthquakes, Environment and Behavior, 27, 744–770.

r-25. Simpson, D (2002). Earthquake drills and simulations in community-based training and preparedness programmes. Disasters, 26 (1), 55-69, Retrieved March 25, 2008, from Blackwell Synergy database.

r-26. Slovic, P., H. Kunreuther, and G. F. White (1974): Decision processes, rationality and adjustment to natural hazards, edited by G. F. White, Natural hazards, local, national, and global, New York, Oxford University Press, pp. 187–205.

r-27. Smith, K V, Carbone, J C,. Pope, J C, Hallstrom, D G, Darden, M E (2006). Adjusting to natural disasters. J Risk Uncertainty (2006) 33:37–54. DOI 10.1007/s11166-006-0170-0. Retrieved March 25, 2008, from Blackwell Synergy database.

r-28. Survey of Hurricane Katrina Evacuees. (2005). Retrieved 3/21/2008, from http://www.kff.org/newsmedia/upload/7401.pdf.

r-29. Vasterman, P., Yzermans, C.J., Dirkzwager, A.J.E., 2005. The role of the media and media hypes in the aftermath of disasters. Epidemiologic Reviews 27, 107–114.

r-30. Watson, M., 1987. In dreams begin responsibilities: moral imagination and peace. In: Andrews, V., Bosnak, R., Goodwin, K.W. (Eds.), Facing Apocalypse. Spring, Dallas, pp. 70–95.

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