

## Overview - Hurricane Katrina Crisis

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***SECURITY MANAGEMENT GROUP  
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## **Overview**

Hurricane Katrina was the costliest and one of the deadliest hurricanes in the history of the United States. It was the eleventh named storm, fifth hurricane, third major hurricane, and second Category 5 hurricane of the 2005 Atlantic hurricane season, and was the sixth-strongest Atlantic hurricane ever recorded.

On August 23, 2005, Hurricane Katrina formed as a tropical storm off the coast of the Bahamas. Over the next seven days, the tropical storm grew into a catastrophic hurricane that made landfall first in Florida and then along the Gulf Coast in Mississippi, Louisiana, and Alabama, leaving a trail of heartbreaking devastation and human suffering. Katrina wreaked staggering physical destruction along its path, flooded the historic city of New Orleans, ultimately killed over 1,300 people, and became the most destructive natural disaster in American history.

The overall destruction wrought by Hurricane Katrina, which was both a large and powerful hurricane as well as a catastrophic flood, vastly exceeded that of any other major disaster, such as the Chicago Fire of 1871, the San Francisco Earthquake and Fire of 1906, and Hurricane Andrew in 1992.

The ineffectiveness of federal, state, and local governments to effectively provide evacuation and relief compounded the effects of the disaster. Civil unrest, violence, and the toxic environment effectively changed Hurricane Katrina from a natural disaster to a crisis,

## **Difference between a Natural Disaster and a Crisis**

A natural disaster is the consequence or effect of a hazardous event, occurring when human activities and a natural phenomenon (a physical event, such as a volcanic eruption, earthquake, landslide etc.) become enmeshed. The resulting fatalities or property damages depend on the capacity of the population to support or resist the disaster. This understanding is crystallized in the formulation, disasters occur when hazards meet vulnerability. A natural hazard will hence never result in a natural disaster in areas without vulnerability (i.e., strong earthquakes in uninhabited areas.)

A crisis is a turning point or decisive moment in events. Typically, it is the moment from which an illness may go on to death or recovery. More loosely, it is a term meaning 'a testing time' or 'emergency event'. Essentially the difference between a natural disaster and a crisis is how well one's prepared for the event and the decisions made responding to the event which lead to having a crisis or a controlled response to an event.

## **Event Impact**

### **Physical**

Hurricane Katrina devastated far more residential property than had any other recent hurricane, completely destroying or making uninhabitable an estimated 300,000 homes. This far surpasses the residential damage of Hurricane Andrew, which destroyed or damaged approximately 80,000 homes in 1992. It even exceeds the combined damage of the four major 2004 hurricanes, Charley, Frances, Ivan, and Jeanne, which together destroyed or damaged approximately 85,000 homes.

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Hurricane Katrina's damage was extensive. The storm destroyed so many homes, buildings, forests, and green spaces that an extraordinary amount of debris was left behind—118 million cubic yards all told. In comparison, Hurricane Andrew created 20 million cubic yards of debris.

Additionally, the storm devastated the regional power infrastructure. In Louisiana, Mississippi, and Alabama, approximately 2.5 million power customers reported outages. Communications suffered as well. The storm crippled thirty-eight 911 call centers, disrupting local emergency services, and knocked out more than 3 million customer phone lines in Louisiana, Mississippi, and Alabama. Broadcast communications were likewise severely affected, as 50 percent of area radio stations and 44 percent of area television stations went off the air. In fact, Hurricane Katrina caused at least ten oil spills, releasing the same quantity of oil as some of the worst oil spills in U.S. history. The storm surge struck 466 facilities that handle large amounts of dangerous chemicals, thirty-one hazardous waste sites, and sixteen Superfund toxic waste sites, three of which flooded. The surge also destroyed or compromised 170 drinking water facilities and dozens of wastewater treatment facilities.



### **Environmental**

The heavy winds and storm surges from Katrina severely weakened the city's levee system, and there were reports of extensive failures of the levees and flood walls protecting New Orleans, Louisiana and surrounding communities. The Mississippi River Gulf Outlet (MR-GO) breached its levees in approximately 20 places, flooding much of east New Orleans, most of Saint Bernard Parish and the East Bank of Plaquemines Parish, which left approximately 80% of the city flooded. Most of the major roads traveling into and out of the city were damaged.

The Superdome, which was sheltering a large number of people who had not evacuated, sustained significant damage. Two sections of the Superdome's roof were compromised and the dome's waterproof membrane had essentially been peeled off. Louis Armstrong New Orleans International Airport was closed before the storm but did not flood.

The wave of destruction created environmental and health hazards across the affected region, including standing water, oil pollution, sewage, household and industrial chemicals, and both human and animal remains.

Katrina caused widespread loss of life, with over 700 bodies recovered in New Orleans by October 23. Some survivors and evacuees reported seeing dead bodies lying in city streets and floating in still-flooded sections, especially in the east of the city. The advanced state of decomposition of many corpses, some of which were left in the water or sun for days before being collected, hindered efforts by coroners to identify many of the dead.

There was a concern that the prolonged flooding would lead to an outbreak of health problems for those who remained in the city. In addition to dehydration and food poisoning, there was also potential for the spread of hepatitis A, cholera, tuberculosis, and typhoid fever, all related to the growing contamination of food and drinking water supplies in the city compounded by the city's characteristic heat and stifling humidity. Survivors could also face long-term health risks due to prolonged exposure to the petrochemical tainted flood waters and mosquito-borne diseases. On September 6, E. coli was detected in the water supply.

Hospital evacuations were conducted from all area hospitals that were flooded or damaged.

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Reports from the Methodist Hospital indicated that people were dying of dehydration and exhaustion while the staff worked unendingly in horrendous conditions. The first floor of the hospital flooded and the dead were stacked in a second floor operating room. Patients requiring ventilators were kept alive with hand-powered resuscitation bags.

### **Economic**

The economic effects on the Gulf region, primarily Louisiana and Mississippi in late August 2005, were far-reaching. Before the hurricane, the region supported approximately one million non-farm jobs, with 600,000 of them in New Orleans. As such, the total economic impact has been estimated to be as high as \$200 Billion.

The storm interrupted oil production, importation, and refining in the Gulf area, thus having a major effect on fuel prices. Before the storm, one-tenth of all the crude oil consumed in the United States and almost half of the gasoline produced in the country comes from refineries in the states along the Gulf's shores. An additional 24% of the natural gas supply is extracted or imported in the region. Furthermore, the nation's Strategic Petroleum Reserve is also stored in this region.

Power outages in the wake of Katrina also caused distribution problems for oil and natural gas. Pipelines which move petroleum products from places like Houston to areas of the east coast had their flows interrupted because power outages shut down the pumps that kept materials flowing. At least twenty offshore oil platforms were missing, sunk, or had gone adrift, according to the U.S. Coast Guard. One oil rig, in dock for repairs before the storm, broke loose and hit the Cochrane/Africatown USA road bridge over the Mobile River in Mobile, Alabama. One platform, originally located 12 mi (20 km) off the Louisiana coast, has washed up onshore at Dauphin Island, Alabama.

Long lines developed at some gas stations throughout the U.S. as customers rushed to buy gasoline, anticipating price increases in the wake of the storm. Emphasizing the seriousness of the situation many gas stations around the region ran out of gas and lines were formed at others.

Within the affected region, infrastructure collapse had left most businesses, large and small, out of operation. With damage caused by wind and flooding, the lack of power, in addition to the inability to perform electronic commerce, many retail businesses effectively shut down, and many became the victims of looting. Life-sustaining commodities became premium, and the only tender accepted was cash, albeit at a grossly-inflated rate. Estimates of business losses reach into the hundreds of billions of dollars.

### **Social**

Unlike economic damage, social impact is difficult to quantify. The event left hundreds of thousands without access to their homes or jobs, separated people from their loved ones, and inflicted both physical and mental distress on those who suffered through the storm and its aftermath. These situations often lead to desperation and increased criminal activity, becoming serious problems as the situation develops.

Looting is common during natural disasters of this magnitude, partly because of the acute need for necessities like food, medicine, and water. The logistical difficulties of conducting law enforcement in disaster situations and the preoccupation of the police with search-and-rescue and recovery efforts also create an opportunity to commit crimes without getting caught. A general atmosphere of lawlessness contributed to the problem. Research suggests that widespread looting in emergency situations of the magnitude of New Orleans is very rare, except in impoverished areas and centers, where it is primarily motivated by obtaining the essentials of survival.

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With the attention of the military and police focused on rescue efforts, the security in New Orleans degraded quickly. By August 30, looting had spread throughout the city, often in broad daylight and in the presence of police officers. Incapacitated by the breakdown of transportation and communication and overwhelmed in terms of numbers, police officers could do little to stop crime, and shopkeepers who remained behind were left to defend their property alone. Looters reportedly included gangs of armed gunmen, and gunfire was heard in various parts of the city. Along with violent, armed robbery of non-essential valuable goods, the majority of incidents were of residents simply gathering food, water and other essential commodities from unstaffed grocery stores. There were also reports that some police officers participated in this same kind of looting.

"Sniper fire" was reported throughout the city, targeted at rescue helicopters, relief workers, and police officers, among other targets. One newspaper surmised that the fire was motivated by resistance to relocation. A September 7 raid by more than 100 officers in a housing project in Algiers resulted in the capture of one such sniper.

Additional acts of unrest occurred following the storm, particularly with the New Orleans Police Department. Many New Orleans police officers deserted the city in the days before the storm, in addition to others escaping in their department-owned patrol cars during the civil unrest that followed. This added to the chaos by stretching law enforcement thin. Additionally, there were reports of police officers stealing vehicles from car dealerships, further adding to the confusion.



On August 31, New Orleans's remaining police force was ordered to abandon search and rescue missions and turn their attention toward controlling the widespread looting. The city also ordered a mandatory curfew. Despite the increased law enforcement presence, crime continued to be problematic. Several armed attacks on relief helicopters, bus convoys, and police officers were reported, and fires erupted around the city at stores and a chemical storage facility. On September 1, 6,500 National Guard troops had arrived in New Orleans to restore order.

### **The Impact of Private Security**

August 29, 2005 was more than a wakeup call to businesses addressing the need for disaster preparedness. It began a new chapter in the risk management industry. Typical in many disaster cycles the first calls into were from eastern time zones. As the levees broke and the impact of Katrina was being felt, businesses across all time zones in North America activated crisis plans and procedures.

The hospitality and telecommunications industries were the first industries to request disaster relief services from private organizations. Aid from federal, state and local government agencies was nowhere to be found. The health and safety of guests and personnel in New Orleans' French quarter were immediately at risk. An added dynamic soon followed in the region – violence, looting and general lawlessness. Knowing the overwhelming impact on local law enforcement agencies, a complete breakdown of key infrastructure systems was underway. After the full fury of Katrina was felt, private-industry security teams were deployed to assist major energy companies, hotels, insurance and financial institutions.

For organizations providing disaster relief, the first objective was to contact clients' locations in the devastated Gulf area and establish site security and executive protection services. The second objective was to bring in essential food, water and fuel, and evacuate all personnel.

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As the situation worsened in the flooded areas of New Orleans, affected businesses and security teams faced new challenges. The environmental conditions of the city were rapidly declining. Food and water supplies were compromised; and the flooded downtown area and surrounding Parishes had become a toxic brew of decaying human bodies, sewage, chemical and oil byproducts. The environmental health impact and toxicity in the waters caused serious health issues. Many security providers mobilized medical staff and Critical Incident Debriefing teams to protect and monitor clients and security teams. Decontamination procedures were established.

Security organizations mobilized crisis response teams to support those trapped in New Orleans and assist clients in the recovery efforts of Hurricane Katrina and later Rita. Within 16 hours after the first call, mobile command posts and incident management teams were activated on sites within the affected Gulf region, where they began to assess the state of security and safety at designated client locations, including identifying ingress and egress routes as well as providing and coordinating critical supplies and resources such as fuel and food. In many cases, private security firms were charged with implementing contingency plans to search and evacuate people as requested. To support the logistics and movement of personnel and supplies, dedicated air assets consisting of helicopters went on stand by, as well as fuel trucks and buses to transport victims of the hurricane.

While security and recovery teams moved into place, FEMA and the Red Cross were staged outside New Orleans and in Houston, Texas waiting for further instructions. Despite the lack of communications and electricity and escalating armed violence in New Orleans, many private security organizations established secure operations at ground zero. Within the next 36 hours more than 500 private security personnel were engaged in the Gulf Region from Louisiana to Mississippi and Alabama.

The storm warning and environmental impact models for the Gulf Coast had largely gone unheeded by the energy, utility, communications, financial and hospitality industries. Much like the four major hurricanes that hit Florida in 2004, Hurricanes Katrina and Rita exposed shortfalls in the use of catastrophic disaster models, crisis management and business recovery plans.

Corporate America is already paying the price for these policy lapses in the form of higher energy costs and disruption in business. Third quarter earnings reports for 2005 proved how much impact both hurricanes had on the nation's economy. And inevitably, natural disasters will hit other parts of the nation, in part just because of more development. The western states have seen this over the last 25 years with the typical cycle of wildfires, floods and mudslides in new construction zones. Earthquakes are another matter. New York and Washington, D.C. are not resistant to natural disaster as well, warns John McHenry, chief scientist at Baron Advanced Meteorological Systems, a forecasting firm in Raleigh, N.C. McHenry says "It would not take much to flood all of Manhattan."

The effects of Katrina and Rita will be felt far into the future. New Orleans has been changed forever. How far these effects remain to be felt will be determined, in part, by Chief Security Officers, Risk Managers and the Boards of Directors of corporate America.

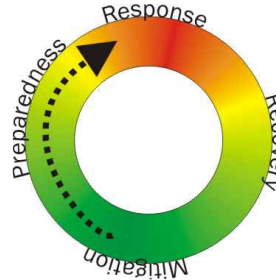
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## **Phases of Emergency Management**

The process of emergency management involves four phases: mitigation, preparedness, response, and recovery.



### **Mitigation**

Mitigation efforts attempt to prevent hazards from developing into disasters altogether, or to reduce the effects of disasters when they occur. Mitigative measures can be structural or non-structural. Structural measures use technological solutions, like flood levees. Non-structural measures include legislation, land-use planning, and insurance e.g. the designation of nonessential land like parks to be used as flood zones. Mitigation is the most cost-efficient method for reducing the impact of hazards. However, mitigation is not always suitable and structural mitigation in particular may have adverse effects on the ecosystem.

### **Preparedness**

In the preparedness phase emergency managers develop plans of action for when the disaster strikes. Common preparedness measures include the proper maintenance and training of emergency services, the development and exercise of emergency population warning methods combined with emergency shelters and evacuation plans, the stockpiling of supplies and equipment, the development and practice of multi-agency coordination etc.

An efficient preparedness measure is an emergency operations center (EOC) combined with a practiced region-wide doctrine for managing emergencies. The purpose of the EOC is to coordinate the activities in the subsequent emergency response phase. Physically, the EOC may only be a couple of cabinets in a conference room combined with a significant group of professionals. The EOC should have reliable external communications as well as access to civil and amateur radio networks. Many cities also maintain community emergency response teams (CERT). These volunteer teams are trained in large numbers to provide better coverage of emergency support when large crises overwhelm the conventional emergency services.

### **Response**

The response phase includes the mobilization of the necessary emergency services and first responders in the disaster area, such as firefighters, police, volunteers, and non-governmental organizations (NGOs) such as the American Red Cross. A well rehearsed emergency plan developed as part of the preparedness phase enables efficient coordination of rescue efforts. Emergency plan rehearsal is essential to achieve optimal output with limited resources. In the response phase, medical assets will be used in accordance with the appropriate triage of the affected victims.

Where required, search and rescue efforts commence at an early stage. Depending on injuries sustained by the victim, outside temperature, and victim access to air and water, the vast majority of those affected by a disaster will die within 72 hours after impact.

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## **Recovery**

In the recovery phase the aim is to restore the affected area to its previous state. An important aspect of the recovery phase is to take advantage of the 'window of opportunity' for the implementation of otherwise unpopular or draconian mitigative measures. Citizens are more likely to accept mitigative changes when a recent disaster is in fresh memory.

## **Lessons Learned for business continuity**

*Look beyond business continuity to Information Availability:*

Information Availability represents the marriage of business continuity and operational resilience. It entails uninterrupted access to mission-critical data and systems, and keeps people and information connected. Business continuity, on the other hand, prepares organizations to deal with worst-case scenarios. While this approach is valuable, it is more suited to catastrophes than to the more prevalent hurricane-induced effects such as hardware failures, power outages and network outages.

*Understand system interdependencies:*

Planning for Information Availability requires an organization to understand how all infrastructure components work together and depend on each other. Not only does an organization need to know IT systems, but also which businesses rely on which applications and platforms, and which locations depend on each other.

*Impact analysis:*

For many organizations, business impact analysis has traditionally been a one-time exercise that is completed and then left untouched for a long time. Today, organizations recognize that their business environments are changing rapidly, and the time to update impact analysis is now, before the first hurricane warning appears.

*Situation/crisis management:*

Situation/crisis management capabilities should be fully integrated into an organization's Information Availability program. The primary objectives for these capabilities include tracking, communicating and assisting in the oversight, facilitation and management of any event. A logical extension of planning and testing efforts, crisis management is easier to establish once relationships and impacts have been identified.

*Notification:*

Critical during any potential interruption, notification should be an integral part of crisis management capabilities. An organization should be able to get in touch with key personnel, as well as to prioritize methods of communication and track which employees have received messages. Damage caused by hurricanes often disrupts many different civic infrastructures, including power and communications. Attempts at landline-based communications may be made, but satellite systems will generally be more successful. Keep in mind that cellular systems may be congested by the increase of governmental emergency management communication traffic.

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*Planning:*

Plans have always been at the heart of traditional business continuity. In the past, efforts have been focused on creating hardcopy output to satisfy audit requirements, and to provide reference documents and recovery procedures at time of disaster. But at the end of the day, many plans have ended up in storage, offering little value when an incident occurs.

With an Information Availability program, plans remain important, but rather than generating volumes of static paper documents, the focus is on creating and maintaining a usable set of information. Plans should be response-based and checklist-oriented, providing clear, straightforward instructions that can literally fit into a pocket.

*Testing:*

Simply creating plans is not enough. Organizations must test plans in order to identify and correct problems before an actual business interruption occurs. Tests must be conducted regularly and under realistic conditions.

*Do not hesitate to go on alert:*

If an organization believes it is in the path of a hurricane, do not hesitate to call and put your service provider on alert that you may be declaring a disaster. With respect to actually declaring a disaster, experience shows that local authorities use sound judgment in determining if an evacuation order should be issued. When an organization is within eight hours of a voluntary or mandatory evacuation order being issued for its area, it is a good time to actually declare a disaster.

**Conclusion**

The major lesson corporate risk managers and security directors should draw from the tragedy is just how vulnerable the U.S. is becoming to natural disasters and energy and utility disruptions. In fact, some say, Americans have been mistakenly lulled into thinking terrorism is the most pressing threat and experts argue that the focus on staving off suicide bombers has left crucial gaps elsewhere.

Katrina has taught us to understand, that though they are often tragic, disasters and their associated risk can be mitigated taking proactive measures to avoid, and if needed, reduce the negative effects of such events. If left unaddressed, disasters, natural or man-made, can turn into true crisis situations, compounding obstacles and reducing the effectiveness and progress of recovery.

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