Natural and Human Disasters

Mike Schiavello
Hisham Shahid
Courtney Poorman
Peter Abdalla

Hurricane Katrina

The mitigation of a natural disaster involves reducing the vulnerabilities and disaster risks of a natural disaster before the disaster hits in order to minimize the impact of the disaster on society. In the case of Hurricane Katrina, many had ample knowledge of the major risks of a disastrous hurricane hitting the city of New Orleans due to its location. Not only is New Orleans located in an extremely hurricane-prone area in the southeastern United States, but also is located below sea level and surrounded by the Mississippi River, Lake Pontchartrain, and Lake Borgne, making the city extremely vulnerable to massive flooding. As a result, New Orleans has always had systems of levees and floodwalls in order to minimize the risks of the being in such a flood-prone location. New Orleans is bounded by a 23-foot tall floodwall along the Mississippi River and a 17.5-foot floodwall against Lake Pontchartrain, along with multiple hurricane protection levees. This city also had prepared many hurricane evacuation routes in order to allow for an efficient evacuation of the city in the event that a large enough hurricane hit New Orleans. Also, in 1965 the Corps of Engineers was directed to plan for the most violent hurricane that could hit New Orleans and implement the proper means of protecting against such a harsh storm. Throughout history, there have been many times in which this system of hurricane prevention has proven successful and minimized what could have been major damages to the city and what could have been many lives lost. However, the levees, floodwalls, and other means of hurricane protection were nothing for the category 5 Hurricane Katrina.

Once meteorologists realized that the mitigation systems would not be enough to prevent the damages of Katrina, the local and U.S. government began taking action immediately to prepare the city for the storm. Once New Orleans was given a category 5 rating and had a projected path straight for New Orleans, Mayor Ray Nagin declared a state of emergency along with an initial voluntary evacuation of the city. A few days later, this voluntary evacuation turned into a mandatory evacuation as the storm drew closer to New Orleans. Also, Louisiana governor Kathleen Blanco deployed the Louisiana National Guard and looked to other states for reinforcement for preparing for the storm. Overall, Louisiana's government actions proved to be save thousands of lives; however many were critical of the government's preparedness for Katrina. The citizens of New Orleans greatly criticized Nagin for his lack of preparedness for the storm and for failing to properly execute this evacuation. They claimed that Nagin did not follow proper hurricane evacuation protocol to use school buses as means of evacuating those who could not leave the city on their own (e.i. the elderly, disabled, those without cars). Blanco was also tremendously criticized for not deploying the National Guard sooner and not having a well prepared plan. The government’s lack of preparedness for Katrina was not the only factor that played into the storm’s horrific damages. The system of hurricane

protection in New Orleans completely broke down and was not thoroughly prepared to take on a strom of the magnitude of Katrina. The levees and floodwalls totally failed and their lack of execution fed right into the damages done by Katrina.

The storm hit on August 29th. As an immediate reaction, the Federal Emergency Management Agency (FEMA) activated 1,000 Country Security specialists to give help to the city. With an end goal to sort out the reaction, FEMA likewise asked that no firefighters or rescue vehicle team react to territories hit by Storm Katrina without being initially activated by nearby and state powers. By August 30th, the Superdome was stuffed past limit, with no less than 20,000 individuals living in the building. The circumstance in the Superdome in the long run turned out to be bad to the point that it must be cleared the following day. As the circumstance developed, it turned out to be clear that the administration's reaction was lacking and wasteful. The government did not have satisfactory data concerning the genuine obliteration that the storm had created. Regardless of the amount of government laborers in the range, the impacts of the sea tempest kept on destroying the city with individuals still stranded in New Orleans.

Since Tropical storm Katrina, the recovery process in New Orleans had many difficulties and challenges. The days after the storm, rescuing and recovery tasks were made strenuous due to the extensive flooding and lack of access to parts of the city. The disaster introduced insurance and contractor scams, which made many people think twice about rebuilding efforts. Also, many former residents did not come back to New Orleans because of the fraud. Fortunately, for New Orleans, things are progressing. The subsidence that hit whatever is left of the nation with a 4.1 percent loss of employment since last June, has just enlisted as a 0.9 percent misfortune in the more prominent New Orleans range. Population numbers for the metro territory are likewise near 90 percent of the pre-Katrina numbers, with 76.4 percent in the city. FEMA has likewise dedicated over $800 million to reconstruct base, which will modify schools, reinforce police assets and make fundamental levee change.

BP Oil Spill

Although some emergency security measures were in place for the Deepwater Horizon oil rig, they were not up to code. Specifically, the blowout preventer had multiple flaws. The blowout preventer is put in place in order to stop oil flow out of the pipe and disconnect the rig from the well in an emergency. These machines are attached to the top of underwater wells and work automatically when they sense a change in pressure or electricity. In theory, the preventers should be able to stop the oil flow almost as soon as a problem occurs. However, an investigation found that the device had faulty wiring, a bent pipe, and a dead battery, which caused the failure of the safety system. Although the blowout preventer was tested as a whole, the individual systems were not tested so the flaws were not found. When the well failed, the preventer failed too so the spill could not be stopped until outside sources could plug the well.

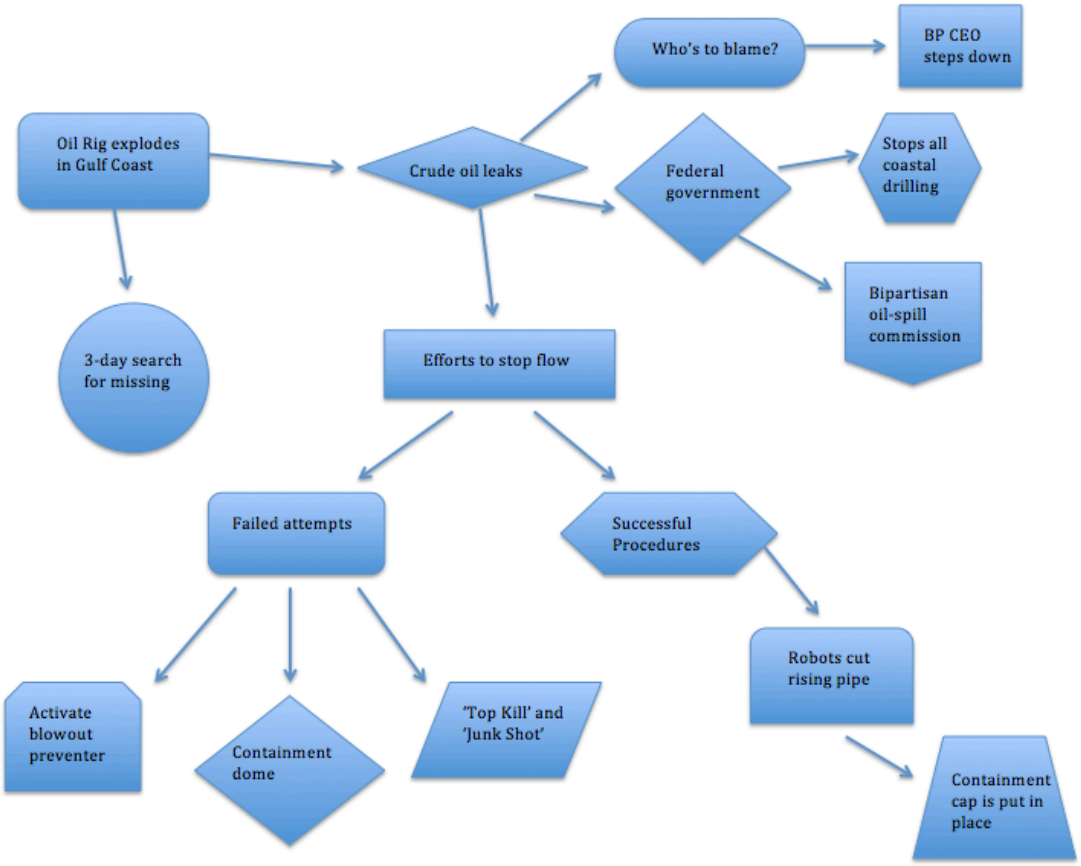
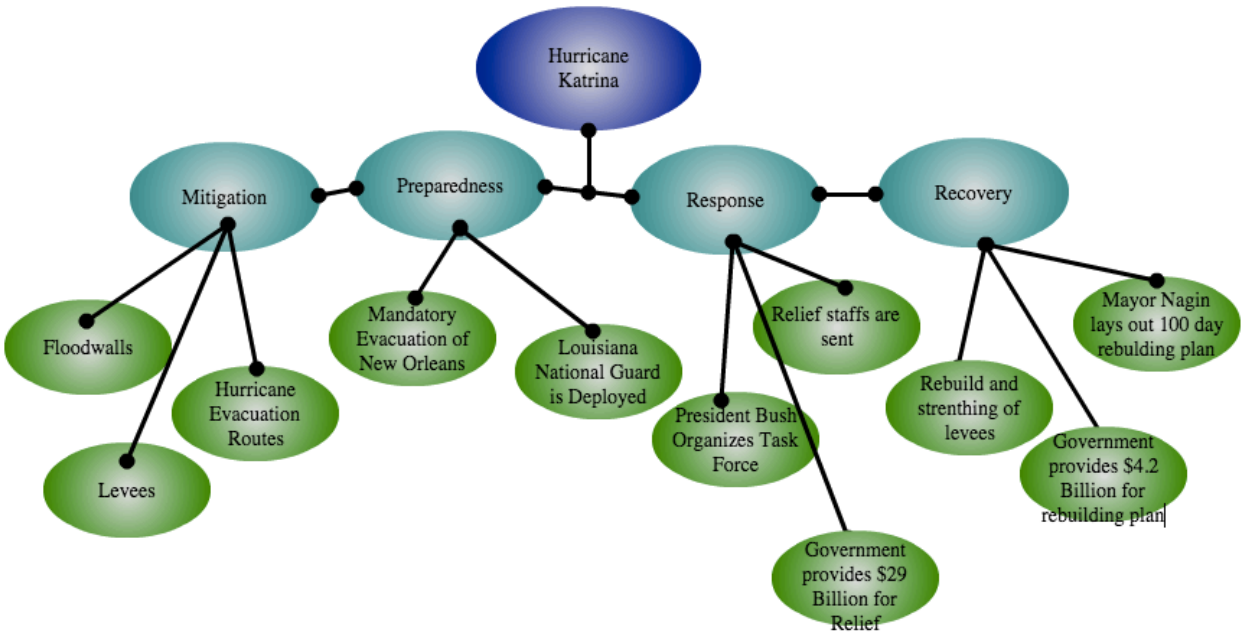
Admittedly, the blowout preventer failure was only a secondary issue that caused the oil spill. The initial problem was that the well did not have enough cement in order to

provide a sound structure. The lack of cement led to the oil blowout and explosion, which killed 11 people and set fire to the entire rig. An investigation determined that the rig was not properly managed or operated. The operators had noticed some technical breakdowns on the rig before the well failure, but had failed to completely correct the problems. Furthermore, the well was initially not constructed correctly and the blowout preventer had multiple problems. Therefore after the explosion happened, the preventer could not stop the oil flow. The rig then sank and severed more pipes, which increased the amount of the oil that was spilling into the gulf.

Almost immediately, different groups of people got together to lessen the effect of the oil spill. The federal government enacted a bipartisan oil-spill commission to investigate the cause of the BP oil spill and seek solutions and recommendations on how to mitigate and avoid future spills. At the same time, BP's engineers worked tirelessly around the clock to find a permanent solution to the spill. Each day, crude oil was leaking at a rate of 798,000 gallons, making it the worst spill in US history. The engineers were desperate to find a solution. First, they tried to use robots to activate the blowout preventer, sealing off the well. When this didn't work, they turned to the idea of placing a containment dome over the source of leak. However, gas and water blocked the opening and the dome did not work. They next tried two procedures called 'Top Kill' and 'Junk Shot,' both of which tried to lessen the oil flow by inserting things down the well. Not surprisingly, they both failed. Finally, a solution came in the form of robots and a containment cap. This stopped the leak until relief wells were completed.

Recovery after this disaster was slow. The immense amount of oil that spilled was too much to clean up immediately. The problem with oil is that it's toxic and consumes every inch of an animal's fur or wings. The toxicity of the chemicals can affect organisms immediately by poisoning them and for years to come by affecting their genetics and reproduction. However, it's now almost six years later and scientists say that the effects have drastically diminished and damage is finally on the downswing. While this may be true, it's still early to make any conclusions. We don't and won't know the lasting impacts of this disaster for several years to come. There are still millions of gallons of oil just sitting on the ocean floor. It's unclear how this will affect the environment and the organisms that call it home.

BP Oil Spill Process Diagram



Concept Map of Hurricane Katrina