

Crisis Management Techniques

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Table of Contents

Abstract.....	6
Introduction.....	7
Background.....	11
Defining a Crisis Management Model.....	11
Crisis Management.....	12
Size and Location.....	12
Cost Factors.....	13
Approaches to Disasters.....	13
Prevention and Avoiding an Event.....	13
Culture of Safety.....	15
During and After an Event.....	16
Case Studies.....	17
Johnson & Johnson and the Tylenol Incident.....	17
Prevention.....	17
Response.....	18
Conclusion.....	19
Chernobyl.....	19
Prevention.....	20
Response.....	20
Conclusion.....	21
BP and the Gulf Oil Spill.....	22
Prevention.....	23

Response.....	24
Conclusion.....	25
Union Carbide.....	26
Prevention.....	28
Response.....	29
Conclusion.....	29
Hurricane Katrina and City of New Orleans.....	30
Prevention.....	31
Response.....	31
Conclusion.....	32
The Virginia Tech Shootings.....	32
Prevention.....	33
Response.....	34
Conclusion.....	34
Methodology.....	35
Part I: Data Collection thru Interviews.....	35
Prevention.....	36
Culture.....	36
Part II: Data Presentation.....	37
Results & Analysis.....	39
School Profiles.....	39
Worcester Polytechnic Institute.....	39
Background.....	39

Physical Prevention Systems.....	40
Culture of Safety.....	41
Response.....	43
Recommendation.....	44
Conclusion.....	44
Worcester State University.....	44
Background.....	44
Physical Prevention Systems.....	45
Culture of Safety.....	46
Response.....	46
Recommendation.....	47
Conclusion.....	47
Clark University.....	48
Background.....	48
Physical Prevention Systems.....	49
Culture of Safety.....	50
Response.....	51
Recommendation.....	52
Conclusion.....	53
Becker College.....	53
Background.....	53
Physical Prevention Systems.....	54
Culture of Safety.....	54

Response.....	55
Recommendation.....	56
Conclusion.....	56
Final Report.....	56
Conclusion.....	60
References.....	63

Abstract

Disasters will occur and businesses must be prepared to respond as best they can. These businesses need a detailed plan explaining what to do in an emergency incident. This will be their business continuity plan or crisis management technique. Crisis Management is “a systematic attempt by organizational members with external stake-holders to avert crisis or to effectively manage those that do occur.” This project provides a look into the business continuity plans of four schools, Becker College, Clark University, Worcester College, and Worcester Polytechnic Institute, in the Worcester area.

Introduction

Disaster response and recovery applies to any organization, including small businesses, large corporations, schools, and governments on all levels. A disaster can occur without warning and without means of prevention. Precautions can take an organization so far, but there is no way to prevent absolutely everything. There is no way to prevent natural disasters, only ways to prepare for the worst. Several accidents can compound at the same time and cause a disaster that safety precautions could not stop²⁶. When these occur, the organization has the responsibility to be prepared to help its stakeholders through the disaster.

Emergency incidents test the flexibility, agility, and preparedness of the organization as a whole. Proper safety precautions must be implemented in order for an organization to be able to deal with disasters and return to business as usual. The organization has to have a comprehensive plan containing everything from accident prevention to disaster response and recovery. A business continuity plan is made to ensure a crisis will not destroy the organization or its political structure. Organizations must understand the importance of a crisis management plan; different accidents need different techniques in order to handle the problem efficiently and without confusion. The plan needs to be thorough so that the accident can either be avoided as best as possible or handled correctly. A continuity plan should be accurate and concrete in order to avoid becoming costly and impractical. A plan must encompass the resources found in the facility as well as external safety systems, such as alarms and other physical emergency equipment.

Crisis Management involves two main components: safety precautions to help prevent an accident or disaster, and an emergency response plan should the accident or disaster occur. An organization has to keep their assets safe in order to maintain proper business function³¹. Safety precautions involve a wide array of considerations. This includes physical safety precautions such as emergency notification systems to communicate when an accident or emergency happens and fire alarms or an emergency public announcement system. If the facility deals with hazardous materials, there must also be a way to maintain those materials in order to keep employees safe.

There are many things to consider when building the right precautionary system for an organization. The author of the plan must consider all stakeholders, namely employees, but also the public who would be affected by a crisis. He or she must also consider the ethical implications of making the system and training within a limited budget.

Despite the efforts of an organization to mitigate risks, there is still the opportunity for failure of those systems and a crisis can ensue. We will assess how preventative measures are used and how far they can go in preventing a catastrophe. Furthermore, this project addresses how the organization management should handle a disaster which has already gone beyond the system's function. This problem is relevant in all levels of organization and threats to the safety of those involved in the organization. The money spent on security and in training individuals on how to deal with crisis situations is the responsibility of an organization, but should be spent in proportion to the size of the business, nature of their industry, and surroundings²⁸. The problem organizations face is the proper amount spent on crisis management in order to cover the preparedness of the company and the recovery if an accident cannot be stopped.

Depending on the outcome of a disaster, the public image of a company can be tarnished. Without a plan to mitigate disasters, a company can lose incredible amounts of money trying to clean up their mess, and may also be unable to return to regular activity to create revenue for long periods of time. Any large organization's business plan should address how to react when faced with a crisis, to that step may be taken to control the problem before it escalates.

When an organization is at fault for a major disaster it can be damaging to both the company and the stakeholders. This brings very negative press, which can ruin a company's image and cause its stock market value to drop. While physical clean up of the infrastructure, environment, or chemical damage will be most likely aided by the government, the company needs to be able to promise large amounts of money, depending on the extent of the damage²³.

In this project we will analyze organizations that experienced an accident or disaster, what precautions they took, and whether or not they appropriated the right amount of safety to their company prior, during, and after the event. This will give us a range of disasters in different scenarios with different fallouts. For example, BP's accident on the *Deepwater Horizon*, which pumped thousands of gallons of oil in the Gulf of Mexico, affected the environment in the Gulf, consequently disrupting the fishing industry²⁵. This disaster caused a lot of bad press for the company and affected their reputation very negatively, which has manifested itself in a negative stock market trend¹⁹. The Tylenol recall, on the other hand, was handled well because they explained that they were very concerned with the well being of their customers. They were able to show the culture of their company through an accident and potential disaster⁵.

Using examples of past accidents and disasters that involve specific organizations, we will identify the origins of the accidents and factors that added to the severity of the crisis. We

will then be able to draw comparisons between these accidents and their responses. We will focus on the precautions that were implemented before catastrophes, any relevant failures during the event, and how the organization handled the crisis' aftermath. Using this analysis we will measure the preparedness of the organization before the disaster and how they handled the recovery, relative to the severity of the crisis. This will prove to be a useful measure to help prevent other real disasters.

We studied how Worcester Polytechnic Institute and other schools applied Crisis Management. We asked questions of faculty members in charge of crisis management to better understand their plan to prevent and reaction to a crisis. We were then able to relate the preventative measures of the culture of safety and physical prevention systems in the schools to real world disasters. We implied the preventative measures their ability to react to a crisis, both physically and through public relations. Disasters can occur on college campuses in the form of a building catching fire, an outbreak of a disease, or an attack on the school. The schools we have chosen all contribute a unique background, which can affect safety. WPI is a technically inclined school with a strong military background, but little political involvement. Clark is a much more liberal campus. Worcester State gives us a public school's view of safety. Becker has a very small but unique campus, with most of the housing embedded in urban Worcester and Leicester. This allowed us to give feedback to the schools and possibly improve the plans they already have. If our study and practical exercise is successful, the schools we analyzed will be able to use our model in order to better understand their own plans and where they need to focus their efforts to improve the safety of their schools.

Background

Defining a Crisis Management Model

Basic analysis of Crisis Management allows for two main areas of focus, prevention and response. An organization's plan must provide an adequate prevention plan that is suited for the nature of the company, as well as a complete response plan. Prevention can be further broken down into two more specific factors, the culture of safety of the organization and the physical systems in place. The response is also further broken down by response plans including physical response and public relations response.

The preventative measures are to ensure safety of workers, the surrounding population and the environment. The first response to safety is physical preventative systems. Systems include simple fire alarms, and early warning signals if levels of dangerous materials become too high and could potentially cause destruction. The culture of safety fostered by the company is an important focus that sends its influence through the entire safety process, but it is most important to the prevention aspect. A culture of safety is the management and employees being focused in safety measures, such as being well trained on their equipment and having a substantial understanding of the hazards inherent in the industry.

Response to a crisis is a complicated and expensive aspect to crisis management. Many crises involve destruction to the surrounding area because of hazardous materials. Physical responses are there to clean up material spread by the accident or rebuild destruction made by the company responsible or even to address resulting medical issues. The company itself is also damaged by the disaster by the press and overall image of the company. Public relations

response is a vital part of healing the company and beginning to resume business, gaining and maintaining customers.

Crisis Management

A crisis is an event that outstrips a society's ability to manage or cope with the event, at least for a period of time⁸. A crisis can occur anywhere and at any time, which is why organizations must have proper management in place to control and handle the situation. In order to effectively implement a crisis management plan into an organization, they must take into consideration factors such as the size and location of the organization, the complexity of its systems, and the costs associated with prevention and recovery. Crisis Management is "a systematic attempt by organizational members with external stake-holders to avert crises or to effectively manage those that do occur"⁷

Size and Location

Understanding the size and location of an organization can affect where to allocate your efforts in your crisis management plan. For example, a small elementary school wouldn't be concerned with the need for a chemical spill emergency plan, as a nuclear power plant certainly would. Although an incident of a chemical used in chemistry class within that school could occur, the magnitude would be negligible compared to a nuclear power plant meltdown. The same goes in aspect of location. A Massachusetts organization wouldn't worry preparing themselves in a case of a tornado, while an organization in Kansas should. Although a tornado could occur in Massachusetts, the probability of one occurring in Kansas is much higher. Knowing where to focus an organization's efforts is crucial when creating an effective crisis management plan.

Cost Factors

Cost is a major factor when determining the crisis management plan in an organization. At what point is the cost of safety too much for an organization to invest. More importantly; what costs more, prevention or recovery? To answer this question, an organization must determine their benefit-cost analysis²⁰. Estimating the cost of preventing an accident from occurring against the cost of recovering from an accident can determine how an organization's crisis management plan may look. In reality, organizations are always trying to maximize profits. But, with safety costs, no profit can be made, and so upper management determines risk and costs with both options. Also, most of the elements involved are not quantifiable, meaning that it is difficult to place a certain price on certain decisions. For example, an organization must analyze the cost of social, political, and psychological aspects²⁰. If the organization chooses to deal with the recovery costs because the direct costs are cheaper, the organization might have to deal with a bad public image, which could mean significant loss in sales and stock holders. In almost all cases, the indirect costs of the social, political, and psychological aspects outweighs the direct costs of prevention, meaning it is ultimately cheaper to have a crisis management plan for prevention of accidents.

Approaches to Disasters/ Accidents

Prevention and Avoiding an Event

The best, and often the most cost effective, way to respond to a disaster is to prevent one. While it is almost inevitable that an incident will occur, measures can be taken to ensure that the incident does not escalate. In order to ensure an organization has the capacity to properly manage an accident, it has to ensure its ability to change form producing products and services to reacting to the event that occurred. A protection plan is also proportionate to the risk involved in the organization's industry²². For example, a textile manufacturing company has much less risk

of physical damage than an oil company's drilling rig. While both need to prepare for a fire in the facility, an oilrig needs to be prepared for much more severe accidents.

A prevention plan consists of various factors aimed at the safety of the employees and maintaining normal practices. The foremost prevention plan is an early warning system, evacuation of the facility and emergency shut off of power. Early warning systems can be as simple as a smoke detector or as complex as the system that monitors heat levels in a nuclear reactor to prevent a meltdown and radiation contamination. The central emergency notification system should be appropriate for the facility it serves and it should cover all relative threats that could occur. Evacuation plans remove the employees from the event that occurred inside the facility and is the solution to a number of problems, such as fire, flood or a toxic threat. The plan not only includes the safest route away from the danger, but also a plan for communication of further instructions. There are small incidents which can occur in a facility that do not affect overall performance, such as minor personal injury, but large accidents require emergency shutdown of production systems. This will ensure that employees can safely exit the premises. Emergency shutoff systems should be relative to the danger involved in production. A large manufacturing plant should have an automated system that shuts down production if an unsafe area is detected. This safety system can be very elaborate if the facility is very large, but for a small business, a simple manual emergency power shut off can be sufficient.

The hardware for a company's safety system is not all that is included in safety. An organization that truly values the safety of their employees properly trains them, so that when a problem occurs, whatever the severity, the employees are quick to respond. When a safety system fails, training and drilling can stop an incident before it becomes more damaging.

A complete preventative plan must be knowledgeable of everything that can go wrong in a disaster, even if it cannot prevent everything. Physical preventative measures are best for everyday emergencies, but events may compound to over ride those systems. The organization's plan does not have to call for a direct savings fund for a disaster clean up, but it must know and be able to accept that a portion of profits for the future will go to recovery. It must also be able to absorb fines by government officials and associations like FEMA and OSHA.

Culture of Safety

To create a safe work environment for employees, safety must be a part of the culture of an organization. This culture of safety is developed through proper training for employees and managers². There are guidelines set by the Occupational Safety and Health Administration (OSHA) but it is often that their standards are not well enough enforced⁸. Also, following OSHA guidelines can also leave the company behind in proper safety procedures. It has to be taken upon the manager to find the right answer for the safety of the employees and surrounding area.

It is the administration's responsibility to promote a culture of safety. Employees who are poorly trained, over worked, and underpaid are subject to extremely high risk. They are at high risk because their morale is very low and they are under educated at the job they are doing, so they may either become complacent with the risks involved with the work, or completely ignorant that they exists at all. A safe working environment is one where the employees are aware of the dangers of the job, but are happy to do it because they are well prepared for an accident or disaster and are compensated well for the risks they take.

During and After an Event

Large scale disasters are a major part of our civilization today. These incidents are handled in a variety of different ways. There is, however, a basic series of steps management takes in dealing with catastrophe. The first step taken during an emergency event is identifying there is a problem. Once the problem is identified immediate corrections are attempted to alleviate the problem. If these corrections are futile then emergency actions are taken. These actions are to contain damages, contact emergency responders, and if necessary, evacuate an area. After these steps are taken another assessment of the situation is given. In extreme cases permanent actions to fix damages done are taken. These can include: the containment of hazardous material or dangerous conditions, or the recall and/or replacement of contaminated goods involved.

Communication is vital to a timely response. Employees and other stakeholders need to be given the correct information quickly in order to prevent casualties. Information must also be correct, because raising a false alarm can send the area into a panic, depending on the information sent out. Having the administration send a notification that there is a shooter on the premises, when that information is false, is sure to cause a crisis itself.

Disasters, although tragic, serve as learning opportunity. Scientists and engineers gain valuable insight into how to prevent future catastrophe by studying past failures. They also come up with plans of how to avert these incidents altogether. These lessons promote the advancement of our culture and civilization.

Case Studies

Our research is to support our Crisis Management Model. We are going to analyze five different disasters that have been caused by businesses and the Virginia Tech shooting to better analyze a school. The information gathered from the case studies will reinforce our claim that a proper crisis management plan includes physical preventative systems, a culture of safety, a physical response plan and ability, and public relations management. In order to prove these case studies, we will provide an overall background of what the disaster was, and then further analyze our specific model in this disaster. This will provide a new aspect to evaluate the company's crisis management plan and the actions they took before and after the disaster struck.

Johnson & Johnson and the Tylenol Incident

Johnson & Johnson is a family company, and that's not just their slogan. The goal of Johnson & Johnson is to provide customers with products that improve their wellbeing. When this goal is reached, customers are happy remain loyal to the company. This creates trust between company and consumer. Unfortunately in October of 1982 this trust was broken. One of Johnson & Johnson's leading pharmaceutical manufacturers Tylenol seemed to have caused the death of at least seven people in the Chicago area⁵.

Prevention

The physical safety systems implemented by Tylenol did not cover all aspects of capsule manufacturing and distribution. Back in the 1980's medicine capsules were not fused together as they are now. The capsules could be taken apart and tampered with, as was the case in autumn of

1982. Somehow Extra-Strength Tylenol capsules had been laced with potassium cyanide before being sold.

Potassium cyanide is a chemical compound represented by the elements K⁺ and CN⁻ or more simply KCN. It is a white crystalline compound very similar in appearance to sugar. It is water soluble and used in gold mining, electroplating, and organic synthesis. KCN is highly toxic if consumed. Entomologists use it as a killing agent because it's so quick and effective that it can preserve even the most fragile specimens.

Tylenol has a culture based on safety. Part of Tylenol, and even more so, Johnson & Johnson's culture is putting the wellness of human beings first. People trust Johnson & Johnson with the medicines they consume on a day-to-day basis.

Response

Physical recovery was a joint effort on the part of the United States government and Johnson & Johnson management. This incident led the federal government to create anti-tampering laws. In 1982 The Federal Anti-Tampering Act was established. It makes tampering with consumer products a felony punishable by up to 10 years in prison. Tamper-resistant packaging is defined as a package that has "an indicator or barrier to entry, which, if breached or missing, can reasonably be expected to provide visible evidence to consumers that tampering has occurred¹⁴."

Tylenol's Public Relations took a significant hit to their metaphoric chin but managed to stand firmly on their feet. Johnson & Johnson took immediate action and did several things at once. They stopped production of all Extra-Strength Tylenol and any medicines with which it might have come in contact. They administered warnings to hospitals and all Tylenol

distributors. Then they recalled and replaced over \$100 million dollars worth of Tylenol products from all over the United States.

Johnson & Johnson spent thousands of dollars on advertising to warn the public not to consume their products until everything was settled. It was later determined that only capsules were tampered with. This allowed Tylenol to exchange already purchased capsules with the new solid tablets.

Conclusion

Johnson & Johnson was involved with an incident that was not entirely their fault. To deal with this incident Johnson & Johnson treated this event like a crisis. Going above and beyond what was expected of them seemed to boost their public relations and seemed to boost their public relations, affirming to customers that their trust was well placed.

Chernobyl

With completion of the first reactor in 1977 the V.I. Lenin Nuclear Power Station was officially open and operating. Also known as the Chernobyl nuclear Power Plant, all four reactors were finished by 1983. On April 26 of that year, operators at the Chernobyl Power Plant conducted an unapproved systems test. This test was an experiment to make sure that the plants back-up generators would be able to handle a power loss to the reactors.

Since the test was held in the early hours of the morning the night shift crew would have been working. The night shift would have been made up of less competent workers and engineers. They would not be as efficient to stop an emergency situation as the main day crew²¹. Whoever planned the test would have known this.

The experiment was handled poorly and went terribly wrong. After an initial meltdown one of the main reactors overheated causing an explosion. This explosion expelled poisonous radiation gasses into the air killing 31 people instantly².

Prevention

Physical safety systems existed in the plant but were not utilized. A lot of factors contributed to the meltdown of the Chernobyl Power Plant. "During preparation and testing of the turbine generator under run-down conditions using the auxiliary load, personnel disconnected a series of technical protection systems and breached the most important operational safety provisions for conducting a technical exercise²". Since safety systems such as Emergency Core Cooling System, Local Automatic control system, and emergency power reduction system were not operational during the experiment²¹.

Life in the USSR was strictly regulated. They had an almost militaristic culture of strict discipline under the rule of Mikhail Gorbachev. Under Gorbachev the accident at Chernobyl was well covered up and hidden from local citizens to the United Nations.

Response

Physical recovery was slow at best. The soviets did not acknowledge the fact that a life threatening disaster had occurred. The nearby city of Pripyat was not evacuated until radiation levels tripped alarms over one thousand miles away at the Forsmark Nuclear Power Plant in Sweden. This forced the Soviet Union to admit that an incident had occurred at the Chernobyl Plant. The evacuation did not start until 2:00 pm the next day, April 27. This left many innocent people exposed to harmful radiation. They certainly did not use time affectively. Residents of Pripyat were told that evacuation procedures would be temporary and that they would be able to return home after three days. As authorities continued to conceal the magnitude of the disaster

they issued a warning message giving false hope; “An accident has occurred at the Chernobyl Nuclear Power Plant. One of the atomic reactors has been damaged. Aid will be given to those affected and a committee of government inquiry has been set up¹⁶.” Citizens believed that the situation was localized and contained. The government could not imagine the extent of the damage they had incurred. Lieutenant Volodymyr Pravik, commander of the fire brigade, later told the associated press "We didn't know it was the reactor. No one had told us."

Public relations after the disaster were very poor. It wasn't until sometime after the accident that the government set up a committee to assess the disaster. This committee was headed by Valeri Legasov, a prominent Soviet scientist in the field of inorganic chemistry and a member of the Academy of Sciences of the USSR²⁷ Legasov and his committee stressed the seriousness of the situation. He understood the magnitude of the situation at the plant and demanded the city of Pripjat be immediately evacuated.

It wasn't until August of 1986 that Legasov presented the report of the Soviet delegation at a special meeting of International Atomic Energy Agency (IAEA) in Vienna, Austria¹⁶. The report displayed depth of analysis and full honesty in discussing the extent and consequences of the tragedy.

Conclusion

There are many lessons to be learned from tragedies like Chernobyl. First off, there will always be events that are unpredictable and unforeseen. We as human beings have the responsibility to attempt to think every possible situation through to the best of our abilities. Unfortunately there will always be unavoidable tragedies. It is our responsibility as a species to learn anything and everything from these events so that they are not repeated in the future.

BP and the Gulf Oil Spill

On April 20th, 2010, the oilrig Deepwater Horizon exploded in the Gulf of Mexico, killing eleven workers. Building, operating and safety considerations were handled by three main oil services, Halliburton, Transocean, and BP. Final word on all decisions were made by BP²⁹. After the explosion, the well leaked for 87 days, until the well was finally rendered “effectively dead” by US Coast Guard Admiral Thad Allen²⁷. The Gulf was in a constant state of crisis while the oilrig was burning and while oil leaked from the well and into the water. The Gulf Coast expected the fishing industry do be severely hindered by the leak because of the contamination and imbalance in the ecosystem because of the oil. Many cited the oil spill in Alaska many years ago by the Exxon Valdez as cause for concern, because the massive amount of oil poured into the Price William Sound still remains on the shores of the islands there. As days passed in the Gulf of Mexico, the heat from the air and water and the strong current made the oil rapidly dissipate, but there still is a large amount of damage left by the oil there.

BP has had to handle numerous allegations against them and their safety history. In recent years, BP has a record spotted with accidents that have cost lives. The Occupational Health and Safety Association have cited many violations and have fined BP hundreds of millions of dollars over the past ten years²⁹. The infringements on the standards set by OSHA has caused BP to have a reputation of cutting corners on safety costs by not repairing certain dangerous machinery or having their equipment up to par with the rest of the industry. Even with its history, a presidential investigation leads to the conclusion that cost cuts were not responsible for the explosion²⁵. The various allegations and investigations on the safety consciousness of BP give an unclear picture of what actually happened before the explosion. Halliburton did much of

the cement work on the well, and the presidential investigation determined that the cement work done contributed heavily to the well's blow out and subsequent explosion. Tests were conducted and it was determined the cement was unsafe before the explosion, and neither BP nor Halliburton acted on that information. It is BP's responsibility to ensure the well was safe, and did not order Halliburton to repair it²⁹. Despite all this, BP is rendered not responsible for these preventative measures by the presidential investigation.

Even with this investigation, BP's reputation has been tarnished by this disaster. The company's stock price peaked around \$60 per share in mid April 2010, but after the explosion and the leak continued, the stock sunk as low as \$27 in late June 2010. This drop was due to the overall image of negligence to safety and the environment. BP has put measures forward to try to elevate their image and show that they are trying to repair what they have done to the coast. They have sent millions in aid to wildlife and have employed fishermen to help extract the oil from the surface of the water¹⁹. They have devoted an entire portion of their corporation to cleaning wildlife and their habitat, as well as donating millions to the recovery effort. The BP oil spill became a very complicated dispute over blame and recovery responsibility. Due to the magnitude of the spill, the Federal Government almost immediately stepped in to monitor the clean up. While legal responsibility lies on BP, the owner of the well, responsibility in response and recovery lies on both the government and BP.

Prevention

What we can deduct from the outcomes of all the investigations into the prevention of this disaster is that BP barely scrapes by OSHA's standards. While the employees of BP and operators of the rig undergo extensive training to ensure safety, they are met with a management that handles violations by being able to absorb fines and fix the bare minimum. One of

Halliburton's main products and services is their cement work for oil wells. This well was particularly deep and pushed the limits of available technology. The cement provided by Halliburton was tested and deemed not safe for this well, but BP went ahead with the drilling²⁹.

BP's recent history and the oilrig explosion in the Gulf is strong evidence showing BP has little place for safety in its business. A culture of safety would not let Halliburton use cement that was not tested for the type of drilling they were doing on this well²⁹. The physical prevention in this case is directly based on the management's culture of safety. In this disaster, BP knew the reports from Halliburton and decided to continue with the plan.

Response

BP's physical response is fairly extensive. They have dedicated very large sums of money to various organizations dedicated to cleaning up the affected area, as well as designated a portion of their own organization to cleaning up the Gulf. They have a large physical presence in the Gulf of Mexico now than they did while they were drilling²⁵. By committing so much money, manpower and equipment to the area, they have been able to improve their public image and allowed their stock to begin to repair and slowly rise. They have also created a huge advertisement campaign to focus on their recovery effort to ensure their customers that they are cleaning up the area. Also, almost immediately after the explosion, the CEO of BP resigned, offering the blame that the public desperately needs after an accident that costs lives.

The disaster on the Deepwater Horizon cost eleven people their lives, and has lead to the largest oil spill the United States has ever seen. BP has dealt out large sums of money to the families of the oil workers, to the clean up, and to various charities dedicated to the recovery of the area. While it was a horrible accident, BP has paid for it in cash donations, and in their stock price, but they have since improved their image and are repairing their worth in the market.

Conclusion

The explosion of the Deepwater Horizon is an example of what happens when an organization does the bare minimum in prevention. Their culture of safety can be implied that they will follow exactly what OSHA and the law demands, but not any further. This is how BP came away from this accident innocent of charges of negligence. The accident itself is an example of when events conspire to create an industrial disaster that overrides safety systems in place.

BP was the figurehead in this disaster. They received almost all of the focus and the blame in the damage done. It took moderate interest and investigation to realize that several companies hold part of the blame. Despite this, BP did an excellent job in recovery effort and in public relations. Their physical response was quite large. They donated millions of dollars to various non-profit organizations, as well as creating funds for the families of those who died in the explosion. BP also ran a very large ad campaign to show how devoted they are to recovery of the area and to improve their public image. Their ads were not directly selling their project; they were directed towards regaining their image. The main concerns of the fallout of the disaster were covered in these ads. They showed wildlife being cleaned and protected, aid being given to the families of the workers who were killed, and how they made jobs for fishermen and aid to those who feared the seafood industry in the area would be significantly damaged.

Circumstances did conspire against the Deepwater Horizon rig, but with more foresight in what the rig was meant to do and the well it was drilling, which was particularly deep and pushed their technology, the accident could have been avoided. Neither BP nor their contracted companies are held responsible because their rig and safety systems were all approved prior to the drilling. The response after the accident covered a great deal and is still in effect. They did it

voluntarily and did not need to go to court and be forced to aid the area, which greatly improves their public image and lays solid groundwork to recover their business.

Union Carbide

Union Carbide produces chemicals that are used in various surface and air disinfectants and pesticides, as well as other products. Their main product is ethylene oxide. Methyl isocyanate is a dangerous product that has many severe health implications if exposed to a large dose. If a small amount of gas is leaked into the air, it will be broken down by water vapor in the air and sunlight and be rendered harmless (ATSDR). There are serious health implications if a person is exposed to a large volume of methyl isocyanate, but since it is uncommon to find in everyday life, it is not expected. Those at risk of exposure are those who work for a company that produces the chemical, like Union Carbide, and those who live near a plant where it is produced. The National Institute for Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Administration have made a comprehensive guide to safe practices using methyl isocyanate. This handbook of rules shows the best way to divert from worker accidents and deaths while using the chemical. Union Carbide has a long history of producing this product and has met huge profits by being a pioneer in the industry, but they are also responsible for the biggest industrial disaster ever.

Union Carbide was one of the first US companies to invest in India by creating Union Carbide India Limited (UCIL) in 1934. In the 1970's UCIL built a manufacturing plant in Bhopal for the purpose of producing pesticides due to the heavy focus of agriculture in the region³. The gas produced in this plant was methyl isocyanate.

On December 4th, 1984 disaster struck the entire city of Bhopal. The pesticide started to leak at night, and mixed with the smoke of cooking and heating fires in the cramped city. This created dense and deadly smog that settled in the city. Bhopal, like many Indian cities, have an over crowded and poorly built slum where people live packed in small shacks with narrow roads running through out, if there are any roads at all.

When first hit by the smog, the eyes, nose, and throat start burning and it becomes difficult to breathe, followed by an extreme feeling of nausea (ATSDR). This caused mass panic as the city slum poured out of their hovels and began to run to try to escape the smog. As they ran, they toppled over in pain from the pesticide attacking their respiratory system. The herd trying to escape trampled those who fell.

When the smog lifted it revealed the thousands left dead that night, but there were more to come. The chemical is carcinogenic, and a rash of cancer and leukemia spread throughout Bhopal and the casualty count from these diseases is rising still today. The leak has been linked to miscarriages and birth defects for those pregnant during the disaster, further adding to the body count²¹. There is no complete count to the dead left by this tragedy, initial reports from the Indian government were around three thousand dead. Other agencies, both private and government estimate up fifteen thousand dead, and that is still climbing due to contamination of drinking water and disease that continues over a quarter century after the disaster¹⁸.

This tragedy has left the Indian people wondering how a tragedy of this magnitude happened. The case has been brought to court and is an ongoing debate about who is responsible and what exactly happened. In 1989 a settlement was made between UC and the Indian government in the sum of four hundred and seventy million US dollars. A further investigation

revealed the gas that leaked is highly reactive with water, and an employee must have allowed water to enter the gas' holding chamber¹⁸. Water is used to flush the tanks when it is empty. This reaction caused an explosion that blew out the safety valves and let the toxic gas escape the facility. This conclusion from the investigation put eight members of UCIL in jail for death due to negligence, which was a two-year sentence and they were convicted in July, 2010²⁰.

Prevention

Due to the dangerous nature of the products Union Carbide produces, it has safety measures in place in its plants, but these measures were not enough to contain the devastation felt in Bhopal. In this plant the only safety precaution is the valve that was involved in this leak. This one precaution left this holding tank vulnerable for an accident like this, and management must have not planned on a reaction this strong.

The culture must have not valued safety as a top priority if the precautions were limited. OSHA has since made very clear regulations on the type of chemicals used in the pesticide and during the time of the trial, the Indian counsel used OSHA documents as evidence against Union Carbide²⁰. The most compelling evidence against the culture of safety is the statement of the man who was responsible for allowing water into the holding tank. When questioned about monitoring the valve that ensures the valve was shut and would not malfunction or blow out during flushing, he said "it's not my job". This man was recently demoted to this position, and was poorly trained and uneducated as to the dangers of the MIC gas in the tank, except that it burned his eyes a little when a valve leaked small amounts out. There was a general loss of morale in the over worked and underpaid staff that ultimately lead to the deaths of thousands¹⁷.

Response

After the leak, Union Carbide tried to mitigate the situation by applying aid to the citizens of Bhopal, but the damage was extensive, and their donations were minimal. Settlements in court demanded four hundred and seventy million dollars in aid and to settle with individuals, but it took until 1989 for that settlement to be reached. Union Carbide did not readily give money and tried to deny blame for what happened to the city of Bhopal. There was little immediate physical response by the company to help those affected. It took a long, drawn out legal proceeding to force Union Carbide to produce some sort of aid to the area.

The image of Union Carbide was completely ruined by this catastrophe, and they did little to show that they cared about what happened. The court finally settled that Union Carbide would have to provide \$470 million in aid and recover to Bhopal. After another three years, as a part of the settlement, UC had to sell its Bhopal plant to build a hospital in the city for those affected by the gas¹⁴.

The public was also looking for someone to blame for the accident. The high-ranking personnel in UC did not resign from their positions or attempt to accept responsibility at all. This too was brought to court, and took even longer to find a guilty verdict. After twenty-six years in court, only eight employees of Union Carbide were found guilty of death by negligence, which is a minimal sentence of just two years¹⁸. This has caused great unrest to the survivors of the gas leak, as well as from those who have to live in the conditions as they stand now, with contaminated water and completely unsafe areas.

Conclusion

Union Carbide failed in all aspects of this crisis. They overworked and under paid workers, making them ambivalent to the poor safety surroundings. They were not educated in the

dangers of the gas and only considered it a minor irritant because the holding tanks were poorly maintained and leaked small amounts into the air in the facility. There is no evidence in UCIL that there is any trace of a culture of safety. They operated with complete disregard to safety and with poorly trained employees and inexperienced managers⁷.

Further more, UC failed in its response as well. They were not ready to take the blame and begin recovery. Those in charge decided to take the case to court, rather than voluntarily aid the community. This made response slow and it took years for the large sum of money demanded from Union Carbide to reach the citizens of Bhopal. It took even longer to find a guilty party. After twenty-six years of trials, eight employees were convicted, and only sentenced to two years in prison. A conviction is supposed to bring closure to those who were affected by the crisis, but this only enraged them further.

Bhopal is left in tatters from the worst industrial accident in world history. Union Carbide did everything wrong from prevention and safety, to recovery and response. This accident crippled the company and has put a stigma against it for years. This accident caused tremendous damage and Union Carbide made it worse by not accepting responsibility and responding properly.

Hurricane Katrina and the City of New Orleans

August 29, 2005 will always be remembered as the day Hurricane Katrina ripped through New Orleans, Louisiana. The hurricane brought 140 mile per hour winds and a water surge of 20 feet⁹. Over 80% of New Orleans was left flooded and the death toll has already reached 1,800 with still hundreds of people still unaccounted for⁵. Now 5 years removed from Hurricane Katrina, New Orleans is still trying to recover. False promises and poor legal actions have

hindered any promise for the people of New Orleans. Although this catastrophe could never have been avoided, the prevention and response techniques could have lessened the effects of the storm.

Prevention

New Orleans has a 40% chance of a hurricane strike every year¹⁰. The city itself sits along the Mississippi River, the Gulf of Mexico, and multiple lakes around the region. From past hurricane events and to avoid the city from sinking year to year below sea level, a levee system was put into place to aid in keeping New Orleans above sea level and lessen the damage of a tropical storm or hurricane. The levee system began in 1728 and with each new river flood or hurricane; the levee system was raised for better protection⁵. From 1965-2000, the levee system changed to protect the area closest to the river and gulf with the addition of two walls and a huge drainage system⁵. Issues still remained, and conflicts arose between local and federal authorities on the last improvement for hurricane protection, which ultimately heightened the risk for the people, and city of New Orleans¹⁰. In the 4 years prior to Hurricane Katrina, over 400,000 residents lived below sea level in New Orleans and little had been done to maintain the levee and drainage systems¹⁰. Scientists warned government leaders that if a large hurricane would to hit New Orleans, the city would be crushed.

Response

Looking at the destruction of Hurricane Katrina, the main causes of New Orleans flooding was due to a lack of maintenance of the levee system, the drainage system unable to pump out the amount of water entering the city, and the lack of upkeep to build a hurricane defense system for the city. Over 80% of the city was flooded or damaged due to the hurricane, thousands were forced to leave their homes for shelter such as the Superdome or hospitals, and

hundreds were still missing. To make matters worse, the evacuation system was poorly executed leaving a majority of groups such as the African-Americans, poor, aged, and infirm members to fight the storm on their own¹⁴. Both local and federal governments response to the catastrophe were well intentioned but executed poorly. The government followed the four-step plan of emergency, restoration, reconstruction, and commemorative but they never realized how long and how much each step would take¹⁴.

Conclusion

The damages done by Hurricane Katrina are still being repaired and the city of New Orleans is still in the reconstruction stage. Some have stated that former President George Bush loose of his presidential credibility partly due to his lack of response to the crisis in New Orleans. Today, New Orleans has been able to withstand the past five years of hurricane season and the city is returning to normalcy. In doing so, the federal government has stepped in to help repair and strengthen the levee system to withstand hurricanes, fixed the drainage system, and improved building codes to protect against wind and rain conditions⁵.

The Virginia Tech Shootings

Sadly, throughout America's college history, there have been events that have left the nation in shock and awe. On April 26, 2007, Virginia Tech experience such an event that became a national panic when 33 were left dead and multiple injured as a shooter came on campus and opened fire within an academic building before taking his own life. It has been 3 years since the shootings and still Virginia Tech students and faculty are mourning and remembering the lives lost. The school, along with every other school nationally, has done all it can to avoid this event from occurring ever again.

Prevention

Prior to the Virginia Tech crisis, the worst campus shooting event in American history occurred in 1966 at University of Texas where Charles Whitman climbed to the 28th-floor observation deck of a clock tower and opened fire, killing 16 people before he was gunned down by police¹⁷. There had been other shootings on various campuses leading up to the Virginia Tech crisis but little had been done from a legal standpoint to avoid students and faculty from being allowed to carry firearms. What made the Virginia Tech crisis so unique was the shootings were taken place in two different locations, a dormitory and an academic building, at different times during the day.

The Police Chief for Virginia Tech stated that he and his campus force were in the process of sealing off the first shooting location, notifying the student body that an incident had occurred, and collecting evidence when they had found out about the second set of shootings. Protocol was to seal off the first building and notify the student body once all the evidence was collected. “Chief Flinchum said that initially officials thought that the shooting was ‘domestic,’ suggesting that it was between individuals who knew each other, and isolated to the dormitory. He said the campus was not shut down after the first shooting because authorities thought that the attacker may have left the campus, or even the state”¹⁷.

As for the shooter, Seung-Hui Cho, warning signs were given that he may become destructive that the school had ignored. Lucinda Roy, who was a professor at the university at the time, had been approached a few years before from students who were afraid to be around Cho. Over the next few years, Roy tried privately tutoring Cho to reach out and help him. At this Roy tried contacting multiple departments on campus to try and get Cho the help he needed but under

the Virginia Tech policy, a student must ask for his or her own help and not by another person. "I was told that - that would never happen," Roy said. "Because I was essentially requiring a student to seek counseling"?? .

Response

The first shooting occurred around 7AM in a dormitory where Cho had shot and killed two people. From there on, Cho went to an academic building a few hours later. In the academic building, Cho chained up all the doors so that no one would be able to enter or leave with ease. He then open fired within building killing 30 students and faculty members, injuring many others, and finally taking his own life.

As stated before, campus police got the call of a shooting occurring in a dormitory and began zoning off the area for evidence. Since they had originally thought that the shooter was considered not a student, the police never notified the student body of the dorm shootings until 9:30AM, roughly 2 hours after the first shooting and during the second shootings. To this day, students and faculty are in uproar that the campus police took that long to notify the student body even if it was considered a "domestic" case.

Conclusion

Although it is extremely difficult to prepare for an event such as the one Virginia Tech experienced in 2007, had there been better procedures put into place, maybe the severity of the event could have been lessened. Cho had given off warning signs that Professor Roy tried addressing to the university. And it took the campus police nearly 2 hours to report the first shooting to its students and faculty. Had the students and faculty found out about the shootings sooner or the university taking control and locking down campus sooner, maybe the second shooting in the academic building could have been avoided.

Methodology

Our methodology of our data collection described the specific way in which we interviewed the administration responsible for campus and student safety. We explained why the method we chose was important and why we chose it over the other options. Also included is how we used and present the information gathered by conducting interviews.

Part I: Data Collection thru Interviews

The interviews were the most important tool and bulk of our results. We interviewed the safety administrator of each college to help better our research and determine if our assumptions on management safety techniques are true. We interviewed the administrators in person with a voice recorder. We wanted to use a recorder instead of notes because we wanted our data to be accurate and be able to record everything that is being said. We did not need to use video because what the interviewer says will be more important than the scene of the interview. Also, any data that was shown to us by the interviewer, we have asked for a copy if the document was important and relevant. The questions asked to each administrator were the same and can be found in Appendix A. Sub questions based on the response were asked to gain deeper information on the given subject. Contacting the head safety administrators was important because we were then able to compare the data collected and find short comings in the plans. All of the safety administrators allowed us to use voice recorders, except the police chief from Becker. He did not want to be scrutinized and his program be held strictly accountable for everything he said.

The questions were based off of our crisis management model and focused on four main aspects; prevention, response, culture, and public relations/ business continuity. By using these four aspects we were able to conclude which college is excelling in crisis management and providing a safe environment for its students and faculty. For further explanation on the importance of each interview question can be found in the next paragraphs.

Prevention

What has been the most concerning aspect in regards to safety about being at (insert college)? How safe are the surrounding neighborhoods? Are they a cause for concern for the students and faculty? What physical systems do you have in place for issues such as fires, natural disasters, and human accidents? In order to understand the level of safety of each institution, we needed to determine what risks are involved. Different risks call for different ways to approach not only preventing an accident or crisis but also any of the other aspects in our model. Then it is important to look at the physical systems already put into place to determine which college is more prepared for an accident or crisis were to occur.

Culture

How much time and effort is spent on safety? What has been the most common accident on campus? Determining the culture of each college will help us better understand where each college stands on the importance of safety. The culture of safety of the school is also based off their plans for how to handle a crisis. From these plans we determined how dedicated the administration was to crisis management. Also, we implied how these plans would work during response by asking about live drills involving the police on campus.

Upon finishing our interviews, we gathered to transcribe certain quotations we found valuable. We did not transcribe the entire interview verbatim because the minute details of speech, interview techniques and conversation were not pertinent to our project. We listened to the recording and pulled quotes we found especially valuable to our study. In the case of Becker, where there was not a recording device, we simply paused to write down what was said when a quote that was usable was said. This allowed us to quickly sort through our information and present accurate quotes supporting our investigation.

Part II: Data Presentation

Our interviews are broken down and the school is explained by School Profiles. Each profile consists of a Background, which involves any long standing practices of the school, the overall atmosphere and any unique safety characteristics on campus. Our crisis management model was then broken down and applied to the information gained from the interview. Physical Systems involved alarms, notification systems, and campus police, as well as any documents explaining what to do during a crisis situation. Culture of Safety was focused on the plans that are waiting to go into action, should a disaster strike the campus. Also, it involves how knowledgeable the students are that they school is well prepared to handle a crisis. Our response factors, Physical Response, and Public Relations were morphed into one Response category. This is because there is little information on Public Relations for a school, so we amended Public Relations to include Business Continuity. We inferred the response by taking into account the detail of the crisis management plan and the amount the police drilled to ensure they knew what to do. Business continuity and PR was analyzed by affirming that such a plan exists and they confirm their resources regularly.

Our final conclusions and recommendations were input into a table containing the school, Physical Systems, Culture of Safety, Physical Response, and Public Relations/Business Continuity. In this table we summarized the details of what consists in each school's crisis management plan. These details are both strengths and weaknesses of the plan. We cannot make exact recommendations, because we are not professionals. We lack the overall knowledge of the schools budget for safety, but we have identified what we would like as students.

Results & Analysis

School Profiles

Worcester Polytechnic Institute

Background

WPI is one of New England's premier engineering schools. It is known worldwide and attracts students and professors from local towns to a global scale. The school was founded in 1865 by John Boynton, Ichabod Washburn, and Stephen Salisbury II. These men were all in the manufacturing and trade field. The founders wanted to teach science and vocational skills, and formed the motto "theory and practice".

The school has a strong military history, starting in 1870 when students formed the Salisbury Guards. In the 1960's, after the Army ROTC program was approved, it was mandatory for students to participate for at least one year. For the majority of WPI's history, the student population was all male, only in the 1970's were the first female students admitted. Students admitted are from a wide range of social norms. Most students are engineering or science majors, but there is a growing business community at WPI. The student population on campus is not very diverse, but there is a student population from outside the United States.

WPI has an open campus, meaning there is no guard or physical barrier to the rest of the city. The school is not in a particularly notorious area, but it is close to one and it is not unheard of for students to be attacked by a non-student. A unique aspect of the WPI campus is the Nuclear Power Reactor. While the reactor is currently being decommissioned, it still poses as a security threat to the students, professors and surrounding population.

Janet Richardson is the Vice President of Student Affairs at WPI and has allowed us to interview her in regards to safety procedure. She over sees student lives at WPI and is in charge of delivering services to them, and safety is one of the services she has to provide. Ms. Richardson has been in student affairs for twenty-four years at WPI, and she has been the Vice President of Student Affairs since 2004³².

Physical Prevention Systems

WPI is adequate in its physical prevention systems, but has room for improvement. There are sufficient fire and smoke alarms in the buildings on campus, as well as ports in which students can initiate the alarm. There are also small safety booklets available in the buildings that further explain the process of how to react in case of an emergency, but they are very basic and outline common knowledge of a fire drill.

On campus there are also numerous police officers and vehicles. The officers are armed, and have been for a significant part of WPI's history. There was no protest in the arming of the campus police because of the deep military history in the school. The police were armed when the school was ROTC mandatory, so no students had problems being around weapons, and they understood their use. "WPI Police have had to draw their weapons and I want them to be as protected as possible when they put themselves in harm's way" says Janet Richardson. Police have to be protected, and the students have to be comfortable around them in order for them to be effective.

Also on campus, there are emergency notification stations. These are pillar like structures that directly connect students to the WPI police department by the touch of a button. These are in place to insure a quick response to emergencies. They also allow for the quick transference of information if there is a major emergency. This is vital to letting the rest of the campus know

there is a threat, and it gives higher police forces advanced contact to initiate their crisis command.

WPI also leases the program “Connect-Ed” that allows the Crisis Team to effectively communicate with the student population. Connect-Ed is an automated service that calls, texts and emails individuals informing them if there is a crisis at hand. The system does numerous tests to ensure it is working properly.

Missing from physical preventative systems at WPI is active drills and large-scale rehearsals for mass incidents. While there are simple fire drills, there is a lack of drills that include outside resources, like Worcester Police and EMS units. The last drill that included all the forces involved in an on campus casualty event was over a year ago. That drill involved students and professors and was able to build trust and show the WPI population that there is a plan prepared for many large emergencies on campus.

Culture of Safety

Where WPI may lack in physical prevention systems, they compensate with a culture of safety. While the school has fostered a more conservative and militaristic view to the campus, there was no real safety plans until the September 11th Terrorist attacks. At that point key administrators in the school realized they needed to come together and make plans in case serious disasters were to take place on or around campus. “Prior to the 9/11 crisis, we weren’t really prepared and we also realized we didn’t have a Crisis Team... We need to be prepared for these types of situations, what if something was to happen here or in the city?” said Ms. Richardson. These were not only questions asked, but WPI leadership met together and formed the Crisis Team and it resulted in very detailed plans about disasters and business continuity.

There is an extensive manual outlining what needs to be done during a disaster and who specifically should carry out the job. Also, there are extensive business continuity plans to keep the students, professors and staff safe in case of an incident that spans the course of a couple days. In the case of a disaster on campus, there is a template drawn up with specific responsibilities laid out in it. This handbook is straightforward instructions on multiple emergencies that can occur on campus. When asked why this manual was not available to the students, Richardson responded by saying the book is put together with step-by-step instructions. In reality, an emergency is fluid, with multiple actions going on at the same time. So, some steps may not be needed in all emergencies. The reason the booklet is not available is because the police do not want to be liable for missing a step outlined. Also, there is confidential contact information that should not be leaked to the public.

The plans to respond to an emergency are only comforting to someone who knows about them. WPI does offer a website called Emergency Preparedness. This site serves the purpose of informing the students and faculty that plans do exist that will keep them safe in a crisis environment. It also notes that WPI continually trains to be ready for such a crisis, but says that training is mostly tabletop overviews, not actual drills.

WPI has a good culture of safety by promoting that students are safe on campus. They also back up the claim by having extensive plans readily available and a physical way to display the information. The resources used to create all the plans and training means WPI places a high value on safety. Students are ensured they are safe and they are protected by detailed plans and accountability is placed on the administration to keep students safe and controlled in a crisis situation.

Response

Based on the extensive plans provided by Janet Richardson, WPI has readily available resources to be employed in case of a crisis. WPI police are trained to control the situation until Worcester Police arrive and assume control. Police units are commanded by a mobile command post that controls city police, WPI police, Emergency Medical Services, and Firefighters. There is also a chain of command already established, so control of the situation is not lost.

While there is no physical disaster we can study to properly evaluate how the campus would handle an emergency, we can infer based on plans made and problems others had in the past. Based on the Virginia Tech shooting, the biggest problem in responding to a crisis is information communication. Janet Richardson explained to us, in the case of a fire in a building, “you see kids coming down the stairwells, and they’re already on the cell phones talking to mom... then all of sudden their mother is calling us at this point because she knows more than we know. And then somebody is putting it on Facebook and it seems everyone in the world knows except us. It makes it harder to confirm what you are hearing.” This problem is assigned to Ms. Richardson to handle incoming information and determine its validity. While students need to know if there is an emergency, she needs to know if the information is true.

WPI has continuity plans that cover the entire WPI community. These plans are to ensure WPI can sustain their students and faculty, and quickly regain regular working order. An example of a school's business continuity plan is if WPI were to lose power, there is knowledge of how many days of food is available for students and faculty, where shelter is available if the campus is inhabitable, and further crisis's that take time to recover from. Information is also protected in an event that causes that plan to take place. This information and data will allow for professors to still be paid and other vital information to be monitored.

Recommendation

In order for WPI to have a complete crisis management plan, they need to improve on live rehearsals for disasters, and educate the students, faculty and staff of the detailed plans they have in place. The rehearsals would make everyone on campus more aware of the police and their drills. It would also establish better relationships between the students and police force. Educating the population involved with WPI would improve the culture of safety. A student with the knowledge that the administration has a plan for almost any disaster will feel safer than a student who does not have that information.

Conclusion

WPI is an engineering focused school, so naturally there is a very defined and detailed plan to ensure the safety of students and faculty. These plans promote a great culture of safety and composure on campus. The plan could be more fulfilled by increasing the amount of drill and training the police execute. Janet Richardson said on the last time they had a full drill, which was a number of years ago, they “have students playing different roles, people mobilized...which creates relations, which is the ultimate goal”. This familiarizes students with the presence of a larger police force if something is wrong and encourages cooperation, not fear. Otherwise, WPI does a great job of being able to tell the WPI community is safe and have physical plans that ensures their safety and the administration’s control if there is a crisis.

Worcester State University

Background

Founded in 1874, Worcester State University was originally known as the Worcester Normal School. It started as one of the many teacher-training schools started in the 19th century. During the second half of the 19th century, Worcester’s need for skilled teachers rose dramatically when the city emerged as an industrial leader. Between 1866 and 1894 Worcester’s

population more than tripled from 30,000 to 100,000 while the school population grew from 6,750 to 17,073 pupils. Initially offering two-year and three-year programs of study, Worcester Normal School's curriculum evolved to meet the evolving demands of the teaching profession. In 1921, the school awarded its first Bachelor of Science in education, under the leadership of its third and last principal, Dr. William B. Aspinwall.

By 1963, the former teachers college had evolved into a liberal arts and sciences college, a transition acknowledged by the Board of Education in 1963 when it voted to change the school's name to Worcester State College. In 1974, the curriculum was expanded to include a B.S. in business administration and a B.S. in nursing, the first Bachelor of Science program for registered nurses in New England and the first to be accredited by the National League of Nurses. That same year, the University established The Graduate School, which offered several new master's degree programs.

Physical Prevention Systems

Like many of the Worcester Consortium schools, Worcester State collaborates and fully cooperates with Worcester city police and Massachusetts State police. These officer's do everything they can to help in any situation the school calls upon them for. Worcester State does have its own preventative measures. We interviewed David St. Martin, Worcester State's emergency coordinator about several aspects of this schools safety measures.

Worcester is a dangerous city to live in, never mind go to school in. when asked about the concerns of dealing with college age kids living in Worcester Mr. Martin answered: The most concerning aspect in regards to safety is the severity of alcohol-related calls seem to have increased over the past 5 years. We then asked him about the schools location as it relates to

safety. Mr. Martin told us “WSU is located in a relatively safe part of Worcester. Crime stats are available via the Worcester Police Department.”

When asked what physical systems does WSU have in place for issues such as fires, natural disasters, and human accidents, he responded, “Extinguishers; hard-wired smoke, fire and CO detectors, emergency call boxes, anonymous texting, emergency notification text and email, 24 hour police coverage, automotive and handheld PA capabilities, spill kits and training.” He then told us that students know how to use the basic fire extinguishers and call boxes but that police, fire, and faculty members knew how to use the more advanced spill kits and safety gear. When asked about how many officers work at WSU he replied “We have 17 sworn Officers, Emergency Coordinator, Parking Clerk, 2 Institutional Security Officers, dispatcher and a part-time Parking Enforcement Officer.” The sworn officers each carry a .40 caliber Glock 23 pistol.

Culture of Safety

The plan for command of a major incident mainly falls on the police, but the administration gives any resources available to the police to make their jobs easier and safer.

The most common incident on WSU’s campus is Alcohol-related or minor motor vehicle incidents. The police and administration try to educate the students and council them as best they can in order to prevent these accidents from happening.

Response

The tight communication and coordination between the campus police will allow for quick action in the case a crisis does occur. The main concern for the campus if there is an accident is communicating what is going on and relaying instructions to students. In regards to technology Mr. Martin told us “In my personal opinion, it helps by assisting us in getting timely

information disseminated to a large audience.” Clearly the WSU emergency alert system will accurately and efficiently inform students what to do and where to go in the case on a crisis.

We were informed that WSU does have a business continuity plan, unfortunately we were unable to obtain a copy. While we talked about the plan Mr. Martin told us that “the faculty and staff have access to the COOP plan and all members, including students have access to the Emergency Response Plan.” This continuity plan will allow for students and faculty to remain safe if a large crisis were to happen that debilitates the schools facilities.

Recommendation

For Worcester State, we feel that the college could adapt a more elaborate and detailed continuity plan. Not just a plan for what to do when a crisis occurs, but who involved is doing what so there is a set agenda for every scenario. This will help the students and faculty is on the same page when a crisis occurs. Also, we feel the college should involve the faculty more in their crisis management techniques through more drilling or informational seminars to educate the faculty so that they can be more aware and prepared for certain scenarios. Finally, if Worcester State could try to incorporate or involve the students in more proper crisis management techniques or drills that could help enhance the culture of safety on campus.

Conclusion

In conclusion we believe WSU is prepared for any typical incident and most serious incidents. The police have an adequate training and drilling program that will prepare them for the chance of emergency. Coordination with local forces allows the campus police to serve along side them in the event of a large crisis that requires additional forces. Worcester State administration allows the campus police force to handle emergency situations, which allows for direct communication within the force.

Clark University

Background

Clark University was founded in 1887 by an American businessman Jonas Gillman Clark and has remained as a small, private, liberal arts institution. It is only one of three New England universities to be a founding member of the Association of American Universities, an organization of universities with the most prestigious profiles in research and graduate education but withdrew from the organization in 1999 due to conflicting mission statements. Today, the university enrolls over 2,000 undergraduates and over 1,000 graduate students. Clark became the second university to embrace Ph. D. programs and prides itself on its “small research university grounded in the liberal arts, its urban location, and its tradition of community partnerships place Clark faculty and students in an ideal position to breathe life into the University's motto, ‘Challenge Convention. Change Our World.’”

Clark has just announced it has found its ninth president in its school history. Throughout its existence, Clark’s presidents have all had very liberal backgrounds from their first president, G. Stanley Hall, having a psychology Ph. D. to its soon to be current president, David Angel, having a Ph. D. in economics while also being influenced in the environment.

Clark’s campus is located in Main South which is considered right outside of downtown Worcester. The campus itself is enclosed mostly by a fence on Main Street but it penetrated by perpendicular streets cutting through the campus. The nearby neighborhoods surrounding Clark have been considered dangerous due to the amount of crime reported. But Clark’s Chief of Police Steve Goulet feels the neighborhood surrounding Clark gets a bad rep. “The battle that we wage between the perception (of the surrounding neighborhoods) and reality is a major

challenge. The perception is that when crime occurs it's automatically associated with Main South, which is just not truly justifiable. The press keeps pressing Main South unfairly.”

Paul Wykes, Clark's newly appointed Safety Administrator, and Steve Goulet, who has been Clark's Chief of Police for over 28 years, allowed us to sit down with them for an hour interview describing how Clark addresses their culture of safety on campus and the safety needed for its students and faculty.

Physical Prevention Systems

Clark has taken the necessary steps in making sure the students and staff on campus can use physical systems to feel and remain safe. Adequate fire alarms are found within any building, along with a safety procedure from accidents ranging from the common fire alarm procedures to what a student/ staff member should do if they see a bomb or shooting on campus. The booklet provides step by step instructions as to what they can do to help and remain safe along with a series of phone numbers the student/ staff member should call in case of the different emergencies. The campus also has card-activated systems throughout the campus that, when activated, only allow students and staff with access to the buildings by using their Clark card, 60 emergency phones waiting on call to make sure an accident can be reported, and a surveillance system (33 cameras) that the Campus Police monitors 24 hours a day.

Goulet and the Safety Staff pride themselves on their “Escort Service” which is a program that picks up and drops off students from one location to another by either their campus vans or in person. This allows students to feel safe when traveling throughout the neighborhoods that are considered dangerous or making sure no student is walking around in Worcester by themselves. Goulet also enjoys their “Escort Service” because it allows them to interact with the student body on campus and ask the questions pertaining to their safety. Questions range from

what the students have heard about crime within the Clark environment to if the student would be willing to share their phone number with the Safety Administration to allow for an easier access of information to reach the students.

Clark has employed a “Crime Prevention Team” that goes around throughout the year, especially during orientation, and interacts with the students to get their opinions on safety, educate them on what Clark has done to keep the campus safe and some of the procedures they’ll need to know, and ask for their information such as phone number to allow for a better flow of information. Along with the CPT, Clark employs 12 full time officers to Campus Police with 2 cruisers. These officers are also armed with weapons in case of an emergency.

Clark and its Campus Police do an excellent job of drilling and training throughout the year. Goulet makes sure his men are trained sufficiently with both their carry arms and also with long rifles in case of a crisis of a shooter on campus. He drills them twice a year in scenarios with “fake bad guys” where the police must execute the safety plan and eliminate the “bad guys” with air guns. They also coordinate with the Worcester Police Department, the Worcester Fire Department, and their EMS in drills pertaining to if casualties were on campus, what needs to be done. “We do drill. We do mock MCI drills, Mass Casualty Incident, with 10 fake victims throughout the floor. We had all our EMS personnel, all our university police, and everyone else we called, in a mock sense deal with 10 gunshot victims.”

Culture of Safety

The Clark administration has done all it can in embracing the surrounding neighborhoods around campus and implementing a culture of safety and unity. In 1985 the university and surrounding businesses and community groups came together and began rebuilding and

refurbishing the environment in Main South. Since then Goulet feels that Clark isn't a campus found within surrounding neighborhoods, but in fact part of the neighborhood.

Clark, in regards to safety on campus, is beginning its first stages in completing an extensive Business Continuity Plan that will give the faculty a more detailed view into how to address certain scenarios. For example, a possible scenario could be if the kitchen on campus had a fire and wasn't able to produce enough food for the students, there needs to be a plan as to how the students will be able to eat without the use of their kitchen. That is why Paul Wykes has been hired to help aid Clark in completing this plan. The importance of a continuity plan will change the culture of safety within the campus giving the students and faculty a sense of relief knowing that all possible scenarios are covered and can be handled accordingly. In the past, Clark has only been able to deal with an emergency after it has occurred. Clark learns from each emergency that the college wasn't prepared for. For example, a few years back a series of underground floods knocked out some of the power at Clark which the college wasn't ready for. "When flooding occurred around the university, power was knocked out. At the time, we weren't ready. But now we are, we had to bring in portable power, portable lighting so the campus can remain functional."

As for an everyday sense of safety culture, Goulet and his men are always on constant duty showing their faces on campus to ensure the students feel safe. Along with the Campus Police, the physical systems such as the card-activated system give the students another sense of safety when living on campus, especially at night.

Response

Clark has prided themselves when a physical response is needed; they are the ones who take charge. When an emergency occurs on campus, Clark remains in control from beginning to

end. Although, if a more serious matter, the Worcester Police Department for example may show up, Clark still remains in charge and takes control of the situation while the WPD will be there for their support and help any way they can.

Although a campus can never truly be prepared to respond to every crisis, Goulet makes sure his men are ready to take control of the situation and handle it as best they can. There have only been a few moments on a national scale when Steve Goulet looked back at his own campus and realized that they were not ready. A major example was the Virginia Tech shootings a few years back. “In respect to the VT shootings, when it happened I took a step back and said ‘We are not ready’. And we are so much more ready now.” This occurs a lot when an organization watches as another organization is unprepared for an emergency and the events that occur after it. After the VT crisis, Goulet took a step back, realized his staff was not fully prepared if that same situation were to occur at Clark, and made sure that plans were put into motion so his staff would be able to handle the situation efficiently.

To ensure the students safety during a crisis, Clark stresses that students need to be informed any way possible. The best way today is through technology. This is why Goulet created the CPT to gather the student’s information such their phone numbers so they can inform them as soon as possible.

Recommendation

We feel Clark’s major concern for crisis management is that they do not have an extensive business continuity plan. We recommend that the school possibly devote a staff dedicated to safety and the creation of the continuity plan because of its importance. Without a plan in place, the campus can never truly be prepared for every scenario and how to handle it properly. As of right now, Clark has Paul Wykes as the Safety Administrator but he is also a

Business Manager which means he cannot spend all of his work to safety which could be why Clark has been lacking a sufficient continuity plan.

Conclusion

Even though Clark is still in the process of creating a more detailed business continuity plan, the safety staff still feels that they have created a culture of safety within the campus. Clark has done an excellent job with coordinating with local forces in case of an emergency. They also have done more than necessary amounts of drilling and training to ensure that the staff on campus is prepared and can execute the safety plan efficiently.

Becker College

Background

Becker College is unique from all the other Worcester colleges in that they have two campuses, one in Worcester and the other in Leicester, located 10 miles for each other. The Leicester campus first began as an academy in 1784 while the Worcester campus, founded by E.C.A. Becker, didn't begin till 1887. It wasn't until 1977, that the two campuses joined together to form the Becker College of today. The college is relatively small in size enrolling roughly 1,750 students.

In regards to safety, having the two campuses in different towns presents new challenges. The Worcester campus is very open and found within a neighborhood in the heart of Worcester, while the Leicester campus is more enclosed, in a rural location, and away from the city. Becker's Police Chief David Bousquet has been able to handle the two campuses' safety needs. He let us interview him in order to find out how he and his department keep Becker College safe.

Physical Prevention Systems

Since Becker is a small college, and the college being split into two campuses, the college doesn't need a lot of physical prevention systems such as Clark or WPI. Becker does have phones outside every building in case of any emergency, adequate fire alarms, and also key access cards to those college buildings to make sure only Becker students/ faculty can be allowed entrance. Becker has also provided a guide on their website to inform students and faculty how to proceed if an incident or accident is occurring on campus.

Becker and Chief Bousquet are proud of their training efforts throughout the year to help the campuses remain safe. Bousquet explained that he and everyone in his department is constantly training by taking 12 courses online each year. These courses range from basic CPR to dealing with an active shooter on campus. Bousquet and his men also train with both the Worcester Police Department and the Leicester Police Department throughout the year. In regards to the students and staff at Becker, Bousquet provides the faculty with workshops so that they are prepared for certain situations and has Crime Prevention Programs to its students such as safety seminars so that the students can remain living safely on campus and RAD (Rape Aggression Defense) seminars.

Becker does employ officers at each campus and they are armed. Bousquet has 10 armed officers, 5 security guards, 4 safety personnel, and 10 escorts under his department. The escorts are used to help transport the students throughout Worcester and Leicester.

Culture of Safety

Although Becker does not have a Business Continuity Plan, they do have Emergency Management Plans put into place within each department on each campus. Each plan is basic in explaining the types of accidents, incidents that could occur at Becker but each plan is unique for

its own department. They are also constantly changing and updating so that the faculty can be ready for anything and everything.

After conducting the interview with Chief Bousquet, we came away feeling that Becker's most important factor in remaining a good culture of safety was communication among other colleges but also any other sources that can aid in keeping everyone safe. Becker remains in constant communication by attending the monthly MACLEA (Massachusetts Association of Campus Law Enforcement Administrators) meeting. During these meetings, each Police Chief from the Massachusetts colleges come together and discusses any issues arising within their colleges and possible techniques that seem to be working. Along with attending MACLEA, Bousquet also attends IACLEA (International Association of Campus Law Enforcement Administrators) yearly to discuss larger matters and remain in contact with colleges all over the United States.

Response

With the Emergency Management Plans, Becker and Bousquet feel they are prepared to handle any situation. Bousquet explained that the more severe the situation, the less Becker will be in control in and let outside personnel such as the WPD and LPD step in and take control. So far, Chief Bousquet and his staff have been able to handle any response from a larceny to even a homicide on campus. And although Bousquet has never come across a time when his men weren't prepared, he understands that you can never be prepared for everything. He used the example of the crisis going on in Japan right now, where an earthquake disabled a nuclear power plant leaving millions in Japan in danger, and how the crisis was above anyone's control. With Becker, Bousquet's main concern is the fact that the Worcester campus is so open that outside

factors can contribute to the safety of its students and faculty. That is why he coordinates so much with the WPD and has them frequently patrol the campus.

Recommendation

Since Becker is so unique compared to the other Worcester colleges in that it has two different campuses found in two different areas, we feel that Becker would be best suited if they tried to implement a more in-depth continuity plan that encompasses both campuses. This plan can then be used on both sites and both faculty and staff can be on the same page no matter the location. Also, since Becker's Worcester campus is found intertwined within the neighborhood, we feel it would be beneficial to implement surveillance cameras throughout the campus to monitor and control outside elements entering the campus. With the cameras in place, the students and staff can have a better feeling of safety while on campus.

Conclusion

Becker College has been able to create a culture of safety on both campuses by constantly communicating with surrounding colleges and coordinating with both the WPD and LPD. Although they don't have a proper Business Continuity Plan, they do have Emergency Management Plans for each of their departments so that they can still be prepared for any situation. Becker Police does more than enough training compared to other colleges around Worcester and is the leader in communicating and discussing successful safety techniques. Because of Becker College having two campuses and the size of the college itself, they have done more than enough to keep both campuses safe and give the students and faculty a sense of comfort.

Final Report

The schools we analyzed in the Worcester Consortium have different strengths based on their belief of what a crisis management plan is. Our model has shown a different way to look at

their plan and show weaknesses there. We can find basic characteristics that are missing and make informed recommendations based on our research and what we want as students in Worcester.

The following chart explains what we found. We applied our model to the four schools and have found what they did well and where they are lacking. Finally we made informed recommendations. Our recommendations are based on our model. We cannot comment on how feasible our recommendations are financially because the budgets for the schools in regards to crisis management are confidential.

Figure 1: Crisis Management Model

School	Physical Systems	Culture of Safety	Physical Response	Public Relations/ Business Continuity	Recommendation
Worcester Polytechnic Institute	Emergency Notification System Armed Campus Police Building Alarms Pamphlets briefly explaining emergency procedures Limited amount of live drills Students not involved in safety	Extensive disaster planning Great communication with outside resources Plans are not well communicated with Student Population	Mobile Command Post (MCP) Campus has equipment to back up MCP Command changes hands from Campus, to City, to State Police	Thorough plans already exist Administration is accountable Campus is able to sustain for a known time Backup resources are readily available	More live drills with all response units. Establish better relationship between Campus Police and students by using rehearsals Educate WPI population on Crisis Management plan to reassure safety
Clark University	Armed Campus Police Building Alarms Card-Activated system Surveillance cameras “Escort” service Year-round drilling Not enough involvement in student safety	Connecting with the surrounding community (Refurbishing the neighborhood) Constant communication with surrounding colleges regarding safety No official Business Continuity Plan	Clark takes full responsibility WPD and outside sources assist Clark during crisis	Emergency Plans for each department so they are prepared for any incident Constantly improving the surrounding neighborhoods Connects with community	Needs a more thorough crisis management plan Develop a better business continuity plan Create an administration and campus police run Crisis Management Team
Worcester State University	Emergency Notification System Armed Campus Police Building Alarms	Collaboration with Worcester police and Massachusetts State Police. Plans are not well communicated	Armed officers Command changes hands starting with Campus police, to City police, to State police.	Business Continuity plan in place. Sustainability for a known period of time. Emergency	Needs a more developed business continuity plan. More faculty involvement with crisis management

	<p>Not enough student involvement in safety.</p> <p>Limited amount of live drills</p>	<p>with Students</p> <p>Communication with Worcester Consortium Schools.</p>	<p>Collaboration with Worcester Fire Department.</p> <p>Mobile Command Post backed up by City and State Police</p>	<p>Response Plan that students have access to.</p> <p>Backup resources readily available</p>	<p>More live drills with all response units</p> <p>Educate WSU faculty and students on proper crisis response</p>
Becker College	<p>Armed Campus Police</p> <p>Building Alarms</p> <p>Emergency Phones</p> <p>Constant Training (Online courses, workshops, coordinate with WPD and LPD)</p> <p>Online Emergency Booklet</p> <p>Two radio services (One for each campus)</p> <p>No surveillance</p> <p>Not enough student involvement with safety</p>	<p>Great communication with other colleges regarding safety (MACLEA and ICLEA)</p> <p>No official Business Continuity Plan</p> <p>Emergency Management Plans with each departments</p> <p>Coordinates with WPD and LPD</p>	<p>Becker coordinates with WPD and LPD with any crisis</p> <p>Takes control until outside sources arrive, let others take control</p>	<p>Emergency Management Plans for each department</p> <p>Two campuses, two different surroundings</p>	<p>Needs a more in-depth Business Continuity Plan that encompasses both campuses for large scale scenarios</p> <p>A possible implementation of surveillance cameras to control outside elements coming on campus</p>

Conclusion

Colleges in the Worcester Consortium place a large amount of time and effort on ensuring that the administration is prepared, police are equipped, and students stay safe during a crisis. Our research of large crisis situations and disasters have given us an outline of what consists of a well rounded crisis management plan would consist of in any organization. We found that the plans for schools include physical systems, culture of safety, physical response and public relation communications. For the most part, public relation was not as strongly included, but still exists. The general management of the press is a member of the campus police is assigned to handle media.

Worcester State University relies heavily on the forces of the City and State Police to assist them in a large crisis situation. The campus police are armed and trained to handle many situations, from petty crime, to large casualty emergencies. They train adequately, but do not have many drills and rehearsal, especially to establish relationships with the students.

Becker College is developing a crisis management plan, but it is focused on crime more than large scale disasters. They rely heavily on Worcester Police because the campus is embedded in the city. Their best quality is the priority they place on student safety. Their main campus is located in a somewhat dangerous area of the city

Clark University has a very well trained and equipped police force. They are the driving force in the crisis management effort. They have great training and drilling which allows them to handle most situations without outside help. They stand out in the schools we analyzed because

of how much they pride themselves in being self-sufficient. The administration is focused most on changing the perception of safety at the school. Clark is in a dangerous area, but the campus itself is very safe. The administration is also in the process of building a better culture of safety and more extensive crisis management plans. Physical prevention and response is valued very highly on Clark University's campus.

Worcester Polytechnic Institute has an extensively detailed crisis management plan. The plan details steps to take and responsibilities to individuals to ensure all aspects of a crisis are covered. Their plan makes the culture of safety at WPI very strong. The administration in charge of the institute is very focused on student safety, not only with crime, but also with large-scale disasters. The school has great communication with city and state police, who would come into command if a large-scale disaster were to occur. WPI could improve their Crisis Management Plan by conducting more drills that involve students and faculty, instead of tabletop movements and plans.

The schools most basic similarity is their commitment to keeping students safe. All the administrators had either complete emergency plans or developing plans. They recognize their responsibility to keep students, staff and faculty safe in day-to-day operations and in a mass casualty situation. The main area where all the schools are lacking is conducting live drills and rehearsals. This gets the campus police, city police, and other emergency units build cohesion by working together. Drills conducted during school hours with student and faculty participation builds strong relationships between students and emergency response teams. This promotes a safe environment on campus.

Through our background research and case studies, we have found that our crisis management technique model of culture of safety, physical prevention systems, physical response, and public relations relates directly to how schools handle crisis management. The focuses we found offer a different aspect to analyze a crisis and spot weaknesses in a crisis management plan. We have created awareness for where those weaknesses lay in the schools we analyzed and it is up to them to improve upon it. For instance, during our interview with Janet Richardson of WPI we commented that their planning is great, but their culture of safety would be improved if the students knew more about it. The day after the interview a school wide email was sent explaining that there exists an extensive plan to keep students safe, as well as links to more information about the WPI crisis management plan online.

It is obvious that any organization needs some sort of emergency plan, and law requires many preventative measures. What we learned from studying crisis management is the scope and depth a plan has to cover. The model we created covers a wide range of factors that contribute to a plan, but the elements to each factor go very deep and cover a vast amount of information. Our model's purpose is to be able to create parallels between different disasters in different industries. The model proved to be effective because we were able to tie in different disasters in the business world and apply their plans and what they did before, during and after to how a college or university prevents and responds to a crisis situation. Our project has yielded a new way to look at an organization's crisis management plan to identify weakness and create awareness so all the stakeholders in and around the organization remains safe.

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