

# The findings of an updated empirical study of the application of criminal law in non-terrorist disasters and tragedies.

Denis Binder

Dale E. Fowler School of Law  
Chapman University, USA

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## Abstract

*An exponential growth in the application of criminal law in non-terrorist disasters and tragedies, whether of natural or human origin, has occurred in the New Millennium. The advent of social media with the ubiquity of smart phones allows eyewitnesses to record and post the unfolding of these in real time.*

*The criteria for listing the incidents are fatalities, except for a few large-scale environmental disasters, accompanied by the initiation of criminal proceedings. 54 incidents were tabulated before 2000, compared to 187 so far in the New Millennium. The prosecutions can be both against corporations, the individuals involved with the wrongful act, and government officials for corruption and derelictions of duty. The most common incidents are structural failures (building collapses, bridge failures, roof collapses), maritime accidents, especially sinking ferry boats, and mine disasters. Roughly 2/3 of the cases are in Asia. China with mine disasters and India with structural failures lead the list.*

*A common feature of most cases is the "cutting" of corners by owners, developers, and builders, often combined with corruption by public officials. Poor construction with shoddy materials is a common denominator of the structural failures.*

*Decision makers need to factor the risk of criminal prosecutions into their calculus of risk. Civil liability is often not a major factor in risk analysis in many countries, but criminal liability poses the risks of prison, substantial fines, probation, loss of employment and family, embarrassment, ostracism and shame, and substantial legal fees.*

*Spectacular disasters, such as the Triangle Shirtwaist Factory Fire a century ago and the 2013 Rana Plaza collapse in Bangladesh prompt changes in conduct and government oversight.*

*However, the number of prosecutions in China, India, and other countries in the disasters constitute a small percent of the large number of incidents, indicating operators have not changed their behavior.*

## Introduction

Criminal law has accompanied civilization for millennia. Natural disasters have plagued civilization for millennia. Both the Gilgamesh Epic and Old Testament tell of an epic flood. The 79AD eruption of Mount Vesuvius destroyed Pompeii. Humans also contribute to disasters by being a cause or failures in responding. Nero may or may not have fiddled while Rome burned, but the Lord Mayor of London dithered for fear of liability while London was consumed in the Great London Fire of 1666. History labeled his conduct as a "memorable instance of folly."<sup>1</sup>

The 1970's ushered in new waves of criminal prosecutions in cases of workplace tragedies and food contamination involving fatalities. In addition, governments enacted criminal statutes for injuries to the environment, which often did not involve injuries to people.

Only recently though have criminal prosecutions followed disasters. My theory is that the graphic, widespread publicity in today's digital world prompts prosecutors to bring criminal prosecutions in these incidents. The ubiquitous cell phones and tablets are high quality cameras in the hands of most witnesses. Social media allows the photos and videos to be posted in real time, often going viral.

1,136 textile workers perished when the eight-story Rana Plaza textile building collapsed. Over 2,000 textile workers were injured in the collapse. The causes of the collapse were the addition of an unpermitted, poorly engineered four stories coupled with substandard building materials. The building's owner and factory operators ignored an engineer's warning of dangerous cracks in the structure the day before the collapse. Instead, workers were ordered back into the building.<sup>42</sup> Individuals were arrested,

<sup>1</sup>Republican v. Sparhawk, 1 U.S. 357, 362 (1788).

including the owner of the building, five factory owners, and a dozen national and local officials, including Savar's mayor.<sup>2</sup>

The Bangladesh arrests of those responsible for the Rana Plaza tragedy raise the legal issue of criminal prosecutions in disasters and tragedies arising from both natural and human causes. I noticed in the aftermath of the Rana Plaza collapse an increasing application of criminal law in these incidents, giving rise to several theses:

- 1) A substantial increase globally in criminal prosecutions in non-terrorist disasters and tragedies in the New Millennium;
- 2) A high percent of the incidents are in Asia and the Pacific Islands;
- 3) Several cases include the prosecution of government officials and employees for corruption and other derelictions of duty;<sup>3</sup> and
- 4) The surge in prosecutions may be prompted by the ubiquity of smart phones, tablets, and social media.

The initial study uncovered 200 incidents as of September 26, 2016. The 56 page list, posted at [denisbinder.com](http://denisbinder.com), contains thumbnail sketches of each incident. This paper updates the analysis a year later. It now includes 241 incidents.

### **The Significance of Criminal Prosecutions Compensatory Damages**

Criminal prosecutions are the best legal means of ensuring culpable parties are held to account. We often think a corporation committed the wrongful act or that it was an act of the government. The reality is that both businesses and governments can only act through individuals - their officers and employees. Someone made the decision, committed the wrongful act, or failed to act when they should have. That person though may escape personal liability.

Tort law developed compensatory damages to compensate the victim. Compensatory damages are intended to place victims in the condition they were in before the accident. It can usually only be done through money damages.

Three limitations exist on individual culpability. First, if the wrongful actor is an employee, then the employer will also often be liable through vicarious liability for the wrongful conduct committed by an employee in the scope of employment. Employees remain legally liable, but the victim normally seeks compensation from the employer with "deep" pockets, effectively relieving the employee of liability in most cases.

Insurance up to the policy limits may cover liability in situations when defendants are personally responsible for causing an accident, such as a typical automobile accident, effectively serving as a practical limit on liability. A third means of escaping liability is personal bankruptcy if the defendant lacks the resources to fully compensate the victims.

The reality therefore is that even in a country with a strong compensation system personal liability may be lacking. Potentially responsible parties, having escaped liability, may not feel the need to change their conduct. A fourth consideration is that if the projected damages are small in comparison to the potential profits, then the defendant might well consider the damages as a cost of doing business. The cost savings of not making safety improvements outweigh the costs of acting. Roughly 7 billion humans inhabit the planet. The "value" of a human life is very low in much of the world. Assuming a victim's compensation system exists in these countries, the actual compensation will also be small, thereby further serving as an economic incentive for engaging in careless and reckless conduct.

### **Punitive Damages**

The common law then developed punitive damages, whose purposes are to punish defendants and to deter parties from engaging in such unacceptable conduct. The legal standards for punitive damages are higher than compensatory damages based on negligence, which is the failure to exercise

<sup>2</sup> Syed Zain Al-Mahmood, *Bangladeshi Police Charge 42 With Homicide for 2013 Garment Factory Collapse*, Wall St. J. (June 2, 2015), <http://www.wsj.com/articles/bangladeshi-police-charge-42-with-homicide-for-2013-garment-factory-collapse-1433181270>.

<sup>3</sup> The one exception to the "initiation" requirement is the commencement of administrative and party sanctions in China because of the unique role of the Communist party in China. Party discipline can effectively result in the end of the accused's career.

reasonable care under the circumstances. Punitive damages are awarded in intentional torts. They can also be awarded for willful, wanton, and reckless disregard of the rights of another. The conduct is viewed as unacceptable to society, but the damages go to the victims.

*Liability insurance is usually unavailable to cover punitive damages, but once again the presence of vicarious liability and the possibility of bankruptcy may limit personal liability, which leaves criminal liability as the most effective means for society to seek justice and deter others from engaging in such conduct.*

### Criminal Prosecutions

Criminal prosecutions are also intended to punish and deter. Here though the prosecution will be brought directly against the responsible parties, both employers and employees, who cannot legally hide behind the corporate shield. The employer may assume the costs of liability for a civil wrong, but not criminal liability.

The initiation of criminal proceedings has a much greater personal impact on a defendant than the risk of civil damages. The Sword of Damocles may be hanging over the defendant's head with the fear of imprisonment, substantial fines, probation, divorce, shame and embarrassment, loss of employment, loss of reputation, and substantial legal costs, which may not be covered by insurance or an employer.

### The Methodology

The first step was to determine the search criteria, followed by identifying the incidents. The initial factor was limited to disasters and tragedies. The second requirement was that the incidents involve a loss of human life except for a few large scale environmental disasters. The third factor was the initiation of criminal process, such as an arrest, detention or indictment, and not the ultimate resolution of the case. One of the limitations, even in this internet age, is that information is often unavailable on case outcomes.

My original intent was not to include categories, such as workplace accidents, which are all too common. However, if a major incident occurs, such as the Mecca crane collapse with 111 deaths,<sup>4</sup> then I chose to include other crane incidents with fatalities. The decision point for "major" incidents was if the incident resulted in multiple fatalities to third party victims.

The list therefore excludes most workplace accidents even if a tragic accident resulted in worldwide commentary and the improvement of laboratory safety standards. A graduate research assistant at the University of California Los Angeles mishandled a highly flammable chemical on December 29, 2008. She died 18 days later from severe burns. The student had not been properly trained in handling these volatile chemicals; she was even wearing a sweatshirt at the time of the accident rather than a safety lab coat.<sup>5</sup> UCLA and her supervising professor pled guilty to violations of health and safety provisions.

The challenge was compiling the list of incidents. A literature search, starting with widely publicized incidents, was followed by seeking comprehensive lists of criminal arrests in these incidents, such as "criminal prosecutions in disasters." A few lists exist for specific areas, such as airplane crashes, or countries,<sup>6</sup> but no comprehensive list exists. These searches provided some leads. The study would thereby have to be conducted through empirical research, often following clues and links in reported incidents.

The general searches, such as "criminal prosecutions in disasters," led to refined searches, both by category and country. These searches could include "Criminal prosecutions in bridge collapses" or

<sup>4</sup> A 1,350 ton crane collapsed onto the Grand Mosque during strong winds on September 11, 2015, killing 111 and injured hundreds. Fourteen employees of the construction company were charged with negligence, damaging public property, and violation of safety rules, <http://www.dw.com/en/saudi-arabia-tries-14-over-mecca-crane-collapse/a-19468884>.

<sup>5</sup> Kim Christensen, *Deadly UCLA Lab Fire Leaves Haunting Questions*, L.A. TIMES (Mar. 1, 2009), <http://articles.latimes.com/2009/mar/01/local/me-uclaburn1>, Kim Christensen, *UCLA Professor Strikes Deal in Lab Fire Case, Avoids Prison*, L.A. TIMES (June 20, 2014, 5:45 PM), <http://www.latimes.com/local/education/la-me-ucla-lab-fire-plea-20140621-story.html>.

<sup>6</sup> For example, a list up to 2013 of human caused disasters in India can be found at *Human Induced Disasters in India?*, [https://in.answers.yahoo.com/question/index;\\_ylt=A0LEVKDPdCpXUn4AtDYPxQt;\\_ylu=X3oDMTBybGY3bmpvBGNvbG8DYmYxBHBvcwMyBHZ0aWQDBHNIYwNzcg--?qid=20140114013200AAuLici&p=2013%20list%20of%20human%20caused%20disasters%20in%20india](https://in.answers.yahoo.com/question/index;_ylt=A0LEVKDPdCpXUn4AtDYPxQt;_ylu=X3oDMTBybGY3bmpvBGNvbG8DYmYxBHBvcwMyBHZ0aWQDBHNIYwNzcg--?qid=20140114013200AAuLici&p=2013%20list%20of%20human%20caused%20disasters%20in%20india). Unfortunately, these lists often do not indicate which incidents involved a criminal prosecution.

“Criminal prosecutions for building collapses in India.” Variations could include “Arrests” or “Indictments.”

The methodology thereby involved extensive internet searches. There are very few countries and places today where a disaster or tragedy will not quickly appear on the internet, often through social media. The ubiquity of smart phones makes it difficult to conceal, downplay or cover-up disasters and tragedies in much of the world today. The digital age makes it easy to transmit photos and videos.

The list will never be definitive. Cases will continue to be discovered from earlier times or reassessed in light of new information. New incidents will arise after the date of the earlier studies. Therefore, the list should be viewed as a work in process which provides a general overview rather than a finished paper with scientific certainty.

### The Limitations of the Study

The first limitation is that the searches are in English, which is not the language of most countries. Not every internet report is available or translatable in English.

Second, the available information online is often limited. For example, a detention, arrest or indictment may appear online, but the resolution of the cases is often unavailable. This study therefore focuses on the initiation of criminal processes rather than the final resolution. Examples of unavailable information are articles which contain broad figures, but no definite incidents. Attempts to track down the specifics have been unsuccessful.

Third, incidents to be listed entail at least one fatality with the exception of a few environmental cases which involve substantial environmental damage.

Finally, the cases do not tell us why some incidents resulted in criminal prosecutions while others did not. For example, a study by the Guardian for 2012 found 2,651 persons died and another 850 were injured when 2,737 structures collapsed in India in 2012.<sup>9</sup> However, I counted only 18 building collapses resulting in criminal prosecutions in India.

### The Historical Evolution

The phenomenon of applying criminal law may seem relatively new in its application to disasters and tragedies, but its history goes back to ancient times. The Code of Hammurabi proscribes:

*“If a builder builds a house for someone, and does not construct it properly, and the house which he built falls and kills its owner, then the builder shall be put to death.”<sup>7</sup>*

If it kills the son of the owner, then the son of the builder shall be put to death”<sup>8</sup>

The Old Testament provides: “An eye for an eye, a tooth for a tooth.”<sup>9</sup>

Modern cases started slowly until near the end of the 20<sup>th</sup> Century. The earliest case I found was the August 20, 1868 Abergale, Wales railroad accident in England. This early train crash presaged the subsequent rash of railroad accidents. The train collided with cars (wagons) on the main line. The cars contained 1,700 gallons of paraffin oil. Thirty-three deaths occurred in the crash and fire. The two brakemen were tried and acquitted of negligence.<sup>10</sup>

The next three cases, all spectacular, arose in the United States. Two were maritime disasters. The General Slocum Steamship caught fire in New York Harbor ½ hour after casting off from the dock on June 15, 1904. 1,021 deaths, mostly women and children, occurred in the tragedy. 35 of the 50 crew members survived. The crew never practiced fire drills. The life jackets were weighed down with iron weights, causing the users to sink to the bottom of the harbor and drown. The vessel had been rated “safe” four weeks before the tragedy by the United States Steamboat Inspection Service.

<sup>9</sup>The Guardian, Data Blog, How Many People Die in Building Collapses in India?

<https://www.theguardian.com/news/datablog/interactive/2013/sep/03/india-falling-2651-deaths-structural-collapse-architecture-housing>.

<sup>10</sup> Code of Hammurabi §229.

<sup>11</sup> Id. at §230.

<sup>12</sup> Leviticus 24:19-21, Exodus 21:24.

<sup>10</sup>[https://www.revolvy.com/main/index.php?s=Abergele%20train%20disaster&item\\_type=topic](https://www.revolvy.com/main/index.php?s=Abergele%20train%20disaster&item_type=topic).

Prosecutions were brought against the ship's captain, 2 inspectors, 2 pilots, and the president, secretary, and commodore of the steamship company. The managers of the life preserver company were indicted, but not convicted. Only the captain was convicted. He served 3½ years of a 10-year hard labor sentence.

The second maritime case occurred 11 years later on July 24, 1915 when the SS Eastland capsized at the dock in Chicago after embarking 2,572 passengers. 840 passengers and 4 crew members died. The captain, chief engineer, and other crew members were arrested. Blame was placed on the chief engineer, who died during the proceedings. Charges were dropped against the remaining defendants.<sup>11</sup>

The third case, the Triangle Shirtwaist Factory Fire on March 25, 1911, resulted in major safety and labor reforms in the United States. A fire broke out on the eighth floor of the Asch Building in Greenwich Village, New York City.<sup>12</sup> The exits were locked on the eighth, ninth, and tenth floors, trapping the workers. Some victims jumped out windows to their deaths to escape the fires. One hundred forty-six textile workers, mostly women, died and 71 were injured. The two factory owners were acquitted of first and second degree manslaughter charges.<sup>13</sup>

A prosecution arising out of the Ford Pinto exploding gas tanks presaged the prosecution of corporations in disaster and tragedies. An engineer's memo notified management of the problem before the car was marketed to the public. The memo estimated an average cost of \$11/vehicle to change the part before mass production. The memo posited it would be cheaper to pay the judgments and settlements rather than changing the part. The changes were not made. A jury awarded \$126 million in punitive damages.<sup>14</sup> Significantly for our purposes, a county prosecutor in Indiana brought three counts of reckless endangerment against Ford for the deaths of three teenagers. A jury acquitted Ford of first and second degree murder charges.<sup>15</sup> The unsuccessful Pinto prosecution set the stage for criminal prosecutions of companies.

Two late 20<sup>th</sup> Century environmental disasters in India and Japan ushered in the modern rise in criminal prosecutions. The names have acquired international notoriety: Bhopal and Minamata.

### **The Minamata Disease<sup>16</sup>**

Chisso Corporation established a chemical plant in 1908 in Minamata, Japan on the shores of Minamata Bay. It discharged 27 tons of mercury into the Bay from 1932 to 1968. The fishing community relied upon the bounty of the sea. A weird neurological illness started manifesting itself in 1953. Confusion existed as to its cause until it was traced to the toxic mercury poisoning in the Bay.<sup>17</sup> The illness is now called the "Minamata Disease," which has affected almost 3,000 victims.<sup>18</sup> The company's president and a second executive were convicted of pollution in March 1979 and sentenced to two years in prison.<sup>19</sup>

### **Bhopal, India**

An explosion at a Union Carbide plant in Bhopal, India is the worst industrial accident in history. Union Carbide, the United States parent chemical company, owned 51% of its locally managed Indian subsidiary, Union Carbide of India. The Bhopal facility had operational and safety issues. For example, a coolant system was inoperable to save money. The plant experienced a catastrophic release of methyl

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<sup>11</sup> Susan Q. Stranahan, *The Eastland Disaster Killed More Passengers Than the Titanic and the Lusitania. Why Has It Been Forgotten?*, Smithsonian, Oct. 27, 2014, <http://www.smithsonianmag.com/history/eastland-disaster-killed-more-passengers-titanic-and-lusitania-why-has-it-been-forgotten-180953146/>

<sup>12</sup> The Asch Building is now the Brown Building, part of the New York University campus.

<sup>13</sup> Remembering the 1911 Triangle Factory Fire, <http://trianglefire.ilr.cornell.edu/primary/trialrecords/introduction.html>

<sup>14</sup> *Grimshaw v. Ford Motor Co.*, 174 Cal. Rptr. 348 (Cal. Ct. App. 1981) The damages were reduced to \$3.5 million and the case was then settled.

<sup>15</sup> <http://www.csmonitor.com/1980/0314/031435.html>.

<sup>16</sup> In general, see *TED Case Studies 246: Minamata Disaster*, <http://www1.american.edu/ted/MINAMATA.HTM>.

<sup>17</sup> *TED Case Studies 246: Minamata Disaster*, <http://www.american.edu/ted/MINAMATA.HTM>

<sup>18</sup> Yoshinaga Fusako & Gavan McCormack, *Minamata: The Irresponsibility of the Japanese State*, the Asia-Pacific Journal: Japan Focus, December 9, 2004.

<sup>19</sup> Yoshinaga Fusako & Gavan McCormack, *Minamata: The Irresponsibility of the Japanese State*, ASIA-PAC. J.: JAPAN FOCUS (Dec. 9, 2004), [http://japanfocus.org/site/make\\_pdf/1559](http://japanfocus.org/site/make_pdf/1559) [<http://perma.cc/YDE9-E33E>]. They never served time in fact.

isocyanate gas on December 2<sup>nd</sup> and 3<sup>rd</sup>, 1984. The death toll was about 15,000 with up to hundreds of thousands of additional victims experiencing long-term symptoms.<sup>20</sup>

Warren Anderson, CEO of the United States parent company, promptly flew to Bhopal to represent Union Carbide. He was arrested and charged with manslaughter. He quickly raised bail and then was flown out of the country. International warrants were issued in July 2009 for his arrest. The United States refused to extradite him to India. He passed away on September 29, 2014.<sup>21</sup>

Twelve Indian executives of the Indian company were initially charged in 1987 with “culpable homicide not amounting to homicide.” The charges were subsequently reduced to “death by negligence” by the Indian Supreme Court.

With these two cases joining the earlier prosecutions, the foundations were in place for criminal prosecutions in disasters and tragedies.

## The Results

### The New Millennium

The initial compilation of incidents as of September 26, 2016 validated the thesis of a growing phenomenon of criminal prosecutions in the New Millennium, a 346% in just 17 years from over a century of prior prosecutions. The 2017 update includes 241 incidents, an increase of 41 from a year earlier. Fifty four cases precede 2000 and 187 are in the New Millennium. The prosecutions are global in the New Millennium, significantly from both civil law and common law jurisdictions. 43 countries initiated prosecutions in the New Millennium versus 23 previously.

Criminal Prosecutions		
Pre-2000	New Millennium	Percent Increase
54187	346%	

The most common incidents involve building disasters and structural failures, maritime accidents, and mining disasters, all of which may involve a large loss of life in a sensational “accident.” The exploding population and growing affluence has led to large scale, rapid development in countries like China and India. Owners, developers, and builders often cut corners in the design, construction, and subsequent modifications, frequently accompanied by derelictions in office by public officials.

One major drop in prosecutions involved aviation disasters. 17 occurred before 2000, almost a third of the pre-Millennium prosecutions, but dropped to 11 in the New Millennium. The premise is that aviation safety has substantially improved in recent years.

### Asia/Pacific Islands

Asia and Pacific Islands		
17	118	694%

The initial observation about Asia and the Pacific Islands is validated with the large number of prosecutions in these countries. These nations are high in the mix in both civil law and common law

<sup>20</sup> One civil law consequence of the Bhopal tragedy was an India Supreme Court decision imposing strict liability in a toxic waste discharge a year after Bhopal. *M.C. Mehta v. Union of India* (A.I.R. 1987 S.C. 1086). For an overall discussion of the many ramifications in India of the Bhopal Tragedy, see Sheila Jasanoff, *Learning From Disaster: Risk Management After Bhopal* (University of Pennsylvania Press 1994).

<sup>21</sup> Douglas Martin, Warren Anderson, 92, Dies, Faced India Plant Disaster, *New York Times*, October 30, 2014, [https://www.nytimes.com/2014/10/31/business/w-m-anderson-92-dies-led-union-carbide-in-80s-.html?\\_r=0](https://www.nytimes.com/2014/10/31/business/w-m-anderson-92-dies-led-union-carbide-in-80s-.html?_r=0).

jurisdictions. The Asian cases comprised roughly 1/3 of the pre-2000 cases, but jumped to 63.1% of the New Millennium incidents. India records 25 structural failures (building and bridge collapses) and China<sup>13</sup> mining disasters. Many of the Asian incidents include the prosecution of government employees and officials for corruption and dereliction of duty.

**Government Officials and Employees**

Also confirmed is a substantial increase in the prosecution of government officials and employees in the New Millennium.

Government Officials and Employees		
14	59	421%

Government personnel show up in 59 of the New Millennium cases. Most cases involve allegations of corruption. Some could be described as incidents involving negligent acts by government employees.

**The Unexpected Findings**

Studies will often prove or disprove the initial hypotheses, but may also result in unexpected results. I discovered two such findings.

Architects and Engineers		
10	44	440%

An unexpected observation is the increasing prosecution of engineers, mostly civil and structural for design or other errors, in these cases, from 10 prior to 2000 to 44 in the New Millennium. I suspect many more were prosecuted in the general listings of employees or officials mentioned in several incidents, but not specified as such.

The second surprise was the presence of the old adage: “Justice delayed is justice denied.” Several cases showed long delays between the initiation of criminal proceedings and their resolution. The Bhopal disaster had a 26-year gap, often filled by judicial proceedings, between the tragic incident and the resulting trial. Many cases involved lengthy delays on the legal process.

**Social Media**

The New Millennium ushered in smart phones, Google, and the Internet. It has also witnessed a rise in criminal prosecutions in disasters and tragedies. I submit the two are not coincidental because of the ubiquitous cell phone or tablet with an increasingly high quality digital camera. The first instinct of many, especially the younger generation, is to pull out the smart phone, shoot photos or videos, and then post them on social media. Disasters almost anywhere today will often flash across the globe in seconds in vivid color, rather than reading a few prose paragraphs in a newspaper. Popular knowledge of tragedies prompts a call for action.<sup>22</sup>

**Maritime Accidents**

Waterways, oceans, lakes, and rivers, were the historic highways of commerce. The automobile, train, and airplane have largely replaced the boat. However, in many parts of the world, especially Africa and the sub-continent, the ferry remains a primary means of travel. The results, all too often, are catastrophic when a ferry sinks or capsizes.<sup>23</sup>

Ferry accidents often have multiple causes, including overloaded vessels, sometimes in aged ships, with the connivance of public officials. Inadequate crew training is also involved in many incidents.

<sup>22</sup> I cannot prove this premise though.

<sup>23</sup> Almost all the maritime cases involve ferry boats with a few cruise ships in the mix.

The magnitude of these tragedies, in the hundreds or thousands of fatalities, exceeds the occasional Staten Island<sup>24</sup> type accident in the United States in which several responsible parties were criminally prosecuted.

The maritime cases are generally in Africa (Egypt (3), Gambia, Senegal, Tanzania (2), and Zanzibar (3)), and Asia and Pacific Islands (Bangladesh, China, Hong Kong, India, Myanmar, Pakistan (2), Philippines (3), South Korea, and Tonga) where many residents depend on ferries for water transportation. Europe has witnessed several maritime accidents, including Belgium, Greece (3), Italy (3), and Russia.

### Fires

The broad category of fires has three main subdivisions. The first are concert and nightclub fires, which seem to cry out for criminal prosecutions when a large loss of life occurs in a fiery inferno. Nightclub fires have been tragic, often with large losses of life, over the past decades. They frequently gave rise to criminal prosecutions prior to the recent wave of prosecutions because of the magnitude of the tragedies. For example, the Ozone Disco Club in Quezon City, the Philippines caught fire at 11:35pm on March 18, 1996. 162 died in the conflagration.

Seven Philippine safety officials and two club managers were sentenced to prison 18 years later in 2014. The government officials had issued safety permits to the club without inspecting it. They were sentenced to between six and ten years.<sup>25</sup>

A third scenario was a spectacular, catastrophic explosion and fire at the Tianjin Ruihai International Logistic warehouse, wracking the port city of Tianjin, China. Firefighters responded to a fire on August 12, 2015 at the warehouse. They applied water to the flames, not knowing of the nature of the chemicals and products at the warehouse.<sup>26</sup> Explosions and fires ensued. 165 died, including dozens of firefighters, with over 700 injured in the inferno while substantial damage was done to the neighboring community. The facility was built within 650 meters of the Vanke Port City residential complex. Chinese law requires toxics to be stored at least 1,000 meters from residences. About 17,000 homes were damaged in the explosion.

An estimated 3,000 tons of toxics were carelessly stored at the warehouse. 1,300 tons were ammonium nitrate<sup>27</sup> and potassium nitrate. Ammonium nitrate is used both as a fertilizer and explosive. 700 tons of sodium cyanide was also at the facility. The two owners of the warehouse and about two dozen local officials have been detained or are under investigation.<sup>28</sup>

### Oil Spills

The British Petroleum Macondo Well Blowout (Deepwater Horizon) in the Gulf of Mexico on April 20, 2010 is an example of prosecutors looking for defendants to prosecute in a spectacular disaster. The United States brought several criminal cases in the BP blowout, but most were against individuals who misled the government. Only 2 were against line supervisors who made judgment errors in the sealing of the drill hole. One was acquitted and the other pled guilty. One engineer was charged with 2 felony counts of obstruction of justice by deleting two email chains. He ultimately pled guilty to a misdemeanor, receiving no jail time or fine.<sup>29</sup>

<sup>24</sup> The Staten Island Ferry crashed into a concrete maintenance pier at high speed on October 15, 2003. The pilot was asleep at the wheel due to prescription painkillers. The Director of Ferry Operations was not enforcing the regulation requiring 2 pilots in the pilot house. The captain, assistant captain, and both pilots pled guilty. William K. Rashbaum & Sewall Chan, Pilot and Supervisor Sentenced in '03 Staten Island Ferry Crash, New York Times, January 10, 2006, <http://www.nytimes.com/2006/01/10/nyregion/pilot-and-supervisor-sentenced-in-03-staten-island-ferry-crash.html>.

<sup>25</sup> BBC, *Philippines sentences over 1996 Ozone Disco fire*, <http://www.bbc.com/news/world-asia-30125553>.

<sup>26</sup> A basic rule of chemistry is that you can pour acid on water, but not water on acid.

<sup>27</sup> Ammonium nitrate was the explosive used to blow up the Alfred P. Murrah Federal Building in Oklahoma City, Oklahoma on April 19, 1995. 168 perished and over 600 were injured in the domestic terrorist attack.

<sup>28</sup> See Andrew Jacobs, et al, *In China Blast, High Price of Lax Rules: Company at Center of Tianjin Tragedy a Symbol of a Corrupt System*, New York Times, August 31, 2015 at p. A1, col. 3; Tang Yue, *11 held in probe of Tianjin blasts*, *China Today*, August 28-30, 2015 at p.1, col. 1.

<sup>29</sup> *Ex-BP Engineer Convicted of Deleting Text Messages to Obstruct Oil Spill Probe*, **Fox News** (Dec. 18, 2013),

<http://www.foxnews.com/us/2013/12/18/ex-bp-engineer-convicted-deleting-text-messages-to-obstruct-oil-spill-probe/> [<http://perma.cc/P3PH-VHKC>].

## Natural Disasters

Natural disasters would initially seem a poor area for criminal prosecutions. Forces of nature, such as earthquakes and tsunamis, can be devastating by themselves. Their impacts can be magnified by human fault, such as inadequate design, construction or response. Indeed, structural flaws may be tragically uncovered by forces of nature. Thus, human errors and misconduct can increase the impact of a natural hazard. Ten cases arose out of “natural” disasters: cyclones, earthquakes, and hurricanes. Criminal liability may be a proper response when major human fault is present in causing the disaster or increasing the damages and injuries.

Cyclone Xynthia was a massive windstorm which struck Western Europe between February 27 and March 1, 2010. It caused damage in Portugal, Spain, Germany, and England, but hit the France coast especially hard.<sup>29</sup> It died in la Faute-sur-mer in homes built since 1990. It struck homes in a “Red Zone,” which was meant to bar development.<sup>22</sup> Of the victims were over 60, while hundreds of homes were flooded.<sup>30</sup> The mayor was sentenced to 4 years; the officering charge of building permits received 2 years while her son in charge of ensuring and monitoring the safety of the seawall was sentenced to 18 months.<sup>31</sup> They had permitted development in the Red Zone while failing to ensure the safety of the coastal zone.

The Italian L'Aquila earthquake aftermath raised tremors throughout the scientific community. A series of minor earthquakes preceded a 5.8-5.9 earthquake on October 22, 2012. 309 were killed and over 1,000 left homeless. A public conference a week before the large quake issued assurances of safety. Six scientists and a public official were convicted in October 2013 of miscommunications of safety for issuing false assurances of safety. The convictions of the scientists were overturned the next year, but upheld for the public official who minimized the danger and said the people should sit back and enjoy a glass of Montepulciano wine.<sup>32</sup>

## The Punishments

Guilty determinations will often result in prison sentences of varying terms. However, two China incidents resulted in capital punishment.<sup>33</sup> The first was the Rainbow Bridge Collapse in Qijiang County on January 4, 1999. Forty deaths and 14 injuries resulted when the three year old bridge collapsed. The former Deputy Secretary of the County Communist Party Central Committee was sentenced to death.<sup>34</sup>

The second was a contaminated milk marketing episode in Hebei Province in 2008, which resulted in at least 6 infant deaths. 262,662 were sickened, of which 891 were seriously ill. Two defendants were sentenced to death.<sup>35</sup>

## Changes Occasioned by the Disasters

Changes in society can be implemented by government in deciding to bring criminal prosecutions or by private actors in changing behavior in response to the threat of criminal prosecutions. The former is easier to measure whereas the latter is more difficult to ascertain.

In addition, several incidents resulted in changes in safety standards, reform, society, and political offices. For example, as early as the 1904 tragic fire on the General Slocum, one result of the tragedy was

<sup>30</sup> Eliasbetta Genovese, et al, Disaster Risk Management and Territorial Governance: Lessons from Xynthia Storm in France 3 (FIG Working Week 2012).

<sup>31</sup> Visiting France, French mayor jailed for four years over 2010 storm deaths, <http://en.rfi.fr/visiting-france/20141212-france-mayor-jailed-four-years-eynthia-storm>.

<sup>32</sup> <http://www.economist.com/news/science-and-technology/21632459-six-seven-scientists-convicted-earthquake-advice-have-been-cleared-laws>.

<sup>33</sup> I assume that these sentences were carried out.

<sup>34</sup> BBC News, World: Asia-Pacific Death sentence over bridge collapse, April 4, 1999, <http://news.bbc.co.uk/2/hi/asia-pacific/311408.stm>.

<sup>35</sup> Tania Branigan, China executes two for tainted milk, The Guardian, November 24, 2009, <https://www.theguardian.com/world/2009/nov/24/china-executes-milk-scandal-pair>

that the state and federal government improved safety standards for passenger vessels. President Theodore Roosevelt fired the chief inspector of the United States Steamship Inspection Service.<sup>36</sup>

Bangladesh relies economically on its large textile manufacturing industry, which produces apparel for many of the world's largest retailers. The industry has a reputation for poor safety, including a history of fires in its textile mills. Global pressure on the apparel companies and Bangladesh is forcing safety improvements in the industry. The same result occurred a century earlier with the tragic Triangle Shirtwaist Fire in New York City.

### Conclusion

The significance of this study is that decision makers now need to factor the possibility of criminal prosecutions into their risk analysis. Corporations, their officers and employees risk criminal prosecutions, as do government employees. The Rana Plaza prosecutions signify a new risk of criminal liability for those responsible for disasters and tragedies.

The New Millennium globally ushered in an increasing application of criminal prosecutions in disasters and tragedies. Asia and the Pacific Islands are in the vanguard. Investigators quickly enter disaster scenes and usually divine the cause(s) of the disaster. One commonality is a cavalier attitude to safety by owners, developers, builders, operators, and government regulators. Other common causes are poor design in the original construction or modifications, shipshod construction, and inferior building materials; in short, a rush to completion by cutting corners, often with the connivance of public officials.

Prosecutions involve those with direct involvement in the disasters, such as owners and operators, officers, and in the case of ships, captains and crew members. Many of the incidents involve derelictions in office, including bribery, by public officials. They have been swept up in the prosecutions.

History tells us that reforms often arise from tragedy. For example, the United States initiated widespread workplace safety, working conditions, and labor reforms in response to the 1913 Triangle Shirtwaist Fire. The Rana Plaza collapse pressured Bangladesh building owners and apparel manufacturers and customers to improve safety standards. The pressure is on the retailers to police the manufacturers. Rather or not the changes are permanent, or laxity will return, remains to be seen. Much depends on the attitude of the government.

The exponential increase in criminal prosecutions in China and India over the past decade has not yet seemed to have an effect on the prevailing culture of shoddy construction coupled with derelictions in duty by public officials. While impressive, the number of prosecutions represents the tip of the iceberg with respect to the scores of structural failures annually.

Many of China's enterprises are affiliated with the government. Public officials have often been arrested or sanctioned in the disasters. Admittedly many of the failing structures in China were built before the new emphasis on weeding out corruption.

What is needed is strict enforcement of building and permit requirements before, during, and after construction or commencement of operations. The preferred approach would be to prevent the incident in the first instance.

Even today, most owners, developers, builders, and government inspectors and regulators know the odds are still substantially in their favor against any punishment or retribution for their misdeeds, which will not be discovered absent a disaster. They have yet to realize that the new culture of vigorous enforcement may ruin them, their families and their fortunes.