**The Application of Criminal Law in Non-Terrorist Disasters and Tragedies**

 Jim Walsh, District Counsel of the Seattle District of the Army Corps of Engineers, hired me as a consultant during the summer of 1976 to prepare a memo on the claims and rights of the Colville and Spokane Indians with respect to Grand Coulee and Chief Joseph Dams.

 President Franklin Delano Roosevelt had a major priority in getting Americans back to work during the Great Depression. One of his acts was to start construction of Grand Coulee Dam in Washington State without obtaining Congressional approval for 2 years.

 If FDR was willing to ignore Congress, then he also was overly not concerned about the impact on the Colvilles and Spokanes. Grand Coulee not only inundated some of their lands, but to a large extent destroyed their fishery resources, especially with the flooding of the great fishery at Kettle Falls.

 The Teton Dam, a Bureau of Reclamation Dam in Idaho, failed on its initial fill on June 5, 1976. 11 lives were lost and Congress appropriated $400 million to compensate the victims. The Corps experienced its own tragedy that summer when the decision was made to clean the trash racks on Mud Mountain Dam on the White River outside Seattle. A surge of water was sent downstream without warning. Two children standing on a sand bar in the middle of the river perished in the deluge.

 I became interested in dam safety at that time and then the broader issues of infrastructure, followed after 9/11 by emergency action planning and business continuity. I noticed in the past couple of years the increasing application of criminal law in disasters and tragedies, but could find no listing of them. Lists of disasters and tragedies are common, and very informative, but the criminal side was sparse.

 Hence this listing with thumb nail descriptions of the incidents.

 A question exists as to the selection of cases. If I found an incident with a large loss of life, then I would include it in the list. I did not use a cutoff as to the number of lives lost or injured, or the degree of property and economic damages. If I thereby used a major incident, my decision was to also include “lesser” incidents of the same genre.

 My test for environmental prosecutions was if they involved a loss of life or substantial environmental damage. I am not thereby including every environmental prosecution on the list. The United States Justice Department annually publishes an extensive list of environmental criminal prosecutions.

 State and local governments in the United and the Crown Prosecutor in Great Britain annually bring large numbers of workplace safety violation cases. These cases are not included in the list unless they fall into existing categories.

 One caveat is that the search is dependent upon the internet in English. Information is not always available, often as to the resolution of the criminal prosecutions. Thus, there are gaps in the lists.

 This list will be periodically updated, both to reflect new incidents and newly discovered past incidents

 Any additions, comments, or suggestions are greatly appreciated.

 Date, September 26, 2016

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| **I. BUILDING COLLAPSES** |
| **Date** | **Incident** | **Facts** | **Criminal Resolution** |
| 9/12/1983 | Gangaram Building collapsed, Bangalore, India | 7 story building under construction collapsed, 123 deaths and over 120 injured. | Owner and 3 contractors arrested. The Karnataka High Court on February 22, 2005 affirmed the trial court acquittal on grounds that the prosecution failed to properly examine the witnesses. |
| 8/13/1993 | Royal Plaza Hotel, Khorat, Thailand | 6 story hotel collapsed because of addition of three unpermitted floors without adequate structural stability studies. The supporting structures were inadequate. 137 deaths and 227 injuries. | Charges filed against 15 defendants, including hotel owner, management, engineers, and municipal officials. All were acquitted except for the chief engineer, who was sentenced to 37 years. |
| 6/29/1995 | Sampoong Department Store, Seoul, South Korea | 5 year old department store collapse. Plans were for 4 stories, but went up to 5 with large, heavy air conditioner on 5th. Many Supporting columns removed. Original builder backed out and gave warnings to owners. Numerous physical warnings before the collapse. No warnings to customers or employees, but management left the building 2½ hours before the collapse. 502 deaths and 937 injured. | Owner and son convicted of criminal negligence. Chief administrator of the neighborhood sentenced to 3 years for bribery. 23 other defendants, including 12 city officials, received prison sentences and fines. |
| 5/24/20014/11/20057/18/2007  | Versailles Wedding Hall Disaster, Jerusalem, IsraelSpectrum Gardens collapse, Savar, BangladeshLaxmi Chhaya Building collapses, Borivli, India | Third floor of wedding hall collapsed, 23 deaths, 356 injured, building was designed for industrial purposes – not as a meeting place for large groups, used banned floor system, faulty engineering, building violationsBuilding, built on marshland, had several unapproved floors, 70 dead, over 100 injuredOwner of two first floor shops decided to merge them by removing connecting wall and reducing a central support column, weakening the foundation. 28 died and 15 injured when building collapsed. | Designer of flooring system sentenced to 5 years and 3 other engineers to 12-30 months for negligent assault,2 owners of banquet hall sentenced to 30 months, third owner received 4 months suspended and 4 months community serviceManaging director of the factory and another director arrested, released on bail, and that was the end of the caseOwner and brother arrested. |
| 8/28/2007 | Building collapsed Baku, Azerbaijan | Foundation designed to support 9 story building, but up to 14 stories without approval. Building imploded under construction, killing 20 workers. | 3 company officers arrested as was the public official in charge of the department for coops and apartments. The charge was abuse of power. |
| 2/11/2008 | Kazipara, Howrah, India | Basement and first floor of mall under construction collapsed. | 5 arrests, including the project supervisor and the supplier of building materials. |
| 6/27/2009 | Lotus Riverside collapse, Shanghai, China | Nearly constructed 13 story block of flats Lotus Riverside) tipped over, construction permit expired 5 years earlier, foundation undermined when unqualified contractor was building an underground garage. One construction worker died. | 8 arrested. Largest shareholder of the company was found guilty of graft, embezzlement, and causing a serious accident. Second largest shareholder also convicted of graft. The head of the complex for the developer, the builder, subcontractor, engineer, and 2 construction workers sentenced to 3-6 years. |
| 7/22/2009 | Liaquatabad, Karachi, Pakistan | 4 story building under construction collapsed, sub-standard building materials. | 2 builders and 2 officials of the Karachi Building Authority arrested. |
| 1/29 /2010 | Kowloon, Hong Kong | Unlicensed repairman chiseled a column and platform at the Kwa Wan Tenement, causing the building to collapse, 4 deaths. | Repairman convicted. |
| 7/16/2011 | Shalimar Building collapse, Ghaziabad, India | Building collapsed under construction, 4 deaths. | Police registered charges against the builder, her two sons, the building contractor, project manager, and supervisor. |
| 4/15/2012 | Shital Fibres Blanket Factory collapsed, Jalandhar, India | 23 workers died, and over 60 injured. | Owner, supervisor, and 4 contractors charged with death due to negligence. All were acquitted 4 years later. |
| 6/23/2012 | Elliott Lake Algo Centre Mall, Ontario, Canada | Roof collapsed on mall, beam and column supporting roof gave way, 2 dead, several injured. | Engineer who inspected the mall 2 months earlier and called it sound was charged with 2 counts of criminal negligence causing death and 1 count of criminal negligence causing bodily harm, lost his professional license in November 2012. |
| 3/29/20134/4/2013 | Building collapse, Dar es Salaam, Tanzania Building collapse, Thane, Mumbai, India | 16 story residential building collapsed onto an adjoining mosque, approved for 10 floors, up to 16 with 3 to go, 36 deaths8 story building under construction collapsed, 74 deaths, including 23 women and 18 children (workers and their families often live on construction sites), poor quality materials in a “weakly built” structure; lacked a occupancy permit. | 11 arrests, including owner, 2 engineers, architect, and 2 government officials, 24 manslaughter charges17 arrests: 2 builders, developer’s partner, engineers, police officers and municipal officials.Charges include culpable homicide and dereliction of duty. |
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| 5/13/20138/29/20139/23/2013 | Rana Plaza collapsed, Savar, BangladeshMadhavnagar Colony, Twin Building Collapse, Atladara, India 5 story building collapsed, Mumbai, India | 8 story garment factory collapsed, built on swampy ground, poor construction, poor quality construction materials, 2 stories added with heavy machinery above permitted 6 stories, converted from commercial use to factory, workers ordered to go back into building after cracks appeared the day before in the structure, 1130 fatalities, about 2,500 injuries11 deaths, 3 injuriesBrihanmumbai Municipal Council (BMC) owned building collapsed because of the construction of a mezzanine floor in an office-warehouse, 61 deaths and 32 injuries. | 42 arrested, including owner of building, owners of the garment factories, several inspectors, national and local officials, Mayor suspended from office and arrestedSite supervisor, contractor, and structural engineer arrested for culpable homicide7 BMC employees arrested for not acting on reports that the building was unsound after completion of the renovations. |
| 10/31/2013 | Building collapse, Pune, India | 5 story, year old building collapse, 1 death, cracks had appeared in building one day before collapse. | Builder charged with culpable homicide, plot owner and structural engineer also charged. |
| 11/13/2013 | Roof collapse, Riga, Latvia | Roof collapsed at the Zolitude Shopping Center Roof support beams failed. 54 deaths, including 3 rescue workers. | Construction engineer, expert analyst for the architectural firm, and five others charged with building code violations. 3 public officials, City Council’s supervisory Board’s senior expert, and chief and deputy building inspectors, charged with liability of negligent public officials. The case was the first test of Latvia’s new statute imposing criminal liability on corporations.Latvia’s Prime Minister resigned shortly after the accident. |
| 1/4/2014 | Canacona, Goa building collapse, India | Multi-story building under construction collapsed, 31 workers died. | 9 officials suspended and arrested: chief officers, municipal engineers, deputy town planner, and draftsman. Contractor also arrested, while authorities were searching for 2 builders. |
| 2/7/20144/29/2014 | Bujan University of foreign Studies roof collapse, South KoreaSurat, India | Roof collapsed during heavy snowfall, defective construction, lax supervision, 10 deaths, 103 injuriesBuilding constructed in 1999 had cascading slab failures in 2014. 3 deaths and 4 injuries. | 2 officers of building’s operator, and 4 involved in the construction arrestedArchitect charged with a felony. Gujarat High Court quashed the proceedings on the assumption that since the structure stood for 19 years without problems and survived a major earthquake in 2001, it must have been safely constructed. |
| 6/28/2014 | (Porur) Chennai, India building collapse | 12 story building under construction collapsed, 61 deaths, 27 injured. | 2 owners (father and son), 2 engineers, and the structural engineer charged. |
| 7/6/2014 | Wall collapse, Tamil Nadu, India | 20’ high compound wall collapsed on adjacent huts, 11 deaths. | 2 owners of private warehouse company that built the wall arrested. |
| 9/12/2014 | Church Collapse, Lagos, Nigeria | Synagogue Church of All Nations (SCOAN) collapsed due to structural defects, 116 deaths. Additional floors added without strengthening the foundation. | 116 counts of criminal negligence (involuntary manslaughter) against the Pastor (chair of the church council), church trustees, and 2 engineers, also failure to obtain building permit. |
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| 11/4/201512/23/20151/11/2016 | Sunder Industrial Estate, Lahore, Pakistan2 story collapse, Srirangam, IndiaSharqeya, Egypt  | Shopping bag factory collapsed with construction on fourth floor, 53 deaths, including the owner, structure may have been weakened by an earthquake.4 deaths, 7 injuriesBuilding collapsed, licensed for 4 stories, owner added 2 floor extensions, 9 dead, 5 injured | 2 draftsmen and 2 structural engineers arrested.Police registered cases against landowner, son, and engineer4 officials suspended, recommended for prosecution |
| 3/8/2016 | Lekki Building Collapse Lagos, Nigeria | Building collapse, 34 deaths and 13 injuries, building height exceeded approval. | Managing Director/CEO of Lekki Gardens and a contractor arrested. |
| 4/29/2016 | Nairobi, Kenya | Apartment complex collapsed, 51 deaths, 136 rescued from rubble, heavy rain, marshy soil. | 5 arrests, 2 owners, 2 public officials (director of planning compliance and sub-county administrator. |
| 7/29/2016 | Pune, India | Concrete slab on 13th floor collapsed in building under construction, permission was for 11 floors, 9 workers died, 3 injured. | 2 engineers arrested. |

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| **II. ENVIRONMENTAL** |
| 1919–1990 | Vermiculate mine in Libby, Montana, United States | The vermiculate in the mine contained asbestos; no warning provided the miners or the town residents either by the original mining company or W.R. Grace Co., which acquired the mine. | The company and 7 executives were indicted for violations of the Clean Air Act for discharging asbestos into the air, knowingly endangering the residents of Libby, and concealing information of the health risks.No individual defendant was convicted. |
| 1932–1968 | Minamata, Japan | Chisso Corporation discharged 27 tons of mercury into Minamata Bay. Symptoms appeared in 1953 of mercury poisoning. Thousands killed or crippled by mercury – became known as Minamata Disease. | President and a senior executive were convicted in March 1979 of pollution – sentenced to 2 years in prison. |
| 1970’s – 1990’s1978–1996 | Great Britain and South AfricaItaly | Mercury poisoning to workers and communities from Thor Chemical plants in Great Britain and South Africa, several victims of mercury poisoning including 3 deaths in Great BritainWorkplace exposure to asbestos at Oliveti. | Great Britain filed culpable homicide and violations of the Machinery and Occupational Safety Act against Thor, which pled guilty to lesser charge of negligence, fines R14,000Former CEO and 12 others convicted in 2016 for manslaughter for worker deaths and injuries. CEO sentenced to 5 years and 2 months imprisonment, a former industry minister to 23 months on charges of complicity, and 11 other managers also received sentences on July 18, 2016. |
| 12/2/1984–3/1984 | Bhopar, India | Toxic chemical leak (methyl isocynate) at Union Carbide subsidiary in Bhopar, India. 7,000 – 10,000 residents perished with hundreds of thousands incurring health problems in successive years. | Seven India executives sentenced 26 years after the tragedy on June 7, 2010 to 2 years for death by negligence, still out on bail during appeals. The President of Union Carbide of the United States and 12 Indian employees were originally indicted. The United States executive left India after posting bail, never to return.  |
| 2001–2011 | Oxy Humidifier Sanitizer, South Korea | Oxy Sanitizer sold by Korean subsidiary of Reckitt-Benckiser was toxic; no toxicity tests performed. Over 100 deaths from Oxy. | 4 South Korea execs charged with negligence. The arrested include the former CEO of the Korean subsidiary in May 2016 for homicide through negligence. Two university professors indicted for manipulating toxic data.South Korea is getting away from the laissez-faire approach to companies |
| 2008 | Contaminated milk, Hebei Province, China | “Melamine-laced protein powder” added to fresh milk. At least 6 infants died, 262,662 sickened, 891 seriously ill. | 2 defendants sentenced to death. |
| 2/13/2012 | Italy | Asbestos exposure in workplace, over 2,000 deaths. | The Swiss and Belgium owners of Eternit sentenced to 16 years for manslaughter in the workers’ deaths and illnesses. The conviction of the Swiss executive was overturned on statute of limitations grounds. The Belgium defendant died before the appeal was decided. |
| 1/4/2014 | Charlestown, West Virginia, United States | Chemical storage tank leaked into Elk River and thence entered the intake pipes of the water company contaminating the drinking water of seven counties. No deaths and no severe health risks (to date). | Criminal charges filed against the company and 6 executives, owners, former owners, and employees. All pled guilty. |
| 5/16/20154/25/2015–10/16/2015 | Sulphuric Acid Spill, Nyl River, South AfricaFlint, Michigan, United States | Truck carrying 28,000 liters of sulphuric acid overturned, dead fish, farmers had to stop irrigating their farms and had to move their cattle, 4 hour delay in emergency responseFlint switched water supply from Lake Huron and the Detroit River to the Flint River. The new source was highly corrosive, but the city failed to apply an anti-corrosive chemical, resulting in elevated lead levels in 6,000 – 12,000 children from lead released from the old pipes. | Criminal charges of negligence against heads of disaster management of Modimolle and Waterberg Municipalities and Waterberg Fire Chief9 government officials, 8 state and I local, indicted, several for covering up and filing false statements. The city Water Plant Operator agreed to plead guilty to filing false information and cooperate with the investigators. The retired director of the Department of Health and Human Services Bureau of Epidemiology pled guilty to neglect of duty – she allegedly suppressed information about the lead poisoning of the children  |
| 11/23/2015-2/18/20162015–2016  | Natural gas leak, Porter Ranch, California, United StatesRunning Tracks, China | Natural gas utility stored natural gas in exhausted oil field near Porter Ranch, safety valves on the wells were removed in 1979 and not replaced. Leak developed, releasing 97,000 tons of methane and 7,300 tons of ethane before being capped, no long term injuries yet, but numerous short term complaints about nausea, nose bleeds, and headaches, over 4,500 households temporarily relocatedToxic waste (benzene, formaldehyde) recycled as school running tracks; children suffered nose bleeds, headaches, allergies, irritated eyes and skin. | Los Angeles County filed 4 misdemeanor charges against the utility, which pled guilty to misdemeanor to one count of failure to immediately notify the Los Angeles County Office of Emergency Services and the County Fire Department – fined $4 million and agreed to numerous safety improvements9 factories closed, several officials detained. |

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| **III. EXPLOSIONS AND FIRES** |
| ***III.A. Explosions*** |
| 3/23/20059/5/2012 | BP refinery explosion, Texas City, Texas, United StatesFireworks factory explosion Sivakasi, India | Numerous safety violations, poor maintenance, 15 employees died, over170 injuredExplosion at fireworks factory a few days after license suspended for violations of worker safety rules, 40 deaths, over 70 injuries | BP pled guilty and paid fines and penalties to violations at multiple facilities and practices, 1 count Clean Air Act Violation ($50 million and 3 years probation) and 1 count Clean Water Act ($20 million)12, including factory manager, charged with culpable negligence, company owner fled |
| 3/26/20158/12/20154/10/2016 | Gas explosion, New York, New York, United StatesWarehouse explosion, Tianjin, ChinaPuttingall Temple, Kerala, India | Explosion from illegal natural gas line installed and concealed from inspectors by landlord, 2 deaths, 25 injuries, and 4 buildings destroyedFire and explosions at Tianjin Ruihai International Logistics Warehouse. An estimated 3,000 tons of toxics stored – 1,300 tons of ammonia nitrate and potassium nitrate, also present 700 tons of sodium cyanide. Facility was within 650 meters of an upscale residential complex. China law requires at least a 1,000 meter distance. 173 deaths, including 104 firefighters, over 700 injured, 304 buildings damaged, 12,428 cars destroyed, $1.1 billion in economic lossesErrant fireworks ignited a cache of fireworks, resulting in explosions, fires, and a building collapse at 3:15am at the 100 year old Puttingal temple, Temple was denied a license to conduct the fireworks, but proceeded anyway, 116 deaths, 383 treated in hospitals, temple and 150 houses damaged, one of the contractors perished in the accident  | Owner/landlord, son, contractor, unlicensed plumber, and a fifth defendant (who loaned master license to unlicensed plumber) charged with 2nd degree manslaughter2 owners of the warehouse and 2 dozen local officials detained or under investigation.16 arrested, including president and 6 other members of the temple’s managing committee, other defendants are assistants and employees of the contractors , preliminary charges are attempt to commit culpable homicide and violations of the Explosive Substances Act |

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| ***III.B. Building Fires*** |
| 3/2/1911 | Triangle Shirtwaist Factory, New York, United States | 146 workers died and 71 injured during fire when trapped by locked doors on floors 8–10. | Two owners acquitted of 1st and 2nd degree manslaughter.Major changes in worker safety protection in United States. |
| 9/3/1991 | Hamlet Poultry PlantHamlet, North Carolina, United States | 5 workers died, 55 injured when trapped in poultry plant with doors locked and windows boarded up. | Owner pled guilty to 28 charges of negligent manslaughter; served 4 years; charges dropped against son and plant manager. |
| 6/3/19992/8/2009 | Sealand Youth Training Center fire, Hwaseong, South KoreaCCTV Headquarters, China | One story approved youth center was expanded to three floors with 54 cargo containers and flammable Styrofoam, no sprinkler system, mostly inoperable fire extinguishers, no fire alarm, fire at 12:30am, 19 children and I adult died Fireworks on Lunar New Year landed on roof, engulfing adjoining Mandarin Hotel, I firefighter dead and 6 injured. | Owner and 6 Hwaseong council members charged with involuntary manslaughter, building code violations, and bribery, Kindergarten head, wife, and a teacher also charged with involuntary manslaughter, 4 architects and builders also arrested20 arrests, including CCTV officials. |
| 11/15/20109/11/2012 | 28 story high rise apartment building fire, Shanghai, ChinaAli Enterprises garment factory fire, Baldia, Pakistan | Unlicensed welders caused a fire, 58 deaths, over 70 injured.Investigations revealed that the fire at the multi-story garment factory was caused by arson due to failure of owners to pay extortion to the Muttahida Quami Movement (MQM), 259 factory workers perished and over 600 injured | 13 welders and construction company officers arrested as well as 3 local government officials.3 factory owners and 12 others prosecuted, including those responsible for the arson. The special prosecutor resigned in February 2015 for lack of police cooperation, judicial proceedings still continuingSindh Minister for Industry and Commerce resigned |
| 11/12/20126/2/2013 | Tazreen Fashion Factory, Dhaka, BangladeshJilin Baoyuanfeng Poultry Slaughterhouse, Jilin, China  | 113 fatalities nad over 200 injured in garment factory fire121 deaths with 76 injuries; workers trapped in plant with emergency exits blocked; numerous safety violations. | Charges filed against the co-owners, factory manager, an engineer, and 9 othersChairman sentenced to 9 years, general manager 4 years, fire chief and deputy jailed, 74 officials received disciplinary sanctions, 11 local officials also arrested, 35 government officials and company executives were transferred to judicial authorities for prosecution. |
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| 4/23/2014 | Landmark Empire Textile Complex, Sarat, India | 2 dead, 19 injured in fire, violations of building code and fire safety regulations | Developer, president and secretary of the complex arrested for “culpable negligence not amounting to murder” for building code and safety violations. Charges dropped because plans were approved by the fire department and municipality. |
| 5/13/2015 | Kentex Slipper Factory, Philippines | 74 workers died when trapped by iron bars; numerous fire, labor and safety code violations, but officials issued certificates and allowed it to operate. | Owner of company, the Mayor, and 6 other officials arrested. |
| 5/21/2015 | 16 story apartment house fire, Baku, Azerbaijan | 12 died, dozens injured when building caught fire. | Construction company head arrested for using flammable cladding. |

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| ***III.C. Nightclubs, Concerts, and Theaters*** |
| 11/28/1942 | Cocoanut Grove Nightclub Fire, Boston, Massachusetts, United States | Fire quickly spread through the nightclub. 492 fatalities with hundreds injured. 1,000 were crowded in a facility with a capacity of 460. Exits were locked. | Owner convicted of 19 counts of manslaughter – sentenced to 12–15 years in prison, pardoned after 4 years.Building and safety codes changed after the disaster. |
| 11/1/1970 | Club Cinq-Sept Fire, Saint-Laurant du-Pont, France | Discarded match caused fire. Exits locked, numerous fire safety violations. No firefighting equipment on premises. No emergency exit. 146 deaths. | Club manager received 2 year suspended sentence for manslaughter. Mayor and three building contractors received short suspended sentences for injury through negligence.Mayor and Secretary-General of the Isere Department removed from posts 3 days after tragedy. |
| 12/8/1994 | Concert hall fire, Karamay, China | 323 deaths, mostly children. Delays in evacuating the children | 19 arrested, including vice mayor, 13 received jail sentences. |
| 3/18/1996 | Ozone Disco Club, Quezon City, Philippines | 162 deaths, government officials issued safety permits without visiting the club. | 7 Philippine safety and 2 club execs sentenced to 6 to 10 years imprisonment, 18 years after the fire. |
| 10/29/1998 | Gothenburg Disco Fire, Gothenburg, Sweden | 63 deaths, 213 injured. 4 teenagers started fire because excluded from club, overcrowded with 375 patrons in venue with capacity of 150. Upstairs fire on stairway blocked emergency exit. | 4 teenagers convicted of aggravated arson. |
| 2/20/2003 | Station Nightclub, West Warwick, Rhode Island, United States | 100 dead, 230 injured, tour manager’s pyrotechnics ignited flammable sound proofing; illegal use of outdoor pyrotechnics indoors; erroneous belief that fire sprinkler system not required; 462 in club with capacity of 404; numerous code violations. | Road manager pled guilty to 100 counts of involuntary manslaughter, served 2 years of 4 year sentence; 2 owners pled “no contest” to involuntary manslaughter; one served almost 3 years; the second received a suspended sentence. The National Fire Protection Association (NFPA) revised its code to require sprinkler systems in all night clubs with a capacity of 100 or over. |
| 12/30/2004  | Republica Cromanon, Buenos Aires, Argentina | Audience member threw pyrotechnics into the air, igniting a fire, 194 deaths, over 1,400 injured. Crowd of 4,000 in a venue with a capacity of 2,000. Emergency exits blocked from outside. Had permit, but lacked safety measures, including fire extinguishers. | 6 band members convicted of murder in April 2011, sentenced to 7 years in prison. Sentences reduced in 2014.Also convicted were the former manager, police officer, and several municipal officials. The club owner received 20 years in prison and the manager 18 years. 2 government officials received 1 and 2 year sentences. The Mayor of Buenos Aires lost his job. |
| 9/1/2008 | Wu Wang Club Fire, Shenzhen, China | 44 dead, 89 injured when pyrotechnics ignited the ceiling. | 13 arrested: district, police, and fire staff. Club GM, Vice GM, co-founder, safety officer, technician, performers charged with negligence and violation of safety rules. |
| 1/1/2009 | Santika Club Fire, Bangkok, Thailand | Fire swept through club; 66 killed, 222 injured; substandard safety system; only one fire extinguisher; one main exit, one private staff exit, third exit locked to prevent robberies, no fire safety inspection, co-owner was a senior police official. | Pub owner and light and sound company owner convicted of negligence; conviction of pub owner reversed, but then convicted of excise tax violation – 1 year sentence. |
| 12/5/2009 | Lame Horse Nightclub, Perm, Russia | Performer tossed pyrotechnics into the air, igniting fire, one exit door, 156 deaths, about 160 injuries, 2003 fire safety compliance report signed by an inspector dismissed in 2002. | Co-owner, executive director, caretaker director, director of pyrotechnics prosecuted. 4 defendants received at least 4 years imprisonment. Fire official fined; 7 officers of Perm Fire Department dismissed; Perm Provisional government resigned; nationwide inspection of nightclubs – scores closed. |
| 2/19/2012 | Nightclub, SighetuMarmatiel, Romania | Natural gas explosions in nightclub; 1 fatality, 20 injured, including 10 members of inspection team. | 11 prosecuted, including former VP of National Agency for Energy Regulation; the charges include manslaughter, forgery, and abuse in service. |
| 1/27/2013 | Kiss Nightclub, Rio Grande do Sol, Brazil | Indoor use of outdoor pyrotechnics ignited the nightclub; 242 fatalities, at least 630 injured. | Two co-owners and 2 band members charged with manslaughter.58 nightclubs were inspected and closed the next day. |
| 6/27/2015 | Formosa Fun Coast, Bali, New Taipei, Taiwan | Combustible color powder caught fire at water park festival, 15 deaths, 508 injuries, 199 critical. | Event organizer guilty of negligence. |
| 10/30/2015 | Colectiv Nightclub, Bucharest, Romania | Indoor use of outdoor pyrotechnics ignited flammable foam on pillars; 64 deaths, 147 injured. | 2 co-owners of nightclub and 2 associates arrested for negligent homicide, negligent bodily harm, and negligent destruction.The Prime Minister resigned. Over 1,000 establishments inspected throughout Romania after the tragedy; several closures and suspensions. |

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| **IV. INFRASTRUCTURE** |
| ***IV.A. Bridges*** |
| 10/21/1994 | Seongsu Bridge CollapseSeoul, South Korea | Bridge collapsed due to poor welding, 32 deaths and 17 injuries.  | 7 Seoul government officials arrested for involuntary manslaughter.Seoul Mayor dismissed from office.South Korea President publicly apologized to the Country.Inspection of 14 Seoul bridges and the subway system found 1,114 flaws in the bridges and 330 in the subways.Safety statute enacted. |
| 1/4/1999 | Rainbow Bridge CollapseQijiang County, China | 3 year old, poorly designed pedestrian bridge collapsed; 40 deaths and 14 injuries. | Former Deputy Secretary of the County Communist Party Central Committee sentenced to death for bribery ($15,700) and dereliction of duty. 12 others, including the contractor, engineer, materials supplier, and several government officials received sentences ranging from 3 to 13 years.Over 300 structures inspected with 47 shut down. |
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| 8/13/2007 | Bridge Collapse, Fenghuang, China | Bridge under construction collapsed, at least 64 deaths, 22 injured. | 2 officials of state-owned construction company detained. |
| 9/1/20079/9/2007 | Shershah Bridge, PakistanFlyover collapse, Gammon, India | Bridge collapsed 6 months after dedication by President, 5 deaths, 14 injuries8 precast blocks caved in, failure to fill the excavation trenches with stones, 2 deaths, several injuries. | 9 charged, including chairman and former chairman of the National Highway Authority (NHA), general manager, general manager for construction, a member of NHA Planning, the owner of the contract engineering firm and his 2 sons9 acquittals 5 years later for lack of proof of negligence6 arrests, including 2 construction company employees. |
| 9/26/2007 | Can Tho Bridge, Vietnam | Approach ramp collapsed. | Charges against some sub-contractors. |
| 11/9 /2007 | Bridge collapse in Dubai | Bridge under construction collapsed, 7 employees of construction company died, 24 injured, overloading concrete and heavy iron rods. | Construction company engineer, crane operator, and crane pusher arrested. |
| 3/8/200811/26/20113/25/2012 | Amroli Bridge Collapse, Surat, IndiaMahakam Bridge collapse, Tenggaron, IndonesiaTehri District, India | 1 laborer killed, 12 injured in collapse of bridge span under construction, iron structure used to support the bridge’s concrete slab was not properly placedBridge buckled and collapsed, 24 deaths, over 30 injuredBridge under construction at Chauraus over Alakananda River collapsed, 7 workers and junior engineer died. | Complaints registered against building engineer, junior engineer, and labor company supervisor, and the deputy engineer, junior engineer and technical supervisor of the Surat Municipal CorporationDistrict infrastructure chief, technical executor of project and project manager of the construction company arrested, sentenced to 1 year in prison2 civil engineering professors at India Institute of Technology – Roorkee arrested 3 years later (designers of bridge), Owners of construction company also arrested.  |
| 6/28/2012 | Pedestrian Bridge collapse, Lahore, Pakistan | Truck crashed into pedestrian bridge, 3 year old bridge collapsed, 2 deaths, including driver. | Construction company president arrested, charged with murder.  |
| 2/2/2013 | Bridge Collapse, Henan Province, China  | Truck carrying fireworks exploded on expressway viaduct, which collapsed, 10 deaths and 13 injuries. | 10 suspects detained for illegal manufacture, trading, and transportation of explosives. |
| 2/6/2013 | Mumbai bridge collapse,India | Bridge under construction connecting the Western Express Highway and Mumbai Airport collapsed, 3 deaths, 6 injuries. | Contractor and 2 supervisors of construction company arrested.  |
| 7/9/2013 | Panjiang Bridge, Sichuan Province, China | Bridge collapse, 6 deaths and 5 missing when 6 vehicles plunged into river after completion of bridge restoration project, shoddy construction, illegal sub-contracting, unlicensed operations, slack supervision, improper inspection, bribery. | 60 people, 17 organizations investigated; former director of urban construction office of Jiangyou Township received 14 years for malpractice and bribery, 2 former traffic managers received 4 years, 3 people with contractor received 2½ to 7 years for offering bribes, highway division chief committed suicide. |
| 2/24/2014 | Chu Va 6 Bridge Collapse, Vietnam | Bridge collapsed when funeral procession moved across it; 8 deaths, 39 injuries, faulty turnbuckles and other technical errors. | Director of construction company sentenced to 10 years, deputy head of project management unit received 3 years as did a technician at the unit. |
| 5/4/20146/10/20143/20/20163/31/2016 | Bridge collapse, Guazhou, ChinaAthwalines Bridge collapse, Surat, IndiaGhenh Bridge collapse, VietnamKolkata Flyover collapse, Kolkata, India | Illegal stone arch bridge collapsed under construction, 11 deathsFlyover bridge collapsed, poor design, inferior building materials, 10 workers killed, 6 severely injuredTugboat with barge crashed into bridge, collapsing it, people fell into river, but saved490’ steel span collapsed during construction, at least 27 deaths, and 80 injured. Failure caused by faulty design, poor quality of raw materials, and inadequate supervision | 3 arrested, including contractor18 arrested for culpable homicide not amounting to murder: 4 directors of construction company, 3 engineers in municipal bridge department, 5 engineers of consulting firm, bridge designer, construction company, project management consulting firmCaptain and crew member detainedIVCR Construction company and 8 company officers, including the associate vice president and project manager (engineer in charge of project), charged with murder, attempted murder, and criminal conspiracy. Murder charges subsequently reduced to culpable homicide not amounting to murder  |
| ***IV.B. Dams*** |
| 10/9/19637/19/19952/22/19993/14/200612/30/ 20136/8/201411/19/2015 | Vajont Dam, ItalyStava Tailings Dam, Trento, ItalyMerriespruit Dam #4, Merriespruit suburb of Virginia, Free State, South AfricaKaloko Dam Failure, Kauai, Hawaii, United StatesBosveld Phosphate tailings dam, Selati River, Kruger National Park, South AfricaLarji Dam, Himachal Pradesh, IndiaGermano tailings dam failure, Mariana, Brazil | Power company dam, massive rock landslide sent a wave of water downstream, about 2000 deaths, communities wiped outTailings dam failed, numerous design and safety violations, 268 deaths, 3 hotels, 53 homes, 6 industrial buildings and 8 bridges destroyedGold waste tailings dam failed, toxins flowed downstream, 17 deaths, 80 homes destroyed, widespread destruction. Judge described the dam as a time bomb waiting to explode, numerous warnings prior to failureDam failure through poor maintenance, 7 deathsTailings dam overflowed in heavy rainfall, substantial environmental damage with massive fish killDam operators fully opened the dam’s floodgates without audible warning, 24 engineering students and tour guide swept to their deathsDam wall collapsed, poor drainage and design, liquefaction, problems in risk management, 19 deaths, destroyed one town and obliterated a second | Convoluted judicial process, 11 charged, including the general manager of hydraulic construction, officials of the Office of Public Works, and 2 university lecturers who were project consultants. 2 died before trial, 8 charged with multiple homicides, one engineer committed suicide before trial, Prosecutor recommended 24 years imprisonment, trials and judicial proceedings from November 1968 through March 1971, 5 of the 8, including the 2 professors, ultimately acquitted of all charges. The final sentence for the general manager was 2 years in prison and 8 months for the general inspector of public works for the local body 10 convicted in 1992 of multiple manslaughters and culpable catastrophesThe owner, operator, and 6 employees guilty of negligence, no jail time, homicide charges dropped against the former plant manager, metallurgical engineer, and acting plant superintendent, Harmony Gold Company fined R150,000, Fraser Alexander, the engineering company, fined R150,000Owner indicted on 7 counts of manslaughter and reckless endangerment; pled guilty to 1 count of reckless endangerment in 2013, sentenced to 7 months, released after 1 ½ months for medical reasons, corporation pled guilty to 7 manslaughter chargesCompany pled guilty to violating the National Environmental Management Act and the National Water Act, fined R1,450 million with additional suspended fine of R1 millionOwner indicted on 7 counts of manslaughter and reckless endangerment; pled guilty to one count of reckless endangerment in 2013, sentenced to 7 months, released after 1½ months for medical reasons; corporation pled guilty to 7 manslaughter charges.6 dam officials and 3 university professors charged with culpable homicide not amounting to murder, the professors for letting the students enter the river downstream of the damPolice in February charge chief executive of mining company, 5 other company officers, and a contractor with qualified homicide (involuntary manslaughter), Police in March charged 14 individuals with environmental crimes for not only causing the flood, but failure to properly clean it up |
| ***IV.C. Subway Tunnels*** |
| 7/1/20034/20/20043/19/20063/29/200711/15/2009 | Shanghai subway, ChinaNichol Highway Tunnel, SingaporeMoscow subway, RussiaSubway tunnel collapse, Beijing, ChinaHangzhou, China | Subway tunnel collapsed, flaws in design, improper management and inadequate emergency planning response measures, collapsed caused neighboring buildings and land to sinkSubway tunnel collapsed during construction, causing nearby highway to collapse, 4 deaths, 3 injuries, bad design and construction plus misinterpretation of building codeSubway tunnel collapsed on a moving train, unauthorized construction of billboard aboveground over subwayLoose fill on site, poor management, subway caved in, 6 deaths, 2 missingSubway tunnel collapsed, 21 construction workers killed, 24 injured. | Arrests include assistant project manager of construction company, project manager of tunneling company, and chief supervisor of consulting supervising company, three other company employees on bail, other employees fired and administrative penaltiesConstruction company pled guilty on one count, fined equivalent of $121,400 in U.S. dollars, 3 execs, the design manager, project coordinator, and project director awaiting legal proceedingsConstruction firm officer detained10 detained, including site supervisor and tunnel designers10 officials and company employees charged, while 11 received administrative remedies.The defendants include the general manager and chief operating officer of the project,2 officers of the contract monitoring company, 2officers of the contractor, an officer with the project administrator, and 2 officers with the Hangzhou quality supervision station. |

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| **V. MINING** |
| 5/9/1992 | Westway Mine, Plymouth, Nova Scotia, Canada | Explosion and fire at recently opened mine; numerous safety violations, 26 deaths. | Mine owner and 2 managers charged with 26 counts of criminal negligence and manslaughter; company went bankrupt in 1993 and charges dropped against the individuals in 1998. Canada subsequently amended its criminal law to impose criminal liability on managers and directors for failure to provide worker safety (The “Westway Bill”). |
| 1/26/2006 | Melville, West Virginia, United States | Aracoma Alma Mine #1 fire, 2 miners died from carbon monoxide exposure. | 4 mine foremen pled guilty to failure to conduct escapeway drills, Massey Energy Company and its subsidiary agreed to pay $4.2 million in criminal fines and civil penalties. |
| 4/5/2010  | Montcoal, West Virginia, United States | Mine explosion killed 29 miners, numerous safety violations. | Massey Energy Co. CEO indicted on 4 counts; former mine superintendent pled guilty for conspiring to obstruct government investigation – sentenced to 42 months in prison and 3 years supervised release. Successor company paid $209 million in criminal penalties. CEO convicted of a misdemeanor conspiracy to violate safety laws. |
| 11/19/2010– 11/26/2010 | Pike River Mine, New Zealand | Series of mine explosions, 29 miners and contractors died, numerous safety violations. | New Zealand brought 25 criminal charges against 3 parties for health and safety violations. Mine company entered bankruptcy, contracting company pled guilty to 3 counts of Health and Safety violations – accessed a fine of $46,500.Charges dropped against the mine boss. |
| 3/31/2012–4/1/2012 | Babao Coal Mine, Jilan, China | Series of explosions in the mine; 53 miners died, 23 injured. | Mine manager received 5 year sentence, board chairman, general manager, and nine others received sentences ranging from 10 months to 4 years, 5 safety workers received suspended sentences. |
| 5/13/2014 | Soma, Turkey | Coal mine explosion, 301 miners died. | 45 prosecutions for 8 executives, including the chief executive, general manager, and the mine’s operations manager, first degree homicide charges against the former board chairman and seven other senior officers. Involuntary manslaughter charges against 29 others, including mine managers, engineers, and security supervisors.Government forbad investigation and prosecution of government officials. |

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| **VI. OIL SPILLS** |
| 3/29/1989 | Exxon Valdez Tanker grounded, Valdez, Alaska, United States | Tanker ran aground on Bligh Reef, discharging 11 million gallons of oil into Prince William Sound, substantial short term and long term environmental damage. | Exxon and its shipping subsidiary charged with 2 felony and 3 misdemeanor counts – pled guilty to 1 misdemeanor, paying $1 billion in fines and restitution.State charged Exxon Valdez captain with one felony and three misdemeanor charges. Jury acquitted him of the felony and two misdemeanors, but convicted him of the remaining misdemeanor. After 6 years of appellate litigation he paid a $50,000 fine and performed community service. |
| 11/13-19/2002 | M.V. Prestige oil tanker spill, off Spain | Old, single hull oil tanker had a burst oil tank on 11/13, ordered by Spain, France, and Portugal to stay away, tanker split in half with an estimated 20 million gallons of oil released, causing substantial environmental damage. | A Spanish court in November 2013 acquitted the captain, chief engineer, and the former head of Italy’s merchant marine of crimes against the environment. A fourth defendant, the second officer was “on the run.” The court convicted the 78 year captain of disobedience (failure to keep the ship away from Spain, and sentenced him to 9 months. Spain’s Supreme Court in January 2016 reversed the acquittal of the captain, finding him guilty of gross negligence, sentencing him to 2 years. In addition, it held the captain, owner, and British insurance company liable for the damages. |
| 12/8/20074/20/2010–7/15/2010 | Oil spill, Daesan Port, South KoreaBP Gulf Blowout,United States | Hebei Spirit supertanker at anchor, carrying 260,000 tons of crude oil, cable connecting barge to tug snapped in heavy seas in storm, barge crashed into Hebei Spirit, estimated 19,000 tons of crude oil fouled hundreds of miles of South Korea beachesBP offshore drilling on rig owned by Transocean. The sealing of the drill pipe was by Halliburton. The cement seal did not hold, resulting in an explosion and fire. 11 workers disappeared and presumably died. The rig sank a few days later. A judge held 3.15 million barrels of oil escaped. Extensive environmental damage. | Tug captains, barge captain, captain and first officer of supertanker charged with negligence and violating maritime law, 2 tug captains sentenced to 3 years, convictions of tanker officers reversed, barge captain acquitted Multiple criminal prosecutions. BP charged with 11 counts of manslaughter, 2 misdemeanors, and a felony count of lying to Congress. BP pled guilty and agreed to $4.525 billion in fines and other payments.Transocean pled guilty to violation of the Clean Water Act and accessed $1.4 billion in criminal and civil fines.Halliburton pled guilty to one count of destruction of evidence - paid a $200,000 fine and received 3 years probation, also contributed $55 million to the Fish & Wildlife Foundation.Four BP employees charged. Former VP David Rainey acquitted of manipulating data after judge dismissed an obstruction of Congress charge.Two rig supervisors charged with 11 counts of manslaughter and seamans manslaughter and one count of the Clean Water Act (CWA). A judge dismissed the 22 manslaughter counts. One rig supervisor pled guilty to the CWA count and received 10 months probation. A jury acquitted the second rig supervisor.Kurt Mix, a BP engineer, was charged with 2 felony counts of obstructing justice by deleting 2 email chains. A jury convicted him of one count and acquitted him of the other. The conviction was set aside for juror misconduct. He pled guilty to a misdemeanor prior to retrial at the request of the Justice Department, receiving no jail time or fine.A final criminal case was brought against the Halliburton Cement Technology Director for destroying evidence. He pled guilty to a misdemeanor, receiving a $1,000 fine and 100 hours of community service, but no jail time. |

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| **VII. TRANSPORTATION** |
| ***VII.A. Aviation*** |
| 7/30/197111/20/19749/10/197612/18/197710/8/19792/9/19821/16/19833/11/19838/12/19857/30/19876/26/19887/27/19891/20/19926/9/19955/11/19968/31/1999 | Midair collision, JapanLufthansa 747 crashed on takeoff, Nairobi, KenyaMidair collision, Zagreb, YugoslaviaCrash landing, Madeira, Portugal Swiss Air DC-8 runs off runway, Athens, GreeceJAL DC-8 crashed on approach to Tokyo Haneda Airport, JapanTurkish Airlines crash, Ankara, TurkeyAvensa DC-9 hard landing, Caracas, VenezuelaJAL B-747 crashed into mountain, JapanBelize Air International cargo plane, Mexico City, MexicoPlane crash, Mulhouse, FranceKAL 803 crash, Tripoli, LibyaAir Inter A320 crash, Strasbourg, FranceCrash landing by Palmerston Airport, New ZealandValueJet crash, Everglades, Florida, United StatesLapa crash, Buenos Aires, Argentina | Passenger plane collided with military jet, flown by trainee pilot who was not watching for air traffic, all 162 on passenger plane diedFlight engineer did not deploy the leading edge slats, 59 deaths, 55 injuries Midair collision, 176 deathsPlane crashed on approach to Madeira Airport, failure to maintain proper altitude, 36 deathsRainy conditions at night with pilot error, plane overran runway, 14 deaths, 19 injuriesPsychologically impaired pilot reversed two engines, plane crashed 300m short of runway, 24 passengers died Crash landing 160’ short of runway during thivk fog and driving snow storm, 20 survivors, including all crew members, out of 67 on planeHard landing in thick fog, plane slid off runway, 22 passengers an 1 crew member died, I passenger seriously injuredExplosive decompression 12 minutes into flight, negligent repairs by Boeing 7 years earlier, all 15 crew members and 505 of 509 passengers perishedOld B-377 cargo plane carrying horses and racers crashed minutes after takeoff onto crowded highway, plane overloaded, panicked horses shifted weight distribution, over 50 deaths and dozens injuries on the ground. None of the 18 horses survived Air France Airbus crashed on maiden flight during flyover at an airshow, 3 deaths, 50 injuriesPlane crashed 1.5 miles from airport in heavy fog with limited visibility, crew error, 75 passengers and 1 crew member died, Plane crashed while circling airport, nighttime, low cloud, light snow, no terrain avoidance equipment on airplane, 9 survivors of 96 on planeAnsett flight crashed into hilly terrain during approach in bad weather, lower approach than appropriate, ground proximity warning system malfunctioned, 3 passengers and a flight attendant diedPlane crashed 10 minutes after takeoff, oxygen containers caused fire in cargo hold, 110 deaths, mechanics had not followed proper safety precautions.B 737 crashed during takeoff, flaps fully retracted and not extended, crew ignored warning alarms, 65 fatalities (60 passengers, captain and copilot, another crew member, and 2 on ground), 40 injured, captain had expired license, company had internal control issues | Trainee pilot acquitted of involuntary manslaughterFlight engineer acquitted of manslaughter, Boeing changed the warning systems 5 air traffic controllers charged with murder and imprisonedCheck pilot sentenced to 2 years for criminal negligence, captain to 1½ years (not served), statute of limitationsPilot and co-pilot convicted of manslaughter with negligence and other charges, 5 and 2½ years sentences respectively, sentences reduced on appeal, and then the defendants could substitute a fine ($5,000) for prison time Charges dropped against pilot, but criminal investigations against the doctors who examined him before the flight and his supervisory pilotsPilot and copilot convicted2 pilots sentenced to 8 years, pardoned by President 20 charged, including 4 Boeing employees, but no prosecutions (Boeing refused to cooperate) JAL President resigned, JAL maintenance manager and an engineer who inspected the plane and cleared it as safe committed suicideCrew detained, no prosecutionsCaptain, first officer, 2 Air France officials, and president of flying club were found guilty of involuntary manslaughter, pilot sentenced to 6 months in prison and 10 months probationPilot and co-pilot guilty of negligence. Pilot received 2 years and co-pilot 1½ (suspended)6 defendants from air traffic control, airline and aviation safety agency acquitted of manslaughterPilot acquitted after 26 day trial24 count indictment against maintenance company, the director of maintenance and 2 mechanics. Company convicted of one count, maintenance director and one mechanic acquitted. Second mechanic was a fugitive from justice.32 initially ordered arrested with 34 indicted, numerous judicial twists and turns, 4 airline officials charged with criminal negligence leading to death and 3 air force officers with dereliction of duty, 9 ultimately ordered tried in 2005. Trial acquitted 6 after a 2 year trial (Lapa President, 3 executives and 2 Air Force officers), former directors of operations and the 737 line officer received 3 year suspended sentences |
| 7/25/20009/26/200010/8/200110/31/200011/24/20014/15/20026/11/20027/1/20023/7/20077/23/201410/20/2014 | Concorde SST Plane Crash, Paris, FranceMidair collision between 2 helicopters, Buson, SwitzerlandTarmac collision, Milan airport, ItalySingapore 747 crashed during takeoff, Taoyuan Airport, TaiwanCrash landing, Zurich, SwitzerlandAir China 767 crash, Pusan, South KoreaAircraft damaged during takeoff, Winnipeg, Canada Midair collision over Uberlinger, GermanyPlane crash, Adisucipto International Airport, IndonesiaTransAsia plane crash, TaiwanPrivate jet crash, Moscow, Russia | Concorde on takeoff hit debris on the runway, a titanium piece allegedly from a Continental Airlines plane punctured a tire, sending fragments Into the fuel tank, igniting a fiery inferno.2 Air Glaciers helicopters collided, one pilot and 7 tourists died, poor trainingSAS MD-87 collided with Cessna plane on runway, all 110 on the MD-86, 4 on the Cessna, and 4 on the ground died, inoperable ground radarPilot attempted landing in poor weather, overshot runway by 1.8km, crashing into hill, 129 deaths, 37 injuriesCrossair plane crashed into hills 2½ miles short of airport, poor visibility, pilot error, 24 deaths, including cockpit crew and flight attendantTakeoff in strong winds and heavy rain, struck construction equipment on runway, 83 deaths, 39 serious injuriesPiper damaged in takeoff from private airport, I deaths, several injuries,DHL cargo plane collided with Bashkirian passenger plane, all 71 passengers and crew on the 2 planes perished, Swiss air traffic controlled the flight, Private company, Skyguide, provided the air traffic control, the one traffic controller (other was resting in violation of rules) was overworked, operating two screens at one time, managerial incompetence and systems failuresCrash landing, mechanical reasons ruled out, cause was excessive speed and steep descent, 22 passengers and 1 crew member died Pilot unsuccessfully attempted to land during typhoon, inadequate visibility, all 4 flight crew and 44 out of 54 passengers died, company tolerated non-compliance with standard operating procedures Private jet crashed on takeoff, plane hit snowplow, CEO of Total Oil Company and 3 others died | France indicted Continental Airlines, the mechanic who replaced the titanium strip, the manager’s supervisor, the head of the Concorde Program at Aerospatiale, Concorde’s chief engineer, and the head of France’s airline regulator. The allegation was that the officials knew the fuel tanks were vulnerable. Continental and the mechanic were convicted of involuntary manslaughter in December 2010, and acquitted the other defendants. An appellate court reversed the convictions on November 29, 2012.Company owner acquitted, 2 surviving pilots guilty of negligent homicide, received suspended sentences, blame was cast on the deceased pilot11 defendants in 2 trials, airport air traffic controller(ENAV), former director of ENAV, and former managing director of airport (ENAC), and former manager for 2 airports sentenced at first trial to 6 to 8½ years, former director of ENAC received 8 years, former CEO of Italy’s ENAV and the former director who overseas Milan’s 2 airports received 6½ year,At second trial the general manager of ENAC received a 4 year, 4 month sentence, manager of flight assistance center and local supervisor received 3 years and ten months, general safety supervisor of the airport and ENAV official were sentenced to three years and four months, 2 officials from the airport management company were acquitted – acquitted reversed on appeal. The Italy Supreme Court reinstated their acquittal on appeal, but overturned the acquittal of the former director of the airport and the manager overseeing the two airports.Captain and co-pilot charged with negligent killing, but indictments suspended for 3 years CEO and 4 others acquitted of negligencePilot held under “house arrest” from April to December, ultimately released without chargesAppellate court overturned pilot’s convictions for criminal negligence, but upheld conviction for dangerous operation of airplaneSwitzerland prosecutes 8 Skyguide employees for manslaughter, 4 acquitted, 3 air traffic controllers receive suspended sentences and the 8th is finedSafety protocols changed after accidentPilot charged with 6 counts of manslaughter, convicted of negligence, sentenced to 2 years, overturned on appealTaiwan arrested two air traffic controllers in 2016 for criminal negligence for letting the plane landAir traffic trainee charged with multiple counts of causing death by negligence |
| ***VII.B. Maritime*** |
| 6/15/1904 | General Slocum Steamship Fire, New York, United States | Chartered passenger vessel caught fire ½ hour after casting off from the dock. No fire drills for the crew; life preservers were both defective and weighed down with iron weights, causing users to sink to the bottom, life boats stuck to vessel, fire hoses were rotten, government inspector (United States Steamboat Inspection Service) certified vessel as safe 4 weeks before the tragedy. 1021 deaths, mostly women and children, only 321 survivors of 1338 passengers survived, 35 of 40 crew members survived. One of the victims was a police officer who perished while saving several lives. | Captain Van Schaick, 2 inspectors, 2 pilots, the president, secretary and commodore of the Knickerbocker Steamship company indicted. Captain convicted of one count of criminal negligence for failure to perform legally mandated fire drills, sentenced to 10 years hard labor, served 3½, company paid a small fine for falsifying inspections. Managers of life preserver company indicted, but not convicted.State and federal government changed safety standards for passenger vessels. President fired chief inspector of USSIS. |
| 7/24/1915 | SS Eastland capsized, Chicago, Illinois, United States | Boat capsized at dock after 2,572 passengers boarded, 844 deaths. All but 4 crewmembers survived. | County quickly arrested captain, chief engineer and other crewmembers. Blame was placed on the chief engineer who died during the proceedings. Charges were dropped against all others, including the owners. |
| 3/6/1987 | Herald of Free Enterprise Ferry capsized, off Zeebrugger, Belgium, Prosecution in England | Ferry capsized 7 minutes after leaving port, bow doors left open because assistant boatswain was sleeping in cabin when he should have closed the doors. Water entering the bow caused capsizing. Ferry had no watertight compartments. | The captain, first officer, senior master, assistant boatswain, and 3 company directors charged with manslaughter |
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| 5/21/1996 | MV Bukota ferry capsized, Lake Victoria, Tanzania | Ferry with capacity of 850 tons of cargo and 430 passengers capsized. Official death toll of 894. Only 53 survivors. Vessel declared unseaworthy a week before sinking. Insufficient life boats, life jackets, fire-fighting equipment, and failure to send distress signals. | Captain and 8 officers of the Tanzania Railroad Corporation (ferry owner) charged with murder of 615 persons and gross negligence. They were arrested and then released. |
| 11/24/19999/26/2000 | Dashun ferry sank, Yantai, ChinaExpress Samina, Paros, Greece | Ferry caught fire and capsized in stormy weather, warnings of inclement weather ignored, inadequate safety measures, vehicles not properly secured, carrying 304 passengers and 81 vehicles, 283 deaths including captainFerry collided with reef, 82 deaths, First mate was watching a soccer match on TV when ferry hit the rocks. | General manager, deputy general manager, and 2 safety supervisors tried, Governor of Shandong Province and Minister of Communications punished administrativelyCaptain received 16 years for a variety of offenses, including causing a shipwreck through negligence and serial manslaughter through negligence. First mate sentenced to 19 years on the same charges. Second mate, first engineer, radio operator, and 2 representatives of the operating firm received sentences of 15 months to 8 years and 9 months. The helmsman and an inspector were exonerated. Company manager committed suicide. |
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| 10/15/2003 | Staten Island Ferry crashed, New York, New York, United States | Pilot was asleep at the wheel, causing ferry to crash into a concrete maintenance pier. The Director of Ferry Operations failed to enforce regulation of two pilots in the pilot house. 11 passengers died and dozens injured. Pilot was on painkillers at the time. Pilot’s doctor lied to investigators. | 11 counts of seaman’s manslaughter were brought against captain, assistant captain, pilot, and Director of Ferry Operations. Charges also brought against the doctor and the second pilot for making misrepresentations to the National Transportation Safety Board. Captain received a 3 year suspended sentence after pleading guilty to one charge of lying to the Coast Guard. He agreed to cooperate with prosecutors. Both pilots, the Assistant Captain and the Director also pled guilty. The sleeping pilot received a one year sentence. |
| 2/2/2006 | Egyptian ferry sank, Red Sea, Egypt | Fire started in vehicle parking area of 35 year old Al-Salam Boccaccio 98 ferry from Saudi Arabia to Egypt. Attempts to put out the fire with fire hoses caused flooding. 6 hour delay in notifying government. Official death was 1018; 426 rescued. | Captain sentenced to 6 months; ferry owner, son and 2 others acquitted in July 2008. Acquittals overturned on appeal. Owner was sentenced to seven years and 2 employees to 3 years each. |
| 3/22/2006 | Queen of the North ferry struck island, British Columbia, Canada | Ferry struck island during inclement weather at night. 2 passengers died. Karl Lilgert, navigation officer at helm missed a critical turn, may have been distracted by former girlfriend, the ship’s quarter master, on the bridge. | Lilgert was indicted four years after the accident for death by criminal negligence, convicted on June 24, 2013, sentenced to 4 years. Canada Supreme Court dismissed appeal on May 14, 2015. |
| 6/21/2008 | MV Princess of the Stars capsizes, Philippines | Ferry with over 800 on board capsizes in Typhoon Frank. Captain took ferry out despite typhoon warning. Philippines Coast Guard regulations forbid vessels sailing in vicinity of typhoons. | Arrest warrants issued for owners of ferry and the captain, who was later determined to have died in the sinking. Appellate court dismissed charges against the owners in 2013. Appeal pending before the Philippines Supreme Court. |
| 8/5/2009 | Princess Ashika Ferry sank, Tonga | Ferry described as a “rust bucket.” 74 deaths. | Charges of manslaughter against the captain, first mate, the managing director of the ferry company, the company, and the Acting Director of Marine and Ports. Captain received 6 months, the first mate 18 months, the managing director 5 years, and the official 3 years suspended sentence. Company was fined the equivalent of 500,000 Australian dollars. |
| 9/9/2009 | Spice Islander I sank, Zanzibar | Ferry with 654 passenger capacity sank, estimated 3,470 on board, official death toll of 1,573. | 12 accused of manslaughter; Judge on June 30, 2014 acquitted all defendants. |
| 7/10/2011 | MV Bulgaria capsized and sank in Volga River, Russia | Pleasure cruise ship sank in storm. Death toll of 122, including 72 women, 28 children, and 22 men. 79 survivors were 56 passengers and 23 crew members. The ship’s capacity was 140. 2 ships continued on course, not stopping to assist and rescue the victims. Numerous safety violations. | 2 Transport safety officials charged with negligence: ship registrar who certified the vessel and a river transport inspector. The general director of the company that rented the boat was also arrested as well as the 2 captains who failed to assist. One captain was fined the equivalent of 4,900 Euros.Russia proceeded to inspect other vessels, banning 23 from operating as passenger vessels and 66 administrative cases were brought against ship owners. |
| 1/13/2012 | Costa Concordia ran aground, Italy | Cruise ship struck a rock, 32 passengers and crew members died. | Captain sentenced to 16 years, 10 for manslaughter, 5 years for shipwreck, and 1 for leaving the ship before the passengers, the first mate, the third mate, the helmsman, the ship’s hotel director, and the onshore emergency manager pled guilty to multiple manslaughters and the three officers also to causing a shipwreck. |
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| 2/2/20124/30/2012 | Rabaul Queen ferry sank, Papua/New GuineaAssam ferry capsizedIndia | Overloaded, unseaworthy ferry capsized and sank when struck by 3 waves during heavy storm, unknown number of passengers, but scores known dead and missing, 256 survivorsFerry capsized during a storm. Ferry overloaded with people and cargo while lacking life jackets and life boats, 103 bodies recovered, scores missing | Owner, captain, chief mate, state port control officer, national safety manager for the port charged with 172 counts of manslaughter, safety manager agreed to testify against other defendants, charges dropped in 2016 against the chief mate and reduced to 88 counts against the ownerOwner, pilot, ticket checker, and a helper arrested for plying the ferry on an expired license. |
| 10/2/20124/16/20148/4/2014 | Ferry collision, Hong KongSewol Ferry capsized, South KoreaMV Pinak ferry, Padma River, Pakistan | Sea Smooth Ferry collided with Lamma IV crew ferry at night, 39 deaths, 72 injuriesInexperienced third mate at helm when overloaded ferry capsized in a treacherous channel. 304 deaths, mostly high school students, 22 of 29 crew members survived. Ferry was carrying 3X its permissible weight. Passengers were asked to stay in cabins rather than evacuate, while emergency dispatchers recommended evacuations. Some crew members reported to have returned to their cabins to retrieve items and change clothes. Required ballast had been removed to make room for the extra cargo.Ferry capsized. 250 on ferry with capacity of 85, expired license, 110 fatalities. | Sea Smooth captain convicted on February 13, 2015 of 39 counts of manslaughter and endangering the safety of others at sea- sentenced to 8 years. Lamma IV captain sentenced to nine months for endangering the safety of others. Retired senior boat inspector charged with perjury and the Marine Department Assistant Director charged with misconduct in office.Captain sentenced to 36 years for “homicide through willful negligence.” Chief engineer, who was accused of abandoning two crew members who could have been saved, received 30 years. 10 other crew members received 5–10 year sentences.Coast Guard Captain, first on the scene, received 4 years for professional misconduct. The director and employee of the Korea Shipping Association (KSA) were sentenced for destroying evidence. Also prosecuted were 11 ferry and cargo company officials as well as port inspectors on embezzlement and accidental homicide charges. The owner’s son was sentenced to 3 years for embezzlement. Owner committed suicide.President of ferry operator sentenced to 10 years. Four officers received sentences ranging from 3 to 6 years. Two officers received suspended sentences. KSA official sentenced to 3 years for letting the ferry leave port without checking its cargo and storage. Two port employees who loaded the ferry sentenced to two years.South Korean Prime Minister resigned and apologized for the government’s mishandling of the ferry disaster.The government strengthened maritime safety after the accident for passenger ships. The South Korea Coast Guard was disbanded.Owner, captain and 4 others arrested for murder. |
| 2/2/2015 | Kim Nirvana Ferry sank off Leyte, Philippines | The ferry capsized while making an abrupt turn 200 meters from port. About 200 on ferry with capacity of 178 passengers. 63 deaths. Coast Guard Lieutenant and apprentice seaman inspected ferry prior to departure. The 145 survivors included all 17 crew members. | Owner, captain 17 crew members and the 2 Coast Guard members prosecuted. The prosecutor dropped the multiple murder charges against the owner and 17 crew members 2 months after the tragedy. |
| 2/22/2015 | Collision, Padma River, Pakistan | ML Mostofa-3 ferry collided with a cargo ship, 150 on ferry with capacity of 100. About 70 deaths. | Captain and 2 crew members of the cargo vessel arrested. |
| 4/18/2015 | Smuggling Vessel, off Italy | 65’ Trawler smuggling refugees to Italy capsized with an estimated 900 drownings. | Captain arrested for multiple reckless homicides. Captain and crewmember also charged with illegal immigration. |
| 7/18/2016 | MV Skagit sank, Zanzibar | Ferry from Tanzania to Zanzibar capsized in storm. As many as 290 passengers on ferry with maximum capacity of 230. 81 dead; 212 missing. | Owner of ferry, captain, and company manager charged with manslaughter. Tanzanian Manager of Marine Transportation resigned. |
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| 8/4/2014 | Padma River, Bangladesh | Overloaded ferry capsized in swollen river waters. The ferry was operating on an expired license. Crew disregarded warnings not to sail because of bad weather. About 110 perished out of 250 on the ferry with a capacity of 85. | Owner, captain and 4 others charged with murder. |
| 4/18/2015 | Smuggling ship capsized, Mediterranean Sea off Italy | A 65’ trawler smuggling immigrants to Italy capsized with an estimated 900 drownings. | Captain and crew member charged with illegal smuggling. |
| 6/2/2015 | Chinese cruise ship capsized in Yangtze River | Cruise ship Eastern Star (Oriental Star) capsized during a severe thunder storm. Vessel may or may not have received a severe weather warning. Only 14 survivors, including the captain and chief engineer, out of 454 crew and passengers on board. Other captains heeded weather warnings. | Captain and Chief Engineer detained for questioning. Government report recommended 43 be punished. |
| 7/2/20159/21/2016 | Ferry capsized, PhilippinesSmuggling vessel capsized off Egypt | Ferry capsized with at least 59 fatalities, 145 survivors, including all 18 crew members.Boat smuggling migrants capsized 8 miles off Egypt, 450-600 migrants on board, hundreds drowned | Captain and crew members charged with murder4 crew members arrested for manslaughter and human trafficking |
| ***VII.C. Pipelines*** |
| 9/9/2010 | PG&E Pipeline Explosion, San Bruno, California, United States | Underground natural gas pipeline explosion, killing 8, 58 injured and 108 homes damaged | Pacific Gas & Electric Co. initially indicted on 12 counts on April 1, 2014, followed by a superseding indictment on July 27, 2014 for violation of the of the Pipeline Safety Act and one charge of obstructing the government investigation. Jury convicted PG&E of 5 counts of violating safety standards and 1 count of obstructing the federal investigation |
| ***VII.D. Railroads*** |
| 8/20/18689/19/1997 | Abergele Rail Disaster, Wales, Great Britain Train Collision, Southall, South London, England | Train collided with cars (wagons) on main line, 2 cars contained 1,700 gallons of paraffin oil, crash and fire, 33 deathsExpress train collided with freight train, 7 deaths, over 150 injuries. The passenger train was traveling 125mph with a defective AWS (Automatic Warning System). | 2 brakemen acquitted of negligenceRailroad company and engineers charged with manslaughter through gross negligence. England’s law did not recognize corporate manslaughter. Charges were dropped against the railroad, which paid a £1,500,000 fine for the safety violation of a defective AWS. Charges were dropped against the engineer. |
| 1/4/1987 | Trains collided, Chase, Maryland, United States | Passenger train collided with Conrail locomotives, who did not stop at the signal crossing. The Conrail engineer and brakeman tested positive for marijuana. 14 passengers and 2 Amtrak crewmembers died. | Engineer sentenced to 8 years on federal and state charges, served 4. Brakeman received immunity in exchange for agreeing to testify against the engineer.Safety systems improved afterwards. Railroads have to certify their employees are properly trained, and qualified and have no drug or alcohol impairment for the preceding 5 years.Congress enacted a statute requiring mandatory random drug-testing for all employees in safety- sensitive jobs in Department of Transportation regulated industries. |
| 8/8/19965/10/20022/23/20072/6/20117/6/20137/15/2014 | Watford rail crash, Great BritainPotters Bar crash, London, EnglandGrayrigg derailment, Cumbria, EnglandTrain/car collision, Dong Nai, VietnamRailroad Disaster, Lac-Megantic, Ontario, CanadaMoscow subway, Russia | Trains collide in station, improper position of speed restriction sign, Automatic train protector (ATP) had not been attached to train, 1 death, 69 injuredPoor maintenance (loose nut on spreader bars) caused derailment of high speed express train, 6 passengers and one in station died, over 70 injured, Network Rail owns and operates England’s rail network, Contractors Jarvis performed maintenanceTrain derailment due to poor maintenance, 1 death, 28 seriously injured, Network Rail (operator) experienced a number of accidentsTrain collided with 6 cars, barriers at both end of bridge not lowered, inoperable RR signs, 2 deaths, 26 injuriesOil train derailed at 1:15am in Lac-Megantic. 47 perished in the inferno. Engineer had improperly set the hand brakes, allowing the oil tank cars to roll free downhill.3 Metro subway cars derail, 24 deaths | Train driver acquitted of manslaughter in 1998Charges dropped against insolvent Jarvis, Network Rail pled guilty to lack of inspection and maintenance, fined £3 million in 2011, no individual prosecutions3 Rail Networks employees arrested, but charges subsequently dropped, company pled guilty to violating the Health and Safety at Work Act of 1974, fined £4,118,0372 train operators, 4 railroad guards, and singal light controller arrestedFederal government and provincial government separately brought charges against the corporation, train engineer, operations manager, and other officialsNegligence charges brought against the deputy chief of subcontractors in repair division, senior executive in Metro’s repair department, Metro’s track supervisor, and assistant track supervisor. |
| 2/2/2016 | Bad Aibling, Germany | Head-on collision by 2 trains, dispatcher was playing video games on his cellphone just before collision, 11 deaths, 24 critically injured, 61 slightly injured. | Dispatcher charged with involuntary manslaughter. |
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| **VIII. MISCELLANEOUS** |
| ***VIII.A. Cranes*** |
| 9/26/20063/15/20085/30/20087/15/20089/11/2015 | Crane collapse, Battersea, London, EnglandCrane collapse, New York City, United StatesCrane collapse, New York City, United StatesCrane collapse, Cai Lan Province, VietnamCrane collapse, Mecca, Saudi Arabia | Crane collapse killed operator and bystander, bolts failed, had similarly failed 2 months earlier, company did not adequately investigate the incident6 ton collar securing crane to building came loose, crane collapsed killing 7, injuring 24200’ tall rig collapsed on East 91st Street 14stories up on 32 story apartment building under construction. Crane owner alleged to have cut costs too sharply to save money. Crane operator and worker on ground diedCrane collapsed while being assembled, incorrect assembly process, 7 worker deaths, one injury1,350 ton crane collapsed onto the Grand Mosque during strong winds, killing 111, injuring hundreds. | Company fined £750,000 and charged 200,000 ten years later in 2016 for violations of Health and safety at Work statute, charged dropped against the company’s managing directorContractor arrested on homicide and other charges, city inspector charged with falsely claiming he inspected the crane 11 days before the accident, judge acquitted rigger in non-jury trial of 7 counts of manslaughterMechanic pled guilty to criminal negligent homicide; judge acquitted owner on 4 manslaughter charges2 engineers arrested (head of engineering workshop and former head of machinery assembly department) for violating labor and safety regulations14 employees of construction company on trial for negligence, damaging public property, and violation of safety rules. |
| ***VIII.B. Demolitions*** |
| 12/2/2006 | Bridge collapse, Bihar, India | 150 year old bridge being dismantled fell on train passing under, 347 deaths, 16 injured. | 2 engineers supervising demolition suspended, with cases to be registered against them. |
| 6/5/2013 | Demolition collapse, Philadelphia, Pennsylvania, United States | Wall collapsed during demolition onto nearby building, 6 deaths, 13 injuries, one of the victims was the daughter of the City’s Treasurer. | Operator pled guilty, sentenced to maximum 20 years, contractor found guilty on 6 counts of involuntary manslaughter, but acquitted of third degree murder charges. |
| ***VIII.C. Landfills*** |
| 12/20/2015 | Landfill collapse, Shenzhen, China | Landfill for dumping construction debris collapsed, sending wall of mud into neighboring industrial zone, insufficient soil compaction, ordered closed 5 months earlier 73 deaths, 4 missing. | 53 detained for criminal wrongdoing, including government officials and company executives. An additional 57 received administrative sanctions. |
| ***VIII.D. Scaffolding*** |
| 12/24/2009 | Ontario, Canada | Scaffolding collapsed, 4 workers died in 13 story plunge, did not use safety lifelines, 5th worker injured with defective lifeline. 6th worker using lifeline uninjured. | 4 charges of criminal negligence against corporation, president of company, and 2 employees. Company pled guilty, the first Ontario corporation to plead guilty under Canada’s “Westway Act” for corporate liability. President pled guilty to 2 violations of the Occupational Health and safety Act – other charges dropped. |
| 12/29/2014 | Tsinghua University High School, Beijing, China | Scaffolding collapsed at high school gym under construction, 10 deaths, 4 injured. | 14 construction managers sentenced a year later to 3 – 6 years. |
| 3/25/2015 | Vun Ang Economic Zone, Vietnam | 25 meters high, 40 meter wide scaffolding system collapsed, 13 workers died, 29 injured, 15 critically injured, violation of safety rules. | 4 defendants sentenced to 2½ to 3½ years. |