

Exxon Valdez Oil Spill.

Exxon Valdez Oil Spill occurred when an oil tanker spilled approximately eleven million gallons of oil. The tanker was owned by Exxon Shipping company, and the disaster was considered the biggest single oil spill ever to be experienced in America. The spillage occurred on Alaska's Prince William Sound, whereby it covered more than 1300 miles of the area's coastline (Peterson, et al., 2013). The disaster happened on 24th March 1989, but despite the harm caused, the organization returned to operate under a different name for more than 20 years specializing in ore carrier. A few minutes after midnight, the spillage occurred after they struck Bligh Reef, tearing the ship's hull open. There was an effort to try and contain the spill, but within the first month, it had spread more than 1300 miles. Even though only a few human lives were affected, the great death of water creatures was experienced whereby it is estimated it led to the death of 250,000 sea birds, 22 killer whales, 250 bald eagles (Peterson, et al., 2013).

While trying to reduce the effect, some steps were taken, such as spraying oil dispersant chemicals on both sea and shore to try and contain the spread. Additionally, the company and the government hired clean up workers who skimmed the oil from the water surface to allow penetration of oxygen into the water to reduce the death of sea creatures. They tried to rescue and clean the animals trapped within the areas where the oil had spread, but all the attempts to contain the spillage failed (Peterson, et al., 2013). Despite the efforts, the response time was late as much harm had been caused, and most creatures in the affected region had already lost their lives. Notably, the more effort put to contain the oil, the more harm that was caused to an extent it affected plants around the area.

The disaster posed a threat to health as it polluted the environment, water and air. The effects of the spillage are still evident in the area 30 years later. After the pollution, an Oil Pollution Act was passed in 1990, increasing the penalties to any individual or company responsible for oil spill (Peterson, et al., 2013). The new regulations led to the company transferring to new oceans, whereby they operated under a new name before being banned by the European Union. Notably, the spill affected the region's economic status as no people were allowed to the site, making fishers bankrupt, and they were the largest contributors of shoreline towns economies (Peterson, et al., 2013). It is estimated that the spill led to a loss of \$2.8 billion as it affected 91 beach sites.

The spillage is considered a manmade disaster after investigation; it was realized that the captain was drunk at the time of the accident, and hence the one steering the ship was an unlicensed third mate. This indicates that such disasters are preventable if negligence is eliminated. After the disaster, it was learned that oil cause long-term damage to the environment and hence the only way to prevent such occurrences is through prevention as "oil spill cleanup" is a myth. To ensure prevention, measures were undertaken to educate the public on the harmful effects of oil, and hence they were required to provide independent oversight to prevent errors (Peterson, et al., 2013). Additionally, organizations dealing with substances that adversely affect the environment need to be more committed to ensuring safety by eliminating negligence by instilling measures that strictly govern the employees.

Earthquake, Tsunami and Fukushima Nuclear Plant Disruption

Following a colossal tsunami and earthquake that occurred in the eastern side of Japan on 11th March 2011, which reached a magnitude of 9.0, much damage was caused within a radius of 130 kilometres. Among the most remarkable effect that occurred due to the earthquake and tsunami was the disabling of Fukushima Daiichi reactors' power supply and cooling system (Park, Hong, & Roh, 2013). This led to

the failure of the three reactors causing a nuclear accident as the cores that prevented the radiation from reaching the environment were melted. The melting occurred in the first three days, and therefore on the fourth to the sixth day, there was extreme radioactive release. This led to the accident being rated the seventh on the International Nuclear and Radiological event scale (Kakinami, et al., 2011). The disaster was contained within the first two weeks as large quantities of water were channeled to the plant to allow cooling. The condition worsened after the contaminated water leaked from the core, becoming an area of interest for many governmental and non-governmental organizations.

Due to the early containment of the tragedy, there are no direct deaths associated with the nuclear accident. Additionally, no cases of radiation sickness have been reported up to date, but it led to the evacuation of more than 100,000 people from their homes. Since this was a preventive measure, the government have delayed their return until the area is declared safe, as some scientists argue that the levels of radioactive radiation are high. They may cause harm if one is exposed to them for long hours. Notably, despite zero deaths related to the accident, 2313 deaths are related to the evacuation process due to the elderly in the area and those who were ailing from other diseases (Park, Hong, & Roh, 2013). Additionally, the earthquake and tsunami accounted for more than 19500 death and hence the occurrence, in general, had a significant impact on the nation.

Considering the accident's severity, the initial triage system was adequate and effective as it could contain the nuclear disaster. Additionally, the emergency health workers worked tirelessly to cater to those affected by the earthquake and tsunami. Even though the elderly and the sick were adversely affected, evacuating people around the affected area was an effective measure (Kakinami, et al., 2011). It reduced exposure to radiation for both the public and the health workers. Radioactive radiations from a nuclear plant have short term and long-term effects on health. In cases where one is exposed for long hours, it may lead to death. In other cases, it affects gene mutation, especially in pregnant women, leading to children with deformities (Park, Hong, & Roh, 2013). This was not experienced in the area as the immediate evacuation was conducted; hence very few people were exposed to the radiations. Additionally, natural calamities such as tsunamis and earthquakes have both long-term and short-term as they may lead to injury resulting in death or long-term deformities.

Though most of the facilities destroyed by the earthquake and tsunami have been reconstructed, there are still repercussions from the nuclear disaster as all people in the affected area are still displaced. Additionally, the radiation has led to the loss of jobs and productive land in that area, negatively affecting the economy (Kakinami, et al., 2011). As a result of the accident, Japan government have derived laws that limit the utilization of nuclear energy in the country. An important lesson learnt from the disaster is that evacuation should be the first step to reducing population exposure. Additionally, it is essential to follow up on the lifestyle of those who have been evacuated to ensure there are not facing psychological issues due to the experience.

Chernobyl Disaster

On 26th April 1986, the worst nuclear accident disaster occurred in the north of Ukraine in Chernobyl Nuclear Power Plant. The accident affected the plant's number four reactor, leading to the release of radioactive radiation into the environment. Additionally, it is also considered the worst nuclear accident in terms of cost as more than half a million personnel were used to contain the radiations and approximately 28 billion Soviet rubles (Yablokov, Nesterenko, Nesterenko, & Sherman-Nevinger, 2010). Though some workers claim that the cause was not well established, the disaster was blamed on

negligence of some operators and flaws in the design that led to the explosion as the core could not sustain the pressure from the reaction. After the explosion, the reaction process did not shut down, but instead, an uninhibited nuclear chain reaction occurred, leading to an enormous release of energy and radiation into the environment.

Due to the intensity of the radiation, more than 4000 deaths were related to the disaster, and more occurred later due to a large number of those exposed to the radiation before evacuation and during containment. Some victims died due to severe burning, while others suffered from acute radiation syndrome (Yablokov, Nesterenko, Nesterenko, & Sherman-Nevinger, 2010). After the disaster, there were still deaths associated with the occurrence ten years later. The initial triage system for this disaster was not effective as there were more focused on containing the radiations, which was a challenge due to the intensity rather than evacuating the people. In trying to control the radiation, a workforce from the military was sent to the scene to build a dome through the help of engineers.

Since no one had any experience with such a disaster, some staff from the emergency response team ended up losing their lives while trying to protect others. After the emergency, about 49000 people were evacuated from Pripyat, where the disaster occurred. Later, the evacuation was extended by a further 68000 Ukrainians from a wider area, estimated the radiation would reach. Therefore, the total size of land evacuated added up to around 2600 kilometres squared (Yablokov, Nesterenko, Nesterenko, & Sherman-Nevinger, 2010). Considering the deaths that occurred immediately after the disaster and within ten years later, it was evident that the tragedy had both short-term and long-term effects on health. When ionizing radiations from the nuclear plant are absorbed in large doses, it induces cancerous cells leading to death. Additionally, more prolonged exposure affects gene mutation leading to deformities at birth for both people and animals.

Thirty-six years after the tragedy, people have not returned home as radiation levels are still high. It is estimated that it might take more than one thousand years before the area is considered safe to be inhabited by humans again. After the disaster, there was a passage of a law on the social protection of people, especially those affected by disasters. Additionally, the EU is funding remediation projects to allow reconstruction and development in areas that are safe from radiation (Yablokov, Nesterenko, Nesterenko, & Sherman-Nevinger, 2010). The disaster was associated with great learning after its occurrence; much was invested in technology to determine how to make the area safe. As a result, it is expected that the undergoing nuclear cleanup will be completed by 2065. Additionally, nations and organizations learned to instill safety measures to handle such disasters before running a nuclear plant.

Reference

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